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D E C I S I O N
of 1 April 2004

Case Number: T 0519/99 - 3.5.1

Application Number: 90103594.9

Publication Number: 0385317

IPC: H045N 5/93, H04N 7/32,
                              H04N 9/64

Language of the proceedings: EN

Title of invention:
Signal processing device

Patentee:
CANON KABUSHIKI KAISHA

Opponent:
Koninklijke Philips Electronics N.V.

Headword:
Signal processing/CANON

Relevant legal provisions:
EPC Art. 56, 123(2)

Keyword:
"Inventive step - main request (no)"
"Admissibility of auxiliary request (no)"

Decisions cited:
T 0401/02

Catchword:
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Case Number: T 0519/99 **-** 3.5.1

D E C I S I O N
of the Technical Board of Appeal 3.5.1
of 1 April 2004

Appellant: (Opponent)	Koninklijke Philips Electronics N.V. Groenewoudseweg 1 NL-5621 BA Eindhoven (NL)
Representative:	Steenbeek, Leonardus Johannes Philips Intellectual Property & Standards P.O. Box 220 NL-5600 AE Eindhoven (NL)
Respondent: (Proprietor of the patent)	CANON KABUSHIKI KAISHA 30-2, 3-chome, Shimomaruko, Ohta-ku Tokyo (JP)
Representative:	Pellmann, Hans-Bernd, Dipl.-Ing. et al Patentanwaltsbüro Tiedtke-Bühling-Kinne & Partner Bavariaring 4-6 D-80336 München (DE)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted 25 February 1999 concerning maintenance of European patent No. 0385317 in amended form.**

Composition of the Board:

Chairman: S. V. Steinbrener

Members: W. E. Chandler

              V. Di Cerbo

Summary of Facts and Submissions

I.   This appeal is against the interlocutory decision of
        the opposition division concerning maintenance of
        European patent No. 0 385 317 in amended form.
        Opposition had been filed against the patent as a whole
        based on Article 100(a) EPC in conjunction with
        Article 56 EPC.

        The opposition division held that claim 1 of the
        proprietor's main request did not involve an inventive
        step, but that the claims of the auxiliary request met
        the requirements of the EPC, having regard *inter alia*
        to following document:

        D6: EP-A-0 204 578

II.   Claim 1 of the allowed auxiliary request reads as
        follows:

        "A data processing device comprising:
           (a) encoding means (110) for encoding an information
        signal by utilizing correlation between components
        thereof to output encoded information having a
        compressed information content;
           (b) a memory (104; 421; 22; 23) being used for write
        and read of the encoded information, said memory (104;
        421; 22; 23) performing the read-out operation while
        performing the writing operation;
           (c) decoding means (111) for decoding the encoded
        information read out from said memory (104; 421; 22; 23)
        to restore the information signal; and
           (d) signal processing means (102) for effecting
        signal processing by simultaneously using the

information signal input into said encoding means (110)
and the information signal output from said decoding
means (111), wherein
said encoding means (110) includes a predictive
differential encoding circuit (208; 413; 20),
timing control means (34) is provided for controlling
the timing of resetting of write in said memory (22)
and the timing of resetting of read from said memory
(22), and
wherein said timing control means (34) controls first
timing for resetting a predicting operation of said
encoding means (20), second timing for resetting a
write operation of said memory (22; 23), third timing
for resetting a predicting operation of said decoding
means (28) and fourth timing for resetting a read
operation of said memory (22; 23), said first timing
and said second timing being synchronized with each
other, said third timing and said fourth timing being
synchronized with each other."

III.   The opponent (appellant) appealed the decision, and
        requested that the decision of the opposition division
        be set aside and that the patent be revoked.
        The respondent (proprietor) requested that the appeal
        be dismissed (main request).
        Both parties made an auxiliary request for oral
        proceedings.

IV.   Following a communication from the Board containing an
        analysis of the issues to be discussed, the appellant
        filed additional evidence *inter alia* in the form of an
        extract from the book:

N.S. Jayant et al.: "Digital Coding of Waveforms.
Principles and Applications to Speech and Video", New
Jersey: Prentice-Hall Inc., 1984, 335.

V.   Oral proceedings were held on 1 April 2004 at which the
        respondent filed an auxiliary request comprising a set
        of amended claims, claim 1 of which was a combination
        of claims 1, 4 and 5 of the main request. At the end of
        the oral proceedings, the Board announced its decision
        to the parties.

VI.   The appellant argued essentially as follows:

        The distinguishing features of the encoding and
        decoding operation solved the "primary" objective
        technical problem of minimising the required memory
        capacity. The opposition division had already
        determined that the claimed solution to this was
        obvious.
        The distinguishing features of resetting the predicting
        operations in synchronism with the resetting of the
        read and write operations of the memory solved the
        "secondary" problem of preventing error propagation,
        which followed as a direct consequence of using DPCM to
        solve the first.
        The extract from the book by Jayant disclosed resetting
        the predicting operations periodically to zero, for
        example every M^{th} line in image coding, to prevent error
        propagation in DPCM coding. Since in the prior art
        video processing circuit the read and write operations
        of the memory must also have been reset based on the
        line structure of the video signal, it followed
        automatically that the resetting operations were
        synchronised as claimed.

The auxiliary request should not be admitted. The
communication accompanying the summons to the oral
proceedings made it clear that the Board could have
disregarded amendments that were not submitted in good
time before the oral proceedings. The auxiliary request
was filed during the oral proceedings. It should
therefore be disregarded for lateness alone.
Moreover, although claim 1 of this request added only
the subject-matter of claims 4 and 5 of the main
request, it still raised further serious problems,
notably under Article 123 EPC. Claim 1 of the main
request concerned the embodiment (Figure 6/7 embodiment)
in which the problem of error propagation was solved by
synchronised resetting of the predictor and memory. The
additional features of the auxiliary request related to
a different embodiment (Figure 5 embodiment) that
solved the same problem in a different way, namely by
sending a synchronising code. However, these two
embodiments had never been disclosed in combination.
Moreover, the two embodiments were not compatible with
each other. The patent application disclosed at
column 6, lines 48 to 49 that the Figure 5 embodiment
was "ineffective". This was why the Figure 6/7
embodiment was developed as an alternative, and the
application stated at column 8, line 52 that it was
"very effective". Furthermore, the originally filed
application claimed these embodiments in different
groups of claims, which were not dependent on each
other.

VII.   The respondent argued as follows:

To solve the "primary" problem of minimising the required memory capacity, the skilled person may have used an encoder and a decoder as known from D6.
The other distinguishing features solved the objective technical problem of ensuring a stable operation of the whole data processing device.
D6 disclosed neither resetting the ADPCM predictor, nor resetting the read and write of the memory, nor the error propagation problem. Thus there was no hint to provide synchronisation between the prediction and the memory.
In general, it was not admissible to define additional problems, such as the appellant's "secondary" problem of the propagation of errors, and to invoke further documents in the inventive step argument.
In any case, even the three teachings of Figure 1 of the patent, D6 and the extract from the book on digital coding by Jayant did not lead to the subject-matter of claim 1. The extract from the book described that it was useful to reset predictor coefficients periodically to zero, but did not disclose or suggest the special synchronisation of resetting the prediction with other circuit operations. There were many other possible alternative synchronisations such as resetting in synchronism with other signals or on a time basis.
It was an additional indicator of patentability that despite being a leading company in this field, the opponent was not able to find a document showing the same or any similar synchronisation.

The auxiliary request was admittedly late, but it did not raise any undue difficulties because it merely involved the additional subject-matter of claims 4 and 5 of the main request.

Reasons for the Decision

1.   The appeal complies with the requirements referred to
        in Rule 65(1) EPC and is, therefore, admissible.

2.   *Inventive step (main request)*

2.1   The Board agrees essentially with the appellant's line
        of argument leading to the result that claim 1 of the
        main request does not involve an inventive step.

2.2   It is common ground that the closest prior art
        corresponds to that shown in Figure 1 of the patent in
        suit and discussed in the introductory part of the
        description. This discloses a general purpose video
        signal processing circuit structure that could be used,
        for example, for noise reduction. The circuit receives
        an input video signal and a signal delayed in a field
        memory and outputs a processed signal, which is also
        fed back to the field memory. The memory is controlled
        by a field memory control circuit synchronised to the
        video synchronisation signals.

2.3   The Board agrees with the appellant that this teaching
        also implicitly discloses timing control means for
        controlling the timing of resetting the writing and
        reading of the memory. This follows from the fact that,
        in the mentioned example of noise reduction, the video
        signal processing circuit needs some sort of
        synchronisation to keep track of corresponding parts of
        the video signal such as corresponding pixels on
        different lines or in different fields. This would have

to be effected by resetting the memory using the memory control circuit that is driven from the output of the sync separation circuit.

2.4   Claim 1 of the main request therefore differs from the prior art shown in Figure 1 by having:

(i)   a predictive differential encoding circuit for encoding the signal written to the memory

(ii)   decoding means for decoding the signal read from the memory

(iii) timing control means for resetting a predicting operation of the encoding means in synchronism with resetting a write operation of the memory

(iv)   timing control means for resetting a predicting operation of the decoding means in synchronism with resetting a read operation of the memory.

2.5   It is common ground that the features of the predictive encoding and the decoding circuit (differences i and ii) can be considered to solve the problem of minimising the required memory capacity. This is what the appellant calls the "primary" problem.

2.6   The Board has no reason to question the opposition division's finding that it was obvious to encode and decode the signal to solve this problem in the light of the teaching of D6, which disclosed at page 6, lines 1 to 6 solving the same problem for any type of signal (see page 5, end of first paragraph) in an information

delay system by compressing (encoding) the signal
before writing to the memory.

Since D6 also discloses the use of predictive encoding
(DPCM), this qualification is also obvious.

2.7   There was disagreement over the formulation of the
        problem that the appellant calls the "secondary"
        problem, namely the one deriving from synchronising the
        resetting of the predicting and the memory read and
        write operations (differences iii and iv). Since these
        features relate to the timing of the DPCM prediction,
        the "secondary" problem only becomes relevant once DPCM
        has been selected to reduce the memory requirement.
        Although there is thus some link between the two
        problems, the Board agrees with the appellant that the
        distinguishing features of the encoding and decoding
        operation and the resetting of the timing involve such
        different effects of the invention that there is no
        functional interdependence in the sense of a
        combination invention. Hence the Board judges that the
        appellant is correct in treating these features as
        relating to a classic case of solutions to independent
        partial problems, i.e. separately.

2.8   The Board judges that the solution to the "secondary"
        problem is also obvious even adopting the respondent's
        formulation of the problem as ensuring a stable
        operation of the whole data processing device. Firstly,
        stable operation is a universal goal of any circuit
        design and would be self-evident to the skilled person.
        Secondly, the Board agrees with the appellant that it
        is common knowledge that DPCM suffers from the problem
        of the propagation of errors. Moreover, it is apparent
        that the "extreme error propagation" mentioned in the

book on digital coding by Jayant, at page 335, second paragraph, indicates a problem of ensuring stable operation when DPCM is used in image coding applications.

2.9   Jayant discloses solving this problem by resetting the predictor coefficients periodically to zero, for example every M^{th} line in image coding. The resetting of the predicting operation of the encoding would therefore be synchronised with the line structure of the video image. Since the resetting of the write operation of the memory is also synchronised with the line structure of the video image (see point 2.3, above), it follows that the two resetting operations are themselves in synchronism, as claimed.
        Jayant also states that resetting the prediction is equivalent to restarting the decoding process, which implies that the resetting of the predicting operation of the decoding would also have to be in synchronism with the line structure of the video image and, hence, the resetting of the read operation of the memory, as claimed.
        Even if there are other possibilities for resetting the predicting operations, the Board judges that the claimed ones are nevertheless obvious.

2.10   Accordingly, claim 1 of the main request does not involve an inventive step (Article 56 EPC).

3.   *Admissibility of auxiliary request*

3.1   The Board judges that the circumstances of the present case are analogous to those in decision T 401/02 (Optisch variables Element/GIESECKE & DEVRIENT, not

published in OJ) from the present Board in a different
composition. At point 5, the Board summarised the
factors to be weighed up when exercising its discretion
to admit late requests filed during the oral
proceedings. These are:

(i)   resulting delay in the procedure, including
        possible adjournment of the oral proceedings or
        remittal to the first instance. This could be the
        result of amendments that require more thorough
        examination (in that case under Articles 123(2)
        and 56 EPC)

(ii)   whether the amendments are occasioned by any
        change in the facts of the case

(iii)   whether the late filing is excusable owing to
        special circumstances.

In that case, it was not apparent that the amendments
would be allowable under Articles 123(2) or 56 EPC,
there had been no change in the facts of the case and
the appellant gave no exceptional reasons that would
have justified the late filing.

3.2   The Board judges that the circumstances of the present
        case are virtually the same.
        Concerning the delay in procedure of criterion (i), the
        Board agrees with the respondent that there are
        potential problems under Article 123(2) EPC when
        amalgamating the Figure 5 and 6/7 embodiments. In fact,
        a short discussion during the oral proceedings revealed
        that it was not even straightforward to determine
        whether claim 1 of the main request covered the

Figure 5 embodiment or not. Hence, neither the Board
nor the appellant was in a position to assess the
amendments on an ad hoc basis during the ongoing oral
proceedings.

Concerning the change in case of criterion (ii), the
Board judges that the extract from the book by Jayant
filed by the appellant during the appeal represents
evidence to support the alleged facts that the problems
of error propagation and the solution of resetting the
prediction operation in synchronism with the video
signal were part of the skilled person's common general
knowledge at the priority date. These facts had been
asserted since the beginning of the appeal proceedings,
at least, so that the Board judges that the facts of
the case have remained essentially unchanged.

Concerning the special circumstances of criterion (iii),
the appellant gave no exceptional reasons that would
have justified the late filing.

3.3   For these reasons the Board does not admit the
        auxiliary request.

4.   There being no other requests, it follows that the
        patent must be revoked.

Order

1519.D

For these reasons it is decided that:

The decision under appeal is set aside and the patent is revoked.

The Registrar: The Chairman:

M. Kiehl   S. Steinbrener