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File Number: T 487/91 - 3.5.1  
Application No.: 85 300 636.9  
Publication No.: 0 151 039  
Title of invention: Video contrast enhancement device

Classification: H04N 5/208

D E C I S I O N  
of 22 January 1993

Applicant: SHARP KABUSHIKI KAISHA  
Opponent: Interessengemeinschaft für Rundfunkschutzrechte E.V.

Headword:

EPC Articles 56 and 83

Keyword: "Sufficiency of disclosure (yes) - non-effectiveness in certain cases no matter of insufficiency" - "Inventive step (yes) - no incentive to deviate from known teaching and obvious alternative"



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Boards of Appeal

Chambres de recours

Case Number : T 487/91 - 3.5.1

D E C I S I O N  
of the Technical Board of Appeal 3.5.1  
of 22 January 1993

Appellant : Interessengemeinschaft  
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Decision under appeal : Interlocutory decision of the Opposition Division  
of the European Patent Office dated 14 May 1991  
concerning maintenance of European patent  
No. 0 151 039 in amended form.

Composition of the Board :

Chairman : P.K.J. van den Berg  
Members : W.B. Oettinger  
E.M.C. Holtz

## Summary of Facts and Submissions

- I. The appeal contests the interlocutory decision, dated 14 May 1991, of the Opposition Division stating that, taking into consideration the amendments made during the opposition proceedings to the European patent No. 0 151 039, the patent and the invention to which it relates are found to meet the requirements of the EPC.

The patent had been granted on patent application No. 85 300 636.9 filed on 30 January 1985 claiming priority dates of 30 January, 3 February and 30 March 1984, and the amendments were made in response to an admissible opposition re-citing

D1: GB-A-2 064 911 and

D2: US-A-4 185 301

which were already considered in the pre-grant procedure, and additionally citing

D3: PHILIPS Laboratory report EDS 8101, 27 May 1981, "Scan Velocity Modulation" (allegedly made available to the public before the priority dates of the patent application), and

D4: VALVO Technische Information 820111, "Verbesserung der Bildschärfe im FS-Empfänger" (of similar content as D3),

but relying in effect only on D4 (Article 54 EPC).

In the decision under appeal, the Opposition Division came to the conclusion that the subject-matter of the independent Claim 1 filed on 25 February 1991 would not only be new against D4 but not rendered obvious either,

even if additional account is taken of D1 (Article 56 EPC).

The Division further dismissed the Opponent's objection on the grounds of insufficient disclosure of the invention within the meaning of Article 83 EPC.

II. The appeal was lodged by the Opponent on 24 June 1991, and the respective fee paid on the same day. The Notice of Appeal contains a request that the decision be set aside and the patent revoked.

On 13 September 1991, the Appellant filed a Statement of Grounds raising formal and substantive objections, subsumable under Articles 84, 123(2) or 100(c), 123(3), 83 or 100(b), 100(a) and 52 (in particular 56 and 57) EPC, against the amended patent, in particular Claim 1.

III. In support of his view that it is obvious to use an OR circuit with a function as claimed, the Appellant submitted, inter alia, that, in video technology, adders (as shown in D4 and D1) are only one of several well-known kinds of circuits for combining video signals, and non-additive mixing circuits outputting the largest of the input signals are frequently used as an alternative possibility.

The Respondent disagreed with this view.

IV. In oral proceedings, held at an auxiliary request of both parties, on 22 January 1993, the Respondent requested that the appeal be dismissed and the patent maintained as amended on the basis of the following documents:

Description: columns 1, including Passage X-X (2 pages), and 2 filed on 22 January 1993, columns 3 and 4 as published, but with the words "differentiated signal" (column 3, lines 40 to 41) amended to read "signal to be differentiated", columns 5, 6 and 7 filed on 3 April 1991;

Claims: 1 filed on 22 January 1993 (main request) or on 22 December 1992 (first, second and third auxiliary requests), and 2 and 3 filed on 22 January 1993;

Drawings: sheets 1 to 6 as published.

Claim 1 (main request) reads as follows:

"A video display unit including a video contrast enhancement device, in which video display unit the scanning operation in a display tube (9) is controlled using a colour video signal (Fig. 3(A)) to display a colour picture on the tube screen, and means (5, 6, 7) is provided for varying the speed of scanning in accordance with the video signal by supplying to an auxiliary horizontal beam deflection means (5) of the tube an auxiliary drive signal (Fig. 3(B)) derived by differentiating in a differentiating circuit (6) a signal derived from said video signal, the unit including:

means (11) for superimposing upon said video signal a further signal representing a display image portion, such as characters or symbols, to be superimposed on said picture; and

contrast enhancement inhibiting means (10) responsive to an inhibiting signal (Fig. 9(B)) synchronised with said further signal to selectively inhibit the varying of said

scanning speed by said scanning speed varying means (5) in accordance with the video signal for said display image portion,

characterised in that there is provided an OR circuit (60) coupled to receive at three separate inputs thereof three respective primary colour (RGB) signals (Fig. 11(A)) of said colour video signal representing said picture and to deliver to said differentiating circuit an output signal (Fig. 11B) which is kept at high level while at least one of said primary colour signals exceeds a certain level."

Claims 2 and 3 are dependent claims referring back to Claim 1.

The Appellant upheld his request for revocation in particular on the basis of his objection of lack of inventive step.

#### Reasons for the Decision

1. Admissibility

The appeal (cf. paragraph II) is admissible.

2. The parties' requests

In the following paragraphs of this decision, only the patent documents constituting the Respondent's main request will be considered and, since this request is allowable and the Appellant's unallowable, no further reference will be made to the documents constituting the Respondent's auxiliary requests.

3. Amendments (Articles 123(2)/100(c) and 123(3) EPC)

3.1 The subject-matter of Claim 1 is clearly derivable from the original application documents, in particular from the original Claims 4 and 5 in conjunction with the description (page 13, second paragraph).

Thus, by the amendments made to Claim 1, no subject-matter extending beyond the content of the application as originally filed has been introduced.

3.2 Claim 1 is based, in essence, on granted Claim 8 as appended to (i.e. including the features of) Claims 5, 3, 2 and 1. However, the feature defining the function of the OR circuit was clarified in the sense in which it is disclosed in the description (column 6, lines 51 to 56).

Thus, by the amendments made to Claim 1, the protection conferred has clearly been restricted, i.e. not extended.

3.3 The feature added to the subject-matter of Claim 1 by Claim 2 and those added by Claim 3 are identical with those which were added to that subject-matter by granted Claims 4 and 6, respectively.

Other dependent claims having been deleted, no objection arises from Article 123 (or from the case law based on Rules 57(1) and 58(2)) EPC against the dependent claims on file.

3.4 The description has been amended to more fully comply with Rule 27(1)(b) and (c) EPC.

The amendment made to column 3 removes an obvious error.

4. Clarity and form of claims (Article 84 and Rule 29(1) EPC)

4.1 Claim 1 is clear in defining the matter for which protection is sought, and it is supported by the description.

It would be true to say that Claim 1 does not define quantitatively the "certain level" to be exceeded by at least one of the colour signals for yielding an output signal. However, it appears credible that the inherent threshold value of a normal OR circuit will be suitable to give the desired result or that a suitable value will be a matter to be chosen by the skilled person when adapting the device to the circumstances of the application.

4.2 Claim 1 is, furthermore, correctly partitioned (Rule 29(1) EPC).

The preamble is based on D4 as the prior art document assumed to come nearest to the claimed invention.

At this point it appears worth mentioning that D3 is essentially of the same content as D4. No final decision is therefore required for the question whether D3 does or does not constitute prior art, and no further reference to D3 will be necessary.

5. Sufficiency of disclosure (Article 83/100(b) EPC)

In essence, the patent's subject-matter is a colour video display unit (Figure 10) with a video contrast enhancement device (8) and a character or symbol input (11) controlled (refer to Figure 2) contrast enhancement inhibiting means (10). The signal input to the video contrast enhancement device is derived from the multi-colour video signal by an



OR circuit (60) whose function is well-defined (column 6, lines 51 to 58). Sufficiency of disclosure of this subject-matter is not doubtful.

The Appellant expressed doubts in this respect following the restriction of Claim 1 by the feature of granted Claim 8. He based these doubts mainly on the assumption that the video contrast enhancement device with an OR circuit as disclosed will inevitably have an unsatisfactory result in many, or even the most, cases depending on the incoming signals. He illustrated this assumption by way of three examples relating respectively to a primary colour signal slowly traversing the threshold value, a signal slightly varying around the threshold value, and a combination of a strong colour signal with another, fence-like, colour signal.

However, even though these examples appear realistic and the individual technical conclusions drawn for them appear correct, the overall conclusion to be drawn from these technical facts is not that the disclosure is insufficient.

In the Board's opinion, it suffices, for the disclosure of a video contrast enhancement device, that the means intended to enhance the video contrast are clearly disclosed in technical terms which render them implementable and that the intended result is achieved at least in some, equally realistic, cases. The Board is convinced that this is the case here.

6. Novelty

It follows directly from the correct partitioning of Claim 1 (cf. 4.2) that the subject-matter claimed is new against D4, and the same is true vis-à-vis the other prior art documents to be considered (D1, D2).

7. Susceptibility of industrial application

The question whether the claimed device is susceptible of industrial application was raised in the Statement of Grounds of Appeal, but it is not an issue in the present case anymore. It is self-evident that a video display unit as claimed can be manufactured and traded.

This applies to the claimed OR circuit receiving analog signals and delivering a (binary digital) output signal only when a certain level is exceeded by at least one of the input signals, in the same way as to the other components of the claimed unit.

8. Inventive step

8.1 As already mentioned (cf. 4.2), a video display unit as defined in the precharacterising portion of Claim 1 (refer to IV) is known from D4. In this unit (cf. Bild 3, 6, 10 or 11), the signal derived from its input video signal to feed it to the video contrast enhancement device modulating the display scanning speed ("AGM") is a luminance (Y) signal (cf. Bild 1, 3, 4, 6, 7, 8, 10, 11). In none of the examples is it derived from colour signals of the picture to be displayed, save for the teletext colour signals (RGB) in the case of Bild 11 when the switch is in the "Videotext" position.

8.2 There is nothing in D4 to suggest deviating from what is described there with reference to the examples shown in Bild 1 to 11.

More particularly, therefore, no incentive can be taken from D4 to use, instead of the luminance (Y) signal, "at least one of primary colour signals exceeding a certain

level" as the criterion for activating the scan velocity modulator.

- 8.3 In D1, a video display unit similar to that known from D4, except for the absence of contrast enhancement inhibiting means, is described. In this unit, the signal derived from the input video signal to be fed to the video contrast enhancement device, or scan velocity modulator, is also the luminance (Y) signal in the case of the switch (30) being in the position (31) shown in the drawing.

Alternatively, in the other position (32) of the switch, the signal activating the scan velocity modulator may be a signal derived from primary colour (RGB) signals.

It may, therefore, be an obvious alternative to use also in the video display unit of D4, differing from that of D1 only by the presence of the said contrast enhancement inhibiting means, a signal derived from primary colour (RGB) signals rather than the luminance (Y) signal as the input signal to the scan velocity modulating video contrast enhancement device.

- 8.4 In the display unit of D1, this signal is derived from the primary colour signals by combining them in a resistor network (34-36) constituting an analog adder.

Apparently, the sum of the primary colour signals so obtained represents the overall (all-colour) brightness of the picture displayed. It can, insofar, be regarded as a signal equivalent to luminance.

In the obvious alternative considered above (8.3), it would therefore also be derived by combining primary colour signals in summing means. Incidentally, such an adding means is used in one example (Bild 11) of a display

unit in D4 for combining teletext (but not "normal" video) primary colour signals in a signal optionally (in the "Videotext" position of the switch) to be fed to the scan velocity modulator (AGM).

- 8.5 However, the claimed invention differs from such an assumed obvious alternative to the display unit of D4 by the fact that the primary colour signals used in the input to the scan velocity modulator are subjected to an OR function rather than summed up. If at least one of them is strong enough to exceed a certain level, the scan velocity modulation and thus video contrast enhancement is produced (unless inhibited by a teletext signal).

Apparently, this may have an advantage in cases where the luminance signal is too weak to release the scan velocity modulator but a single colour nevertheless being relatively strong (as compared with the other colours).

Neither D4 (cf. 8.2) nor D1 would give any incentive, for the achievement of such an advantage, to deviate from the teaching to use either the luminance (D4 and D1) or a colour sum signal (D1) as input to the video contrast enhancement device.

- 8.6 That D2 would give such an incentive was neither alleged nor is it apparent.
- 8.7 The Appellant's argument, non-additive mixing circuits would frequently be used in video technology as an alternative for adders is unconvincing in the circumstances.

This argument was neither evidenced by verifiable facts nor would it, if evidenced, inevitably have to be regarded as conclusive for a finding that it is obvious to replace

an adding by a non-additive mixing circuit at the particular place in the particular device under consideration.

8.8 The subject-matter of Claim 1, and thus of all claims, is therefore considered as involving an inventive step.

9. Conclusion

Claim 1, and the dependent claims, for these reasons being allowable and no objection arising against the description and the drawings, the decision will be in accordance with the Respondent's main request (cf. 2).

Order

For these reasons, it is decided that:

1. The appeal is dismissed.
2. The case is remitted to the first instance with the order to maintain the patent as amended, viz. on the basis of the documents recited in paragraph IV.

The Registrar:

The Chairman:

M. Kiehl

P.K.J. van den Berg