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Datasheet for the decision
of 20 January 2017

Case Number:	T 2493/11 - 3.5.07
Application Number:	98907658.3
Publication Number:	0965128
IPC:	G11B27/00, H04N5/76, H04N7/00, G06F3/00, G06T13/00
Language of the proceedings:	EN

Title of invention:
A method and system for manipulation of audio or video signals

Applicant:
DMT Licensing, LLC

Headword:
Manipulation of audio signals/DMT LICENSING

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

Keyword:
Amendments - added subject-matter (yes) - all requests
Inventive step - (no) - main request and first auxiliary
request

Decisions cited:

Catchword:

Beschwerdekammern

Boards of Appeal

Chambres de recours

Case Number: T 2493/11 - 3.5.07

D E C I S I O N
of Technical Board of Appeal 3.5.07
of 20 January 2017

Appellant:
(Applicant)

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Decision under appeal:

**Decision of the Examining Division of the
European Patent Office posted on 27 June 2011
refusing European patent application No.
98907658.3 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman   M. Rognoni
Members: M. Jaedicke
                  I. Beckedorf

Summary of Facts and Submissions

I.   The applicant (appellant) appealed against the decision
        of the Examining Division refusing European patent
        application No. 98907658.3, filed as international
        application PCT/US98/03840 and published as
        WO 98/43405.

II.   The Examining Division decided that the subject-matter
        of the independent claims of the sole request on file
        lacked inventive step. No document was cited as
        evidence for the relevant state of the art.

III.   With the statement of grounds of appeal, the appellant
        submitted a main request with claims closely similar to
        those underlying the contested decision and four
        auxiliary requests. While the appellant argued that the
        contested decision was wrong, it explicitly accepted
        that the state of the art relied upon by the Examining
        Division was known.

IV.   In a communication under Article 15(1) RPBA following a
        summons to oral proceedings, the Board expressed *inter
        alia* the provisional opinion that the subject-matter of
        claim 1 of the main request contained added subject-
        matter violating Article 123(2) EPC.

        In its communication, the Board cited the following
        documents:

        D4:   US 5,600,316, published 4 February 1997
        D5:   US 4,280,192, published 21 July 1981
        D6:   US 5,590,108, published 31 December 1996
        D7:   US 5,388,181, published 7 February 1995

and raised objections under Article 56 EPC based on the prior art described in the application itself in combination with either the common general knowledge or any of the documents D4 or D5.

V.   With a letter dated 8 November 2016, the appellant maintained all requests unamended and informed the Board that it would not attend the oral proceedings. No arguments addressing the objections raised by the Board were submitted.

VI.   Oral proceedings were held as scheduled in absence of the appellant. At the end of the oral proceedings, the chairman pronounced the Board's decision.

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

"1. A method for manipulating digital audio signals characterised by the steps of:

filling a frequency/amplitude database (90) with sound entries of frequency and amplitude information for corresponding time intervals of the digital audio signals (60);

identifying patterns of consecutive sound entries over the time intervals for a specific amplitude of a discrete frequency;

filling a static audio file (110) with a starting point of a specific amplitude of a discrete frequency and its related end point with respect to time over the time intervals, such that the static audio file provides a digital file format which provides a plurality of discrete frequency/amplitude information and the respective starting points and end points;

providing a static audio player (120) with a starting
point of a specific amplitude of a discrete frequency
with respect to time from the static audio file (110);

playing the specific amplitude of the discrete
frequency with the static audio player (120) when the
starting point occurs;

providing the static audio player (120) with an ending
point of the specific amplitude of the discrete
frequency with respect to time from the static audio
file (110); and

stopping the playing of the static audio player (120)
of the specific amplitude of the discrete frequency
when the ending point occurs."

VIII.   Claim 1 of the first auxiliary request differs from
         claim 1 of the main request in that it adds the
         following feature to the step of filling a frequency/
         amplitude database:

         "the digital audio signals (60) comprising a string of
         consecutive time intervals which repeat one or more
         identical frequencies and their related amplitudes".

IX.   Claim 1 of the second auxiliary request differs from
         claim 1 of the first auxiliary request in that it adds
         the following feature at the end of the step of filling
         a static audio file:

         "without information related to repetition between each
         starting point and its end point".

X.   Claim 1 of the third auxiliary request differs from
         claim 1 of the second auxiliary request in that it adds

the following feature at the end of the step of playing the specific amplitude:

"and continuing to play the specific amplitude of the discrete frequency during subsequent time intervals until a time interval corresponding to its ending point occurs".

XI.   Claim 1 of the fourth auxiliary request differs from claim 1 of the third auxiliary request in that it adds the following text to the step of filling a frequency/amplitude database after "comprising":

"frequency/amplitude information by time interval and".

The wording of the further claims of the requests is not relevant to the present decision.

XII.   The appellant's arguments relevant to the decision are discussed in detail below.

Reasons for the Decision

1.   The appeal complies with the provisions referred to in Rule 101 EPC and is therefore admissible.

2.   *The invention*

2.1   The application relates to a method and system to compress and/or convert audio signals into a specific file format called "static file format" which can then be played back by a static audio player.

        According to the background of the invention, known computer file formats for digital audio, which are formatted in a dynamic manner permitting easy and

routine editing, result in very large computer file
sizes (for example, hundreds of millions of bytes in
size for a 40 minute digital audio file of 44.1 kHz
sound quality). The very large file sizes of these
"Dynamic Audio Files" are problematic for data
transmission and storage.

2.2   The application provides an example of a known audio
        file format on page 2, lines 1 to 18: Each second of a
        CD quality Dynamic Audio File is divided into 44,100
        discrete time intervals. Each of these time intervals
        can simultaneously contain multiple frequencies (i.e.
        pitch) of sound at multiple amplitudes (i.e. volume).
        The Dynamic Audio File instructs an audio playing
        device to play discrete frequencies/amplitudes at a
        rate of 44,100 times per second for CD quality sound.
        In a Dynamic Audio File, even if a string of
        consecutive time intervals contains identical
        frequencies and their related amplitudes, such an
        occurrence is irrelevant since the Digital Audio File
        format was designed, in part, to enable specific
        editing and/or dynamic manipulation of each individual
        time interval. The Dynamic Audio File fails to take
        advantage of redundancies within a string of
        consecutive time intervals which happen to repeat one
        or more identical frequencies and their related
        amplitudes.

2.3   The invention proposes to encode audio files in a
        static format which takes advantage of consecutive
        redundancies within Dynamic Audio Files with respect to
        time. A Static Audio File according to the invention is
        encoded in a format which records a plurality of
        discrete frequency/amplitude (sound) information to be
        played on an audio output device, and the respective
        starting and end points each such frequency/amplitude

is to be played, with respect to time. This allows to reduce consecutive redundancies within Dynamic Audio Files due to repetition of frequency/amplitude information. Moreover, the invention proposes a static audio player for playing back digital audio signals recorded in the static audio file on an audio output device (description, page 5, line 1 to page 6, line 10).

Main request

3.   *Added subject-matter – Article 123(2) EPC*

3.1   According to the statement of grounds of appeal claim 1 is based on original claim 3 with several amendments. One of these amendments recites that the step of filling the static audio file is "such that the static audio file provides a digital file format which provides a plurality of discrete frequency/amplitude information and the respective starting points and ending points". In the statement of grounds of appeal the appellant submitted: "Support for this amendment is found at lines 14 to 18 of original page 23." The cited passage reads as follows:

          "The Static Audio file 170 is encoded in a digital file format which records a plurality of discrete frequency/ amplitude information and the respective starting points and ending points, with respect to time and can be produced by the Static Audio Player 120. The static Audio [...]".

3.2   The Board is not convinced that there is a basis for the phrase "the static audio file <u>provides</u> a digital file format" (emphasis added). The description states that the static audio file <u>is encoded in</u> a digital file

format (see description, page 23, line 14). The
expression "the static audio file provides a digital
file format" can be interpreted in the sense that the
file contains information about the digital file format
and/or in the sense that the file itself is provided in
a specific digital format. The passage cited by the
appellant does not support the presence of information
about the file format in the static audio file. Nor is
the Board aware of any other passage in the original
application supporting this amendment.

3.3   As the amendment is not supported by the original
        application, claim 1 does not comply with the
        requirements of Article 123(2) EPC.

4.   *Inventive step – Articles 52(1) and 56 EPC*

4.1   *Interpretation of claim 1*

        Claim 1 does not specify whether or how the digital
        audio data has been obtained from an analog audio
        signal. In the Board's opinion, the method is
        applicable to any kind of digital audio data containing
        frequency and amplitude information.

        Claim 1 does not specify in detail the frequency and
        amplitude information in the sound entries that are
        filled into the database or the structure of the
        database. In particular, it is not limited to sound
        entries containing a specific amplitude of a discrete
        frequency, or to a specific representation in a three
        dimensional matrix (description, page 28, lines 16 to
        21).

        Claim 1 does not specify how the start and end points
        are obtained or which "patterns of consecutive sound

entries over the time intervals" are identified. In the
light of the description (for example, page 29, line
22, to page 31, line 10), the Board interprets the
patterns as repetitions of a specific amplitude of a
discrete frequency in consecutive time intervals.

Claim 1 refers to a "static audio player", which is not
a known type of player and thus has no well-known
technical meaning. According to the description, page
19, lines 1 to 6, this player is a computer software
program running on a conventional computer system used
for playing back the static audio file through the
sound card of the computer system. The Board interprets
the expression "static audio player" in this sense.

The Board interprets the above identified feature
infringing Article 123(2) EPC in the light of the
description, page 23, line 14, in that the static audio
file is encoded in a digital file format.

4.2   The prior art

The Board notes that the application discloses on
page 15, lines 17 to 23, that the Dynamic Audio File is
already commercially available. Hence, it is part of
the prior art. According to page 25, line 6 to page 28,
line 8 such a Dynamic Audio File represents sound
entries for time intervals by means of specific
amplitudes of discrete frequencies. With respect to the
file format of these Dynamic Audio Files the
application sets out the following on page 25, lines 9
to 21: "...and assuming that a Dynamic Audio File 60 is
composed of a plurality of discrete sounds identified
by their frequencies and their related amplitudes are
mathematically expressed as time interval (I),
frequency (F), and amplitude (A), where I_w identifies a

discrete time interval within a range of intervals
identified by subscript 'w', and bounded by the first
time interval and the last time interval of the audio
recording; and F_x identifies a discrete frequency
within a range of frequencies identified by subscript
'x'; and A_y identifies a specific amplitude, associated
with said frequency F_x, within a range of amplitudes
identified by subscript 'y'; ... ".

The Board views this known "Dynamic Audio File" as
closest prior art which discloses at least the
following feature of claim 1:

"a frequency/amplitude database (90) with sound entries
of frequency and amplitude information for
corresponding time intervals of the digital audio
signals (60)".

The Board is of the opinion that the term "database" in
a broad sense means any collection of data and that the
Dynamic Audio File implements such a collection of
data.

The Board refers also to documents D6 (see description,
column 7, line 43 to column 8, line 37) and D7 (see
description, column 7, line 48 to column 8, line 7),
which disclose that digital representations of audio
signals in the frequency domain are well known.
Consequently, the Board is of the opinion that the
claimed frequency/amplitude database representation of
audio files was known.

4.3   Technical problem

As set out by the applicant in the description on
page 1, last paragraph, dynamic audio files have

unfortunately very large file sizes. Hence, the
technical problem that a skilled person needs to solve
is how to provide compression of such files.

4.4   The solution

According to the method of claim 1, the solution
consists essentially in the steps of:

"identifying patterns of consecutive sound entries over
the time intervals for a specific amplitude of a
discrete frequency;

filling a static audio file (110) with a starting point
of a specific amplitude of a discrete frequency and its
related end point with respect to time over the time
intervals, such that the static audio file provides a
digital file format which provides a plurality of
discrete frequency/amplitude information and the
respective starting points and end points;"

The further steps in the claim relate to the static
audio player which is merely using the static file
format for reproduction. For a skilled person it is
obvious how to use the content of the static audio file
in order to reproduce the sound on the static audio
player: for a specific amplitude of a discrete
frequency the starting and end points available in the
static audio file provide the information during which
time intervals the specific amplitude of the discrete
frequency needs to be played. It follows that the
playing back with the static audio player is
straightforward.

4.5   Hence, the essential question to be considered is
        whether the identification of the patterns and the
        filling of the static audio file, which represent the
        essential aspects of the compression/conversion
        activity, involve an inventive step.

4.6   In the Board's opinion, it was well known at the
        priority date of the present application to compress
        files by eliminating redundancy. Repetitive values are
        a generally known form of redundancy. Hence a skilled
        person, who is familiar with compression techniques,
        would consider identifying patterns of repeating values
        and representing time series data (in the present case
        sound entries representing time intervals of the
        digital audio signals) of repeating values by the
        starting and end points of the repeated values in the
        time series.

4.7   In the opinion of the Board, a skilled person would
        also be directly led to the claimed solution by each of
        the documents D4 and D5. These documents belong to the
        prior art of compression methods for digital
        representations of audio signals so that a skilled
        person would consult them in search of a solution to
        the problem posed.

        Document D4 discloses the compression of repeated
        values by identifying patterns and the use of the
        identified patterns for encoding the occurrence of
        repetition, its characteristics and its duration (see
        D4, abstract; claims 1 to 6; column 3, line 4 to
        column 4, line 6; column 4, line 28 to column 5,
        line 44; column 6, lines 15 to 20; column 12, lines
        33-49; Figures 1, 8a to 8b).

        Document D5 is similar to document D4 and discloses

compression for coded audio files by replacement of a
pause with start and end times and length of the pause
(see D5, abstract, claim 1), and by eliminating
repetition of digital audio signal values (see D5,
abstract, claims 3 to 6 and 10).

Hence, in the Board's opinion, the claimed steps of
identifying patterns and creating static audio files,
wherein the identified patterns are used to compress
repeated values by representing only their start and
end points, are obvious in view of the common general
knowledge or in view of the teachings of any of
documents D4 or D5.

4.8   Before receipt of the Board's communication pursuant to
        Article 15(1) RPBA, the appellant submitted various
        arguments in favour of inventive step. The appellant
        developed its arguments starting from MPEG audio
        compression as prior art, which is a standard for lossy
        compression of audio. It argued that the invention had
        the technical effect of an increased data efficiency
        with reduced processing complexity. In particular, the
        invention recognized the very significant potential for
        lossless compression by taking advantage of
        redundancies due to repetition in real-life audio.

        However, these arguments are necessarily not pertinent
        as the appellant could not take into account the
        Board's newly cited prior art documents D4 and D5 and
        the new line of arguments based on common general
        knowledge and the prior art described in the
        application itself. Consequently, the appellant's
        arguments based on a comparison with MPEG cannot
        convince the Board. Moreover, as pointed out above, it
        was common general knowledge to use compact coding of
        repetitive audio data in order to achieve data

compression.

4.9   In view of the above, the Board concludes that the
         subject-matter of the independent claims does not
         involve an inventive step.

First auxiliary request

5.   *Article 123(2) EPC*

5.1   Claim 1 of the first auxiliary request has been amended
         by adding the phrase "the digital audio signals (69)
         comprising a string of consecutive time intervals which
         repeat one or more identical frequencies and their
         related amplitudes" to claim 1 of the main request.

5.2   The appellant cited page 2, lines 15 to 18 as basis for
         the amendments. The Board accepts that the amendment
         conforms to the requirements of Article 123(2) EPC.

6.   *Article 56 EPC*

6.1   In the statement of grounds of appeal, the appellant
         submitted that the amendment clarified that the
         invention applied to digital audio signals having
         redundancies of the type that the invention was
         configured to remove.

         The Board agrees that the amendment improves the
         clarity of the claim. However, in the Board's opinion,
         the amendment does not change the assessment of
         inventive step. The amended feature does not modify the
         claimed compression scheme, but clarifies merely that
         redundancies are actually present in the digital audio
         data. Hence, claim 1 of the first auxiliary request is
         obvious in view of the general knowledge of a skilled

person (or any of the documents D4 or D5).

Further Auxiliary requests

7.   *Added subject-matter – Article 123(2) EPC*

7.1   Claim 1 of each of the second, third and fourth
        auxiliary requests has been amended by adding the
        phrase "without information related to repetition
        between each starting point and its end point" to the
        step of filling a static audio file.

7.2   The appellant cited page 30, lines 19 to 22 as basis
        for the amendments.

7.3   The cited passage reads: "Next, the Dynamic to Static
        Audio Truncator 100 erases all occurrences of sound
        information related to said repetition strings of
        frequencies/amplitudes F_xA_y between the 'on' code and
        the 'off' code."

7.4   In the Board's view, the cited passage discloses that
        specific information is erased, whereas the newly added
        feature states that the file contains no information
        related to repetition. In fact, the static audio format
        contains information related to repetition in the form
        of the "on" and "off" codes which specify that some
        information is repeated between the starting and end
        points (see for example the description, page 30, lines
        22 to 25, and page 32, line 16 to page 33, line 4).

7.5   Consequently, the amendment is not supported by the
        application as originally filed and none of the second,
        third and fourth auxiliary requests meets the
        requirements of Article 123(2) EPC.

Conclusion

8.   As none of the appellant's requests can form the basis
        for the grant of a patent, the appeal has to be
        dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

I. Aperribay   M. Rognoni

Decision electronically authenticated