Internal distribution code:

(A) [-] Publication in OJ
(B) [-] To Chairmen and Members
(C) [-] To Chairmen
(D) [X] No distribution

Datasheet for the decision of 17 August 2017

Case Number: T 0166/12 - 3.5.04

Application Number: 09158032.4

Publication Number: 2077668

IPC: H04N7/24, H04N7/26, H04N5/213, H04N7/01

Language of the proceedings: EN

Title of invention:
Signal processing system, signal transmission apparatus, signal receiving apparatus, and program

Applicant:
Sony Corporation

Headword:

Relevant legal provisions:
EPC Art. 84

Keyword:
Claims - clarity - main request, auxiliary requests I to III (no)

Decisions cited:

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern
Boards of Appeal
Chambres de recours

European Patent Office
D-80298 MUNICH
GERMANY
Tel. +49 (0) 89 2399-0
Fax +49 (0) 89 2399-4465

Case Number: T 0166/12 - 3.5.04

D E C I S I O N
of Technical Board of Appeal 3.5.04
of 17 August 2017

Appellant: (Applicant)	Sony Corporation 1-7-1 Konan Minato-ku Tokyo 108-0075 (JP)
Representative:	Beder, Jens Mitscherlich PartmbB Patent- und Rechtsanwälte Sonnenstraße 33 80331 München (DE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 7 September 2011 refusing European patent application No. 09158032.4 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	C. Kunzelmann
Members:	R. Gerdes
	G. Decker

Summary of Facts and Submissions

I. The appeal is directed against the decision to refuse European patent application No. 09 158 032.4, which is a divisional application of European patent application No. 07 119 972.3 and was published as EP 2 077 668 A1.

II. The patent application was refused by the examining division on the grounds that claim 1 of the main request and of the auxiliary request lacked novelty in view of

D1: WO 03/103289 A1.

III. In addition, claim 1 of the main and of the auxiliary request then on file was found to lack clarity (Article 84 EPC).

IV. The applicant appealed against this decision and with the statement of grounds of appeal submitted claims of an amended main request as well as of auxiliary requests I to III.

V. The board issued a summons to oral proceedings and indicated *inter alia* that the clarity of the claims would have to be discussed there. It accepted that the amendment of claim 1 of each of the requests submitted with the statement of grounds overcame the clarity objection of the refusal decision. However, it raised new clarity objections *inter alia* relating to the wording "missing information" and "control information". The board stated that the expression "missing information due to the conversion" appeared to be vague and ambiguous. It seemed unclear what this missing information might be and how it related to the information indicating that the standard-system video

signal was "obtained by the down conversion of the high definition video signal" and the control information "related to a noise removal process". It also appeared to be unclear how the "control information corresponding to the missing information" related to the information indicating that the standard-system video signal was "obtained by the down conversion of the high definition video signal" and the control information "related to a noise removal process". It appeared that there were multiple inconsistent definitions of the control information in claim 1.

VI. In reply, with a letter dated 19 July 2017, the appellant filed new claims of auxiliary requests I and III replacing those of the corresponding requests on file.

VII. Oral proceedings were held before the board on 17 August 2017. The appellant finally requested that the decision under appeal be set aside and that a European patent be granted on the basis of the claims of the main request filed with the statement of grounds of appeal or, in the alternative, the claims of auxiliary request I filed with the letter dated 19 July 2017, the claims of auxiliary request II filed with the statement of grounds of appeal or the claims of auxiliary request III filed with the letter dated 19 July 2017.

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

"A signal processing system comprising:

a first converter (205) for converting first information into data of second information;

a superimposer (207) for

comparing data of the first information and data of the second information,

extracting missing information due to the conversion by the first converter (205) and

superimposing, on the second information, control information corresponding to the missing information that is lost from the first information due to conversion by the first converter (205);

a transmitter (209) for transmitting the second information;

a receiver (301) for receiving the second information transmitted from the transmitter (209);

an extractor (307) for extracting the control information from the second information;

a second converter (303) for converting the second information into third information based on the control information extracted by the extractor (307); and

an output portion (311) for outputting the third information, characterized in

that the first converter (205) is configured to down convert a high definition video signal, used for High Definition Television (HDTV) broadcasting, which is the first information and convert the signal into a standard-system video signal, which is the second information, used for Standard Definition Television (SDTV) broadcasting,

the superimposer (207) is configured to superimpose on the standard-system video signal a structure including an ID indicating that the information is obtained by the down conversion of the high definition video signal and control information related to a noise removal process of the down converted image content, and

the second converter (305) is configured to remove noise from the standard-system video signal based on the control information and convert the signal into the third information."

IX. Claim 1 of auxiliary request I reads as follows:

"A signal processing system comprising:

a first converter (205) for converting first information into data of second information;

a superimposer (207) for

comparing data of the first information and data of the second information by referring to control information data including information related to a file format of the first information;

extracting missing information due to the conversion by the first converter (205) and

generating, by referring to control information data, control information corresponding to the missing information that is lost from the first information due to conversion by the first converter (205);

superimposing, on the second information, said control information; a transmitter (209) for transmitting the second information with said control information superimposed;

a receiver (301) for receiving the second information transmitted from the transmitter (209);

an extractor (307) for extracting the superimposed control information;

a second converter (303) for converting the second information into third information based on the control information extracted by the extractor (307); and

an output portion (311) for outputting the third information, wherein

the first converter (205) is configured to down convert a high definition video signal, used for High Definition Television (HDTV) broadcasting, which is the first information and convert the signal into a standard-system video signal, which is the second information, used for Standard Definition Television (SDTV) broadcasting,

the superimposer (207) is configured to superimpose on the standard-system video signal a structure including an ID indicating that the information is obtained by the down conversion of the high definition video signal and control information related to a noise removal process of the down converted image content, and

the second converter (305) is configured to remove noise from the standard-system video signal based on

the control information and convert the signal into the third information."

X. Claim 1 of auxiliary request II and claim 1 of auxiliary request III are identical to claim 1 of the main request and auxiliary request I, respectively, with the following features appended to the claims:

"the superimposer (207) is configured to store the control signal in a certain section of a transmission format for transmitting the second information, and

the control information comprises information that indicates content of control performed when the second converter converts (305) the second information into the third information."

XI. The appellant's arguments, as far as they are relevant for the present decision, may be summarised as follows:

The wording "missing information" and "control information" of claim 1 of the main request was to be interpreted in the context of the application as a whole. The "missing information" was at least not only information relating to the content of the images, but comprised information on the format of the images, for example that the original image was an HDTV image. The "control information" corresponded to the missing information but included rules or algorithms that were used at the receiver to convert the second information into third information (see paragraphs [0045], [0048], [0049], [0071] and [0072] of the application as published). In the specific case of the third example of the invention, the control information included information about a noise removal process that was to

be carried out at the receiver (see paragraphs [0100], [0104] and [0106]).

The control information was transmitted from the transmitter to the receiver as "a structure including an ID indicating that the information is obtained by the down conversion of the high definition video signal and control information related to a noise removal process of the down converted image content".

Hence, for the relationship between the "control information corresponding to the missing information" and the "control information related to a noise removal process" this implied that "the control information related to a noise removal process" together with the "ID indicating that the information is obtained by the down conversion of the high definition video signal" constituted the "control information corresponding to the missing information". This relationship became clear from the third example, in particular paragraphs [0100] and [0104].

Claim 1 of auxiliary request I clarified that the control information was transmitted together with the second information from the transmitter to the receiver. In addition, it was clarified that the control information was generated by referring to "control information data", as was specified for example in paragraphs [0048] and [0100] of the application. Control information data included information related to a file format of the first information.

Claim 1 of auxiliary request II and claim 1 of auxiliary request III differed from claim 1 of each of the main request and auxiliary request I in that they

contained the additional feature that the superimposer was configured to store the control signal in a certain section of the transmission format and in that they specified that the control information comprised information indicating content of control. "Content of control" meant the rules for the noise removal process to be used by the receiver as opposed to a mere identifier of these rules.

Reasons for the Decision

1. The appeal is admissible.

Main request
Clarity (Article 84 EPC)

2. According to Article 84 EPC, the claims shall define the matter for which protection is sought. They shall be clear and concise and be supported by the description.

2.1 The application relates to a signal processing system, a corresponding signal transmission apparatus and a signal receiving apparatus and a program comprising instructions that command a computer to function as a signal transmission and a signal receiving apparatus, respectively.

In general, the application concerns the transmission of an audio or video signal, which is supplied at a high quality ("first information" in the terminology of the application) and is converted into a signal of lower quality for transmission ("second information"). In order to recover some of the high quality at the receiver, control information is superimposed on the

low-quality signal and transmitted together with that signal. At the receiver the control information is extracted and used to recover at least some of the high-quality information or to at least indicate that the information was subjected to a conversion process, thus generating "third information" (see paragraphs [0005] to [0008], [0040] to [0042], [0045] to [0049], [0053] to [0064], [0086] and [0095]).

The claims of the present divisional application are directed to the third example presented in the application (see paragraphs [0097] to [0107]), which concerns the down conversion of a high-definition (HDTV) into a standard-definition (SDTV) video signal. Control information corresponding to some of the "missing information lost from the image content due to the conversion" is superimposed on the SDTV signal. At the receiver the control information is extracted. In the example, control information "related to a noise removal process" is transmitted to the receiver, which "carries out a noise removal of the image content" (see paragraphs [0100], [0103] and [0104]).

2.2 Claim 1 refers to "control information corresponding to the missing information" (see page 1, lines 13 and 14), the missing information being information "lost from the first information" "due to the conversion" (see page 1, lines 10, 11 and 14). This control information is superimposed on the second information (see page 1, lines 12 and 13) at the transmitter and extracted at the receiver (see page 1, lines 20 and 21). In addition, claim 1 specifies that "control information related to a noise removal process of the down converted image content" is superimposed on the SDTV video signal (see page 1, line 34, to page 2, line 2) and that a converter at the receiver is configured to

remove noise from the SDTV signal "based on the control information" (see page 2, lines 3 to 5).

2.3 It is not clear from the claim whether the "control information corresponding to the missing information" is the same as the "control information related to a noise removal process", whether the latter is part of the previous control information or whether the two are separate. It is also not clear in which way the control information "corresponds" to the missing information and what exactly the control information and the missing information represent.

2.4 Also, the description of the present application is not conclusive as to the meaning of the control information and the missing information. According to paragraph [0100] the "control information related to a noise removal process" is superimposed on the second information

(a) after referring twice (see column 19, lines 29 to 31 and 41 to 43) to "the control information data stored in the memory 201",

(b) after comparing "the image content including the high definition video signal, which is the first information, and the image content including the standard-system video signal, which is the second information" (see column 19, lines 31 to 35) and

(c) after extracting the missing information lost from the image content due to the conversion by the first converter 205 including the high definition video signal (see column 19, lines 35 to 38).

The reference to "control information data" adds another term, which is only vaguely specified in the application, see paragraph [0042], according to which control information data includes "information related to a file format of the content and the like". The application is also not helpful for determining how the result of the comparison (see step b) or the missing information (see step c) is employed to generate the control information or whether the different items of control information in claim 1 are distinguished from one another or not.

2.5 The appellant referred to paragraphs [0045], [0048], [0049], [0071] and [0072] for the meaning of the wording "missing information" and "control information". According to these passages the wording "missing information" was at least not only information relating to the content of the images, but comprised information on the format of the images, for example that the original image was an HDTV image. The "control information" corresponded to the missing information but included rules or algorithms that were used at the receiver to convert the second information into third information. In the specific case of the third example of the invention, the control information included information about a noise removal process that was to be carried out at the receiver.

The board agrees that the terms used in the claims have to be interpreted against the backdrop of the application as a whole. However, it cannot see any unambiguous definition of the terms in those cited passages. Paragraph [0049] refers to "missing information lost from the first information due to the conversion", which is "control information lost from the first information", the control information

representing for example a reproduction level of an LFE signal (see column 10, lines 33 to 40). This LFE level is then superimposed on the transmitted signal (see paragraphs [0072] and [0080]). Hence, according to the cited example the LFE signal is at the same time the missing information and the control information superimposed on the signal. It is also noted that the use of the term "missing information" in the above-cited passage differs from the third example, which refers to "missing information lost from the image content" (see column 19, line 36); i.e. according to the third example the missing information contains content and not control information.

With respect to the relationship between the "control information corresponding to the missing information" and the "control information related to a noise removal process", the appellant argued as follows: In the third example "the control information related to a noise removal process" together with the "ID indicating that the information is obtained by the down conversion of the high definition video signal" constituted the "control information corresponding to the missing information". This relationship became clear from the third example, in particular paragraphs [0100] and [0104].

The board accepts that this understanding is a possible interpretation of the cited passages of the third example; however, there is no unambiguous specification which for example excludes that further control information separate from the ID and the "control information related to the noise removal process" is part of the "control information corresponding to the missing information".

2.6 Hence, the board holds that claim 1 lacks clarity (Article 84 EPC).

Auxiliary request I

3. Claim 1 of auxiliary request I essentially corresponds to claim 1 of the main request and additionally clarifies that the control information is transmitted together with the second information from the transmitter to the receiver. Furthermore, it specifies that the control information is generated by referring to "control information data". Control information data includes information related to a file format of the first information.

3.1 The board accepts that the first amendment relating to the control information being transmitted together with the second information clarifies that the second information is distinct from the control information. It was however not disputed at the oral proceedings that this amendment does not address the objection of point 2.3 against claim 1 of the main request.

According to the amended wording of claim 1 the "control information corresponding to the missing information" is generated "by referring to control information data", the control information data "including information related to a file format of the first information." This reference to the "control information data including information related to a file format of the first information" is not sufficient to render claim 1 clear. It is neither specified in the claim nor apparent from the description to which parts of the "control information data" reference is made and how the "referring" is carried out. Therefore, the additional specification of the "control information

data" only adds another information item to claim 1, which is in an obscure relationship with the further information items.

3.2 The appellant argued that the reference in claim 1 to "control information data including information related to a file format of the first information" clarified that the "control information corresponding to the missing information" was based on information relating to a file format of the first information.

The board is not convinced by this argument. Even if the amendment were interpreted as suggested by the appellant, it is still unclear how the "control information corresponding to the missing information" relates to the "control information related to a noise removal process".

3.3 Hence, claim 1 of auxiliary request I lacks clarity (Article 84 EPC).

Auxiliary requests II and III

4. Claim 1 of auxiliary request II and claim 1 of auxiliary request III differ from claim 1 of the main request and of auxiliary request I, respectively, in that the following additional features are appended to the claim:

(a) "the superimposer (207) is configured to store the control signal in a certain section of a transmission format for transmitting the second information, and

(b) the control information comprises information that indicates content of control performed when the

second converter converts (305) the second information into the third information."

4.1 It was not disputed that additional feature (a) does not change the assessment of clarity regarding claim 1 of the main request and of auxiliary request I. This feature relates to the transmission format and does not provide a further specification of either the "control information" or the "missing information".

Feature (b) provides a specification which aggravates the lack of clarity of claim 1 of the higher-ranking requests. It is unclear whether the specification in feature (b) adds any additional limitation to claim 1 and, if so, in which way "information that indicates content of control" may be distinguished from "control information". The meaning of "content of control" suggested by the appellant does not clarify feature (b), either.

4.2 Hence, claim 1 of auxiliary request II and claim 1 of auxiliary request III lack clarity (Article 84 EPC).

Conclusion

5. It follows from the above that none of the appellant's requests is allowable. Thus the appeal is to be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

K. Boelicke C. Kunzelmann

Decision electronically authenticated