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D E C I S I O N
of 29 September 2005

Case Number: T 0622/02 - 3.5.03

Application Number: 98305559.1

Publication Number: 0899734

IPC: G11B 20/10

Language of the proceedings: EN

Title of invention:

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Applicant:

SAMSUNG ELECTRONICS CO., LTD.

Opponent:

-

Headword:

Combined DVD/CD data processor/SAMSUNG

Relevant legal provisions:

EPC Art. 83

Keyword:

"Disclosure - sufficiency - (no) "

Decisions cited:

T 0219/83

Catchword:

-



Case Number: T 0622/02 - 3.5.03

D E C I S I O N
of the Technical Board of Appeal 3.5.03
of 29 September 2005

Appellant: SAMSUNG ELECTRONICS CO., LTD.
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Decision under appeal: Decision of the Examining Division of the
European Patent Office posted 27 December 2001
refusing European application No. 98305559.1
pursuant to Article 97(1) EPC.

Composition of the Board:

Chairman: A. S. Clelland
Members: D. H. Rees
R. Moufang

Summary of Facts and Submissions

I. This is an appeal from the decision of the examining division to refuse the European patent application number 98 305 559.1, with publication number 0 899 734. The application was refused in a decision of the examining division announced at oral proceedings held on 9 November 2001. Written reasons were dispatched on 27 December 2001.

The application was held not to meet the requirements of Article 83 EPC, i.e. not to disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art. An auxiliary request made during the oral proceedings, to be given time to seek a written statement from the inventor that the invention could indeed be realised on the basis of the application as filed in combination with common knowledge, was refused.

II. The applicant lodged an appeal against this decision and paid the appropriate fee on 27 February 2002. On 26 April 2002 the grounds of appeal were filed. A statement from the inventor was annexed. The grounds further included a conditional request for oral proceedings.

III. The board gave its preliminary opinion in an annex to a summons to attend oral proceedings, sent on 10 May 2005. It cited passages from document

- D3: M.A. Hasan et al, "Algorithms and Architectures for the Design of a VLSI Reed-Solomon Codec," in S. Wicker ed., "Reed-Solomon Codes and their Applications," 1994, pages 60-107.
- IV. At the oral proceedings the appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of claims 1 to 4 as filed (main request) or, in the alternative, that the decision under appeal be set aside and that the case be remitted to the department of first instance for further prosecution (auxiliary request).
- V. The single independent claim 1 reads as follows:
- "A combined DVD (Digital Video Disk)/CD (Compact disk) data processor, comprising:
- a PLL (Phase Locked Loop) (52) for receiving a pulse stream input to generate a PLL clock;
 - a frame/ID (identification) synchronization detector (54) for latching the pulse stream according to said PLL clock, to generate a symbol clock;
 - a demodulator (56) for EFM+ demodulating said pulse stream according to said symbol clock in a DVD mode, and EFM demodulating said pulse stream according to said symbol clock in a CD mode;
 - an ECC (error checking and correction) demodulator (62) for error-correcting input data according to a predetermined code length and error correction range, said predetermined code length and error correction range having different values in said DVD and CD modes;
 - a memory (58) for storing the demodulated data both in the DVD mode and in the CD mode to provide said ECC demodulator (62) with the demodulated data stored

therein and storing error-corrected output data from the ECC;
a descrambler (60) for descrambling said error corrected data stored in said memory (58), in said DVD mode; and
a CD audio processor (64) for processing said error corrected data stored in said memory (58), in said CD mode."

VI. At the end of the oral proceedings the board announced its decision.

Reasons for the Decision

1. *The invention and the disclosure of its implementation*

1.1 The application describes as prior art a combined DVD/CD player in which the data processing is implemented separately for each mode (e.g. Fig. 2). It proposes a combined data processor which can deal with both modes (paragraph 0009 of the published application). As part of this combined data processor, it proposes a common ECC (error checking and correction) demodulator - see e.g. paragraph 0021 and Fig. 3. This ECC demodulator (the term "decoder" is also used in the application as a synonym) is included as one of the features specified in claim 1. In the view of the examining division it was not however described in a manner sufficiently clear for the person skilled in the art to be able to implement it.

- 1.2 The application points out that both CDs and DVDs use Reed Solomon (RS) codes for ECC (paragraphs 0006 and 0007) and that the codes have the same primitive polynomial (paragraphs 0024 and 0025) which as the skilled person would understand follows from the fact that in both cases the basic symbol length is taken to be eight bits, so that in both cases the RS coding is generated using the Galois Field over 256 elements, $GF(2^8)$. It states further that, since they share this polynomial, "Merely, the code lengths and correction ranges of the DVD and CD data to be error-corrected are different from each other. Therefore, by simply controlling the code length and the correction range of the input data according to the set mode, it is possible to correct errors of the DVD and CD data with use of the single ECC decoder." A block diagram of modules making up the ECC decoder is shown in Fig. 6, and the functions carried out by these modules on the data are described in paragraph 0023.
- 1.3 The skilled person would undoubtedly be aware that, as stated in the application at paragraph 0023, DVDs use two RS codes called PI, which is a (182, 172) code, i.e. a block of 172 symbols is provided with 10 ECC symbols, and PO, which is a (208, 192) code. Equally, CDs use a (32, 28) ("C1") and a (28, 24) ("C2") code. It is therefore clear that a shared ECC decoder as claimed must be able to carry out decoding for more than one RS code. This is what is apparently meant by "controlling the code length and the correction range ... according to the set mode" in the above cited passage of the application.

1.4 However, the application does not give any instruction how such a decoder might be constructed. It is merely stated that it is possible. The only details of the structure of the decoder given are in Fig. 6 and the accompanying text at paragraphs 0022 and 0023, but these details simply relate to an apparently conventional device for ECC decoding a single code (the functions described correspond to what is called "algebraic decoding" in D3 - see page 81, line 25 to page 82, line 26). The only feature shown which relates to decoding more than one code is the "mode setting information" input, but there is no disclosure whatsoever of how the modules 66, 68, 72 and 74 are to be constructed so as each to be able to cope with more than one code.

1.5 The statements in paragraphs 0024 and 0025, to the effect that the fact that the primitive polynomials for the codes are the same makes a shared ECC decoder possible, may be taken as a hint to the skilled person as to the direction to be taken in developing a shared decoder. Indeed, although the application does not explain further, the documents available to the board make it clear that decoding any RS code requires (many) multiplications which are carried out modulo a certain value, this value being directly derived from the primitive polynomial. It is therefore true that the multiplier units required for the DVD RS decoder (Fig. 2, 34) will have the same structure as those required for the CD CIRC decoder (48). The board is further willing to accept that this would be a matter of common general knowledge to the person skilled in the art. However, the application still leaves the skilled person completely in the dark as to how to make

use of this fact. The various modules of the decoder evaluate different polynomials, as illustrated in the appellant's submissions of 24 November 2000, and these polynomials depend on the specific code. The fact that individual multiplications for the different codes in the present case require the same logic structure does not give the skilled person any indication how to share the higher-level structures which evaluate the polynomials.

- 1.6 Given such an evident and major gap in the disclosure of the claimed invention it was appropriate for the examining division (and later the board) to ask the appellant to explain how the skilled person would realise the missing details and why the skilled person would be able to supply them from common general knowledge of the field. The appellant has not succeeded in answering either of the questions. As to the first the appellant has stated that the decoder would include sixteen "cells", all of which would be used for the DVD decoding and only four for the CD decoding. These four could be used for both decoding processes because the generator polynomials of the CD codes shared four factors with the generator polynomials for the DVD (e.g. the submission of 24 November 2000). However, the appellant has not explained what the structure or indeed the function of a "cell" is, nor how these common factors in the generator polynomials have a bearing on the evaluation of the different polynomials (Syndrome Polynomials, Erasure Locator Polynomial, Forney Syndrome Polynomial, etc.) required for a decoder. The only document available to the board which mentions cells is D3 (page 77, lines 25 to 36, page 78 Figure 5-6, page 93 lines 32 to 35 and page 100,

lines 8 to 13). It identifies two implementations where cells are used, but in neither does the hardware structure reflect in any way the factors of the generator polynomial pointed to by the appellant. In fact the cell structure given in D3, Figure 5-6, page 78, is directly derived from a completely different formulation of the generator and syndrome polynomials, see page 77 equation (33) and page 93 equation (85). The second implementation is a "time domain decoder" (D3, page 100, lines 8 to 17), whereas the structure shown in Fig. 6 of the present application is that of an "algebraic decoder".

- 1.7 As to the second question, the appellant has not shown that the skilled person would have known the appropriate approach to the implementation of the invention. It has only asserted that this would have been the case and provided the inventor's statement of his conviction to that effect. However, while exercising its discretion to admit the statement as evidence, the board does not consider it to be persuasive as to what the skilled person would have known. Primarily it consists of a declaration that the inventor believes that there is sufficient information in the description and drawings for a person skilled in the relevant technological field to build a combined DVD/CD data processor as described in the specification. Passages of the description are cited and there is a further reference to an implementation using "cells". In this the statement merely repeats arguments that had already been put forward during examination and are discussed in point 1.6 above. The board does not consider that the inventor's belief that the invention is sufficiently disclosed has any evidential value. In

the first place the inventor, an employee of the appellant, is clearly an interested party, and would therefore find it difficult to look at the disclosure of the application in a non-partisan way. In the second place, the inventor, having been intimately acquainted with the invention over a long time, is not in a position to put himself in the position of a skilled person whose only knowledge of the invention must be derived from the application (which may of course be interpreted in the light of his background knowledge).

- 1.8 The board concludes that the embodiment of the invention described is not disclosed in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.

2. The appellant argued in the oral proceedings that the board should concern itself rather with the claimed subject-matter and consider whether the skilled person could have realised the invention in the generality claimed, which the board interprets as in any way satisfying the claim. It is apparent that the claimed subject-matter might be trivially satisfied by, for example, simply implementing the RS decoder 34 and the CIRC decoder 48 of Fig. 2 in parallel and calling the resulting module an ECC decoder, whereby the mode setting input sets a switch which directs data to one or other of the decoders. Alternatively there are mentions of versatile ECC time domain decoders in document D3 (page 97, lines 12 to 16, and page 100, lines 8 to 26). However, the structure shown in Fig. 6 and described at paragraphs 0022 and 0023 of the application, which is clearly for carrying out "algebraic decoding" rather than time domain decoding,

does not appear compatible with any of these possibilities, and there is no mention in the application of any alternatives to this structure. Article 83 requires that the application must disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art. Since the only implementation details given in the application are incompatible with the possibilities discussed above, the board considers that these possibilities cannot be considered to be disclosed by the application and that they are therefore not relevant to the question whether Article 83 EPC is satisfied.

3. In the oral proceedings before the board the appellant further argued that the benefit of the doubt should be given where, as in this case, the examining division (and board) could not prove that the skilled person would not have been able to carry out the invention. The board is not convinced that "the benefit of the doubt" applies, as a principle, to the present situation. There have been a number of cases before the Boards of Appeal where a party has been given the benefit of the doubt, but they were mainly in the context of parties to opposition proceedings making contrary assertions which they could not substantiate, and where the European Patent Office was unable to establish the facts of its own motion. In such cases the patent proprietor has been given the benefit of the doubt vis-à-vis the opponent (e.g. T 219/83, OJ EPO 1986, 211). There seems to be no principle to be found in the case law of the Boards of Appeal that the appellant in ex parte proceedings is to be given the benefit of the doubt in general, nor in particular in

the case of objections arising under Article 83 EPC. Be that as it may, if "the benefit of the doubt" does have any applicability at all in such a situation as the present one, it must presuppose that the appellant has put forward a plausible, if not proven, case. The appellant in the present proceedings has not reached that minimum standard. In response to questions justified by the clear lacunae in the description, the appellant has given a very inadequate technical explanation of how the skilled person would carry out the invention ("cells", not further defined, and a shared polynomial which has no apparent relation to the task to be carried out), no explanation of why the necessary implementation features would have been a matter of common general knowledge, and no evidence of any weight that they were common knowledge (only the statement by the inventor - see point 1.7 above). The board therefore concludes that there is no plausible case to which it might give the benefit of the doubt.

4. Hence the board agrees with the appealed decision that the application does not satisfy the requirements of Article 83 EPC. This being so, the appellant's main request cannot be allowed.

5. *The auxiliary request*

5.1 In the oral proceedings the appellant explicitly only proposed the auxiliary request for the situation where the board was convinced that the requirements of Article 83 EPC were satisfied, but did not consider that a full examination as to the other requirements of the EPC had been carried out by the examining division. Clearly, since the board has come to the conclusion

that Article 83 is not satisfied, this situation does not arise.

5.2 However, in the statement of grounds of the appeal, the appellant also made a request for remittal of the application so that the question whether Article 83 is satisfied could be reconsidered by the examining division in the light of the inventor's statement. The board has considered whether this request may also have been meant to be maintained. If it were so, the request would be misplaced - the board cannot decide on the main request, thereby taking a position on Article 83 EPC, and then remit the case for the same question to be reconsidered by the examining division.

5.3 Even if a request for remittal without consideration of the substantive question had been presented as the main request, the board would not have acceded to it. Remittal of a case without making any substantive decision is clearly undesirable from the point of view of procedural economy, and such a request would only be allowable, in the absence of a radical change in the issues, if the appellant's right to be heard (Article 113(1) EPC) had not been respected in the examining proceedings.

5.4 In the proceedings before the first instance the appellant had four opportunities to present supporting evidence: in response to the three communications and as preparation for the oral proceedings before the examining division. The appellant however argued that evidence was not normally required in proceedings before the first instance; since bona fide responses were made and "the applicant has not yet been given

this opportunity" (i.e. the opportunity to present evidence to the examining division that a skilled person would be able to carry out the invention - see the statement of grounds of appeal page 4, lines 21 to 24) such an opportunity should now be given. The board however takes the view that the examining division exercised its discretion in a reasonable manner in rejecting a request to continue the proceedings after the oral proceedings in order to give the applicant an opportunity to file evidence, given that there had been ample opportunity to do so during the preceding examination steps. Nor should the applicant have been surprised by the events in the oral proceedings; the objection raised against the application and the arguments put forward in support of that objection remained substantially the same throughout the examination.

- 5.5 Moreover for reasons which are apparent from point 1.7 above, the board does not consider that the statement by the inventor introduces any radical change in the issues.
- 5.6 There is therefore no reason to remit the application to the department of first instance, with or without consideration by the board of the substantive issues, and the auxiliary request must also be refused.
6. Hence neither of the appellant's requests can be allowed, and the appeal must be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

D. Magliano

A. S. Clelland