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D E C I S I O N
of 13 May 1997

Case Number: T 0812/95 - 3.5.1.

Application Number: 90304421.2

Publication Number: 0395372

IPC: H04N 5/262

Language of the proceedings: EN

Title of invention:
Layered mix effects switcher architecture

Patentee:
THE GRASS VALLEY GROUP, INC.

Opponent:
Philips Patentverwaltung GmbH

Headword:
-

Relevant legal provisions:
EPC Art. 52(1), 54, 56, 100(a), 114(1), 114(2)

Keyword:
"Novelty (main request: no)"
"Inventive step (auxiliary request: no)"

Decisions cited:
T 0258/84, T 0536/88, T 0387/89, T 0016/87, T 0023/86, T 0062/92, G 0007/95

Catchword:
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Case Number: T 0812/95 3.5.1

D E C I S I O N
of the Technical Board of Appeal 3.5.1
of 13 May 1997

Appellant: (Opponent)
Philips Patentverwaltung GmbH
Wendenstrasse 35c
D-20097 Hamburg (DE)

Representative:
von Laue, Hanns-Ulrich, Dipl. -Ing.
Philips Patentverwaltung GmbH
Röntgenstrasse 24
D-22335 Hamburg (DE)

Respondent: (Proprietor of the patent)
THE GRASS VALLEY GROUP, INC.
13024 Bitney Springs Road
Nevada City, CA 95959 (US)

Representative:
Molyneaux, Martyn William
Langner Parry
52-54 High Holborn
London WC1V 6RR (GB)

Decision under appeal: **Decision of the Opposition Division of the European Patent Office posted 24 July 1995 rejecting the opposition filed against European patent No. 0 395 372 pursuant to Article 102(2) EPC.**

Composition of the Board:

Chairman: P. K. J. van den Berg
Members: A. S. Clelland
J. Saisset

Summary of Facts and Submissions

I. European patent No. 0 395 372 was granted on 23 March 1994.

An opposition was filed, requesting the revocation of the patent in its entirety on the grounds that the subject-matter of the claims as granted lacked either novelty or an inventive step. **Inter alia** the following document was cited:

D1: DE-C-3 507 948

In the proceedings reference was primarily made to an English-language equivalent to D1, namely GB-A-2 155 729.

II. The opposition division found in favour of the patentee (the present respondent) and rejected the opposition. The written decision was dispatched on 24 July 1995.

III. On 28 September 1995 the opponent (the present appellant) lodged an appeal against this decision and subsequently paid the prescribed fee. A statement setting out the grounds of appeal was received on 1 December 1995, in which the following documents were newly cited:

D4: "IBE", December 1988, pages 28 and 29

D5: "Hardware", pages 1 to 4

D6: Leaflet from Abekas, "A84 Digital Post Production Switcher"

Oral proceedings were conditionally requested.

IV. In a communication from the Board pursuant to Article 11(2) EPC of the rules of procedure of the boards of appeal, the rapporteur, on behalf of the Board, discussed the relevance of document D1 and the status of documents D4 to D6. Attention was also drawn to the disclosure of the only document cited as prior art in the granted patent:

D7: EP-A-236 943

Oral proceedings were appointed. The rapporteur took the preliminary view that D7 should also be discussed in the oral proceedings.

The oral proceedings were held on 13 May 1997. The parties' arguments may be summarised as follows:

The appellant argued that from D1, read in the light of the common general knowledge in the art, it was obvious that the composite video and key signals could be re-entered upstream in the manner implied by the claims of the patent. Indeed, D1 itself hinted at the provision of re-entrant signals. In the alternative, document D7 disclosed the use of combiner cells which were in effect mix-effects banks in the same sense as used in the patent, the term nowhere being clearly defined.

V. The respondent accepted that some slight confusion was caused by the terminology used in the description and claims but argued that the skilled person would in practice have no difficulty in understanding what was meant. Contrary to the appellant's assertions, a mix-effects switcher was not the same as a combiner. In D1 selectors in the form of simple logic devices were provided which did not provide true layering in the same sense as the patent. Whereas in the patent an operator selected the sources to be supplied to the

individual mix-effects banks by means of the cross-point switch, in D1 automatic logic selection of winner and runner-up video sources was carried out. It was important to appreciate that a mix-effects switcher, unlike a combiner, permitted dynamic transitions, as could be seen from the provision of a manually operable wipe control in Figure 3 of the patent. In D1 the selectors merely provided winner and runner-up video and key signals but did not produce composited signals. There was no suggestion of re-entry of composited signals, this clearly being implied in the claims by the reference to composited video and key signals being available for selection by the mix-effects banks. D7, like D1, was a static device, merely providing shaping rather than layering. D7 explicitly stated that the output signals were connected to a production switcher, i.e. a mix-effects bank within the meaning of the claims of the patent. It was therefore clear that the preceding combiners did not constitute mix-effects banks.

The auxiliary request added to claims 1 and 3 of the main request that means for selecting from among the video and key signals were provided; this was effected by an operator-controlled cross-point switch, no selection in the same sense being provided in either D1 or D7. It was not true that selection was inherent in combiners of the kind disclosed in the cited prior art.

VI. The appellant (opponent) requests that the decision under appeal be set aside and that the patent be revoked.

The respondent (patent proprietor) requests that the appeal be dismissed and that the patent be maintained as granted (main request) on that the decision under appeal be set aside and that the patent be maintained on the basis of claims 1 and 2 as filed at the oral proceedings (auxiliary request).

VII. Claim 1 of the main request reads as follows:

"A layered mix-effects switcher architecture comprising:

a plurality of mix-effects banks (22) for combining selected ones of a plurality of video signals, each video signal having an associated key signal, each mix-effects bank combining selected ones of the video signals as a function of the associated key signals to form a composited video signal and producing an associated composited key signal, the video signals and associated key signals including the composited video signal and associated composited key signal from at least one of the other mix-effects banks; and

an output mix-effect bank (26) for combining selected ones of the plurality of video signals including the composited video signals as a function of the associated key signals including the associated composited key signals to produce a layered video signal and an associated layered key signal."

Claim 3 of the main request reads as follows:

"A mix-effects based switcher architecture of the type having a plurality of mix-effect banks (22) for combining selected video signals, each mix-effect bank producing a composited video signal, and an output mix-effects bank (26) for combining selected video

signals, the video signals including the composited video signals, to produce a layered video signal wherein each mix-effects bank and the output mix-effects bank receives for each video signal an associated key signal, the mix-effects banks produce an associated composited key signal for each composited video signal and the output mix-effects bank produces an associated layered key signal for the layered video signal."

VIII. Claims 1 and 2 of the auxiliary request respectively correspond to claims 1 and 3 of the main request, further limited by the subject-matter of claim 2 of that request:

"means (24) for selecting from among the video signals and associated key signals, including the composited video signal and associated composited key signals, the video signals and associated key signals for input to each mix-effect bank and an output mix-effect bank".

Reasons for the Decision

1. *Admissibility*

The appeal complies with Articles 106 to 108 EPC and Rule 64 EPC and is, therefore, admissible.

2. *Documents D4 to D6*

2.1 Documents D4 to D6 were cited for the first time in the grounds of appeal. In accordance with Article 114(2) EPC the EPO may disregard facts or evidence which are not submitted in due time by the parties concerned. In the case of opposition proceedings the due time is within the specified 9 months. The Board accordingly

has a discretion under Article 114(2) EPC to exclude documents cited by an opponent for the first time in the grounds of appeal (see decision T 258/84 (OJ EPO 1987, 119).

2.2 Neither D5 nor D6 bears any publication date, as was indeed admitted by the Appellant in the course of the oral proceedings; as both documents were in consequence withdrawn by the Appellant, it is not necessary for the Board to consider them further. The remaining late-cited document, D4, although dated December 1988 and thus part of the state of the art within the meaning of Article 54(2) EPC **prima facie** adds nothing to the documents on file; the Board declines to exercise its discretion and admit it to the proceedings.

3. *Document D7*

3.1 The Board on the other hand exercises its discretion under Article 114(1) EPC to permit discussion of D7 in the present proceedings. A document cited in the patent as the closest prior art is considered to form part of the opposition and appeal proceedings, see T 536/88 OJ EPO 1992, 638 and T 387/89 OJ EPO 1992, 583.

4. *Interpretation of claims 1 and 3*

4.1 It is the established jurisprudence of the boards of appeal that a claim should in principle be interpreted as it stands, the description and drawings being consulted in accordance with Article 69(1) EPC if necessary (see eg T 16/87 OJ EPO 1992, 212 at point 6, T 23/86, OJ EPO 1987, 316 at point 2 and T 62/92 [not published] at point 2.2). The question of claim clarity under Article 84 EPC only arises in opposition proceedings if the relevant claim has been amended. In

the present case there has been no amendment of claims 1 and 3 of the main request, so that the only issue is that of claim interpretation. The question of scope of protection is a matter exclusively for national courts.

4.2 In the oral proceedings the respondent argued that the term "mix-effects bank" had a specific meaning in the art; it implied the ability to perform dynamic transitions between differing video inputs, the WIPE generator 34 in Figure 3 of the patent showing that this was what was envisaged. No documentary evidence was however produced in support of this assertion. Nor can any support be derived from an objective reading of the patent: column 1, lines 13 to 15 merely refers to "mix effects based video switcher architecture, commonly called mix effects (M/E) banks"; line 20 of the same column refers to "mixing multiple layers of video signals", whilst lines 45 to 47 refer to "allowing an operation to ...output the composite video and an associated composite key". A similar passage at column 2, lines 41 to 44 states that "Both the video and key signals are composited within the switcher...". At lines 36 to 38 of this column to composite is defined as "to combine as in the phrase digital compositing".

4.3 The Board accordingly understands that the function of a mix-effects bank is to composite, or mix, respective video and key signals. A more restrictive interpretation of the term cannot be derived from the patent. The reference at column 4, lines 10 to 13 of the description to the WIPE generator 34 may indeed imply that in the preferred embodiment mixing can be done dynamically, for example under operator control, but it does not suffice to show that this is an essential feature, implicit in the independent claims.

4.4 A further matter discussed at the oral proceedings was whether the independent claims are - as asserted by the respondent - restricted to so-called "re-entrant" video signals. Claim 1 of both requests refers to the video signals and associated key signals to be combined "including the composited video signal and associated composited key signal from at least one of the other mix-effects banks"; the respondent argued that for this to be possible the output of one mix-effects bank must be fed back to the input of another. Such an arrangement is referred to at column 1, lines 44 to 50 and can be seen in Figure 2 of the patent, in which all input and output signals are sent through the same cross-point switch.

4.5 In claims 1 and 3 of both requests selected video signals are combined, the video signals available for selection including composited video signals. The description of Figure 2 merely states at column 3, lines 34 to 37 that the output of each mix-effects bank "is input back to the cross-point switching matrix so that it is available for further compositing with other video input signals". This statement does not restrict the manner in which the output signal of one bank is used by the next; it would, for example, equally embrace a cascade and a "re-entrant" configuration. The Board accordingly interprets claims 1 and 3 of both requests as requiring merely that at least one composite video and key signal from a mix-effects bank be available for input to another mix-effects bank.

5. *Novelty and Inventive Step (Main request)*

5.1 In the oral proceedings two separate inventive step objections were discussed, based respectively on D1 and D7.

5.2 D1 discloses a video signal combining system in which

in each of a plurality of stages a selector S receives a video signal from a previous selector stage and a new video signal, together with a respective key signal and a priority signal. A series of contests is held to determine which two of all the signals have the highest priority, these being the "winner" and "runner-up" video and key signals. The selectors act as switches to determine the layering sequence and do not modify the selected video and key signals; this only occurs in a combiner stage C, in which video and key signals are combined to derive composited video and key outputs. Such a stage is connected to the output of the final selector but can optionally be provided for the preceding selectors. Thus, in the final stage only the "winner" and "runner-up" signals are composited in the combiner stage.

5.3 The Board accepts that the or each combiner in D1 constitutes a mix-effects bank within the meaning of the claims. Thus, it can be argued that a plurality of mix-effects banks is provided in D1 and - by means of the priority signals - video signals, each having an associated key signal, are selected and are combined in the mix-effects banks to provide composited video signals and associated key signals. There is however no disclosure of an output mix-effects bank which composites signals including the composited video signals.

5.4 It is not clear from D1 what further processing is provided for the composited video and key outputs. The text at column 4, lines 51 to 56 (page 2, lines 18 to 22 of the GB version) states that the output of a combiner "can be passed on to other devices"; it was argued by the appellant that such a device could be another combiner, i.e. an output mix-effects bank in the terminology of the claims. However, the preferred embodiment only provides a single combiner at the last

selector and it is not clear with what further signals the output video and key signals could be combined. The text at column 4, lines 16 to 23 (page 1, lines 117 to 123 of the GB version) indicates that although the output is based on the assumption that only two images need to be composited, "serialization to a higher number" is envisaged, with a corresponding number of inputs being provided for the final selector, see column 7, lines 40 to 51 (page 3, lines 54 to 62 of the GB version). The implication of this passage is that the output is always derived from a single combiner. There is no discussion of how the composited signals are thereafter processed, nor of the use to which the signals in the preceding stages are put if combiners are provided.

5.5 It was argued by the appellant that it was common general knowledge in the art that the composited signals could be "wrapped around", in the terminology of D1, and supplied as an input to a further combiner; this presupposes the presence of a series of combiners, which is not the case in D1; if more than one combiner is provided, these are in parallel. Although D1 indicates that the selected signals of the final stage can "wrap around" and be connected to the first selector (column 6, lines 26 to 39; page 2, lines 106 to 109 of the GB version), this is only true of the selected as opposed to the combined signals.

5.6 Finally, the Board sees no reason why the skilled person should provide a further combiner, downstream of the device of D1, to receive the outputs of combiners connected to the individual selectors. As indicated at point 5.4 above, the whole tenor of D1 is that the finally selected signals are composited; the use to which the outputs of the optional combiners of the preceding stages is put is not discussed. The fact that

the outputs of all the combiners are shown in Figure 2 as being subject to D/A conversion speaks against further compositing.

5.7 The Board accordingly concludes that the skilled person, starting out from the disclosure of D1, would not arrive at the arrangements of claims 1 and 3 without the exercise of invention.

5.8 Turning now to D7, Figure 3 of this document shows a plurality of "combiner cells" in which both video and key signals are composited. In the Board's view these constitute a plurality of mix-effects banks within the meaning of the claims, each producing a composited video and key signal. By means of priority signals a selection is performed between the video signals for layering. From Figure 3 it can also be seen that the outputs of the combiners are cascaded, so that the video and key signals available to at least the lower two combiners include the composited video and key signals from the preceding combiners. The final combiner, 90 in Figure 3, can be said to constitute an output mix-effects bank in which selected video signals, including composited video signals, are combined as a function of associated key signals, including associated composited key signals, to produce a layered video signal and an associated layered key signal.

5.9 The above analysis uses the language of claim 1; the analysis applies, **mutatis mutandis**, to the subject-matter of claim 3. The subject-matter of each of claims 1 and 3 of the main request accordingly lacks novelty, Articles 52(1), 54 and 100(a) EPC.

5.10 The Board would observe that the present case is similar to that discussed in G 7/95, in which the issue

of lack of novelty was raised on the basis of the closest prior art document, cited for lack of inventive step. The Enlarged Board held that although an objection of lack of novelty is a different legal objection having a different legal basis from the objection of lack of inventive step, nevertheless if the closest prior art document destroys the novelty of the claimed subject-matter, such subject-matter obviously cannot involve an inventive step. A finding of lack of novelty in such circumstances inevitably results in such subject-matter being unallowable on the ground of lack of inventive step.

6. *Novelty and Inventive Step (Auxiliary Request)*

6.1 The auxiliary request adds to each of claims 1 and 3 means for selecting from among the video signals and associated key signals, including the composited signals, for input to the mix-effect banks. In the preferred embodiment these means are constituted by the cross-point switch 24. D7 provides a single crossover switch 94, see Figure 3, which constitutes means for selecting between primary and composited video and key inputs for a single rather than for each mix-effects bank. No invention would be involved in extending the known arrangement to each mix-effects bank. In any case, the patent in suit describes at Figure 1 an arrangement making use of a cross-point switch, at least in respect of the video signals, which is said to be "conventional", see column 2, lines 56 and 57. The Board takes the view that the skilled person, starting out from the conventional system and aware from D7 that the key signals could also be composited and supplied to other mix-effects banks, would appreciate without the exercise of invention that he could apply a cross-point switch to the D7 arrangement for both video and key signals.

6.2 The subject-matter of each of claims 1 and 2 of the auxiliary request accordingly lacks an inventive step, Articles 52(1), 56 and 101(a) EPC.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The patent is revoked.

The Registrar: The Chairman:

M. Kiehl P. K. J. van den Berg