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**Solicitud de registro de patente de invención denominada
"MÉTODO Y DISCRIMINADOR PARA CLASIFICAR
DISTINTOS SEGMENTOS DE UNA SEÑAL"**

**Solicitante: FRAUNHOFER-GESELLSCHAFT ZUR
FÖRDERUNG DER ANGEWANDTEN FORSCHUNG E.V.**

Yo **Juanita Acosta Gómez**, identificada como aparece al pie de mi firma, y obrando en mi condición de apoderada de **FRAUNHOFER-GESELLSCHAFT ZUR FÖRDERUNG DER ANGEWANDTEN FORSCHUNG E.V.**, solicitante de la patente en referencia, a continuación doy respuesta al Oficio No. 6553 que fue notificado por fijación en lista el 16 de Abril de 2013.

Nota: Como respuesta a las objeciones presentadas por el Examinador se modificó el capítulo reivindicatorio, eliminando y modificando algunas de las reivindicaciones presentadas inicialmente. Como consecuencia de lo anterior, se generó una nueva numeración en el nuevo capítulo reivindicatorio; para efectos de claridad al momento de referirse a las reivindicaciones de acuerdo con la Nueva Numeración y Antigua Numeración se opta por utilizar la abreviación (NN) y (AN), respectivamente.

1. Respecto a la materia que no es una invención (Art. 15, D 486, Literal (e))

El Examinador considera que:

Los objetos de las reivindicaciones 1 a 12 no se consideran una invención de acuerdo con el artículo 45 de la decisión 486 literal (e) debido a que "no hay una secuencia de etapas o sucesión de operaciones que inciden sobre una materia (sólida, líquida o gaseosa) que se encamina a la obtención de una cosa o un resultado" (Otero Lastres, José Manuel. Ob. Cit)1.

1 Proceso 129-IP-2007

Para determinar si la solicitud que involucra un programa de computador puede ser considerada materia elegible a estudio de patentabilidad, se deben cumplir una serie de criterios los cuales aseguran que el proceso se limita a una aplicación práctica en particular.

En una primera evaluación se debe cumplir que; (1) la invención reivindicada, debe estar dirigida a una de las dos categorías legales aceptables según el artículo 14 de la Decisión 486: producto o procedimiento, y (2) la materia reclamada, no debe ser dirigida por completo a una excepción a la patentabilidad de las relacionadas en el artículo 15 de la Decisión 486.

En una segunda evaluación las reivindicaciones de procedimiento que involucre un programa de computador, como materia elegible para estudio de patentabilidad deben (1) estar vinculado a una determinada máquina, aparato o dispositivo, o (2) ser una transformación específica de un artículo determinado a un estado u objeto diferente. Se debe tener en cuenta que un método reclamado que no requiera la aplicación de una máquina o no cause una transformación específica de un artículo determinado a un estado u objeto diferente, no pasará la prueba y será rechazado.

Una "máquina" es algo concreto, que consta de partes, o de ciertos dispositivos, y la combinación de dispositivos. Esto incluye todos los dispositivos mecánicos o una combinación de fuerzas mecánicas y dispositivos para realizar alguna función y producir un efecto o resultado. Esta definición debe ser interpretada ampliamente, incluyendo el campo eléctrico, electrónica, óptica, acústica, y otros dispositivos que cumplen una función de lograr un resultado determinado.

La "máquina" debe implementar el proceso, es decir ser un elemento fundamental sin el que el proceso no podría realizarse y no ser un objeto secundario sobre el cual opera el proceso. Lo reclamado debe ser claro en cuanto a la máquina que implementa el proceso, y no afirmar simplemente "proceso implementado por una máquina". Las limitaciones de la máquina deben dejar claro que el uso de la máquina en el proceso reivindicado impone una limitación significativa en el alcance de la reclamación.

Por otra parte, la sola presencia de un vínculo con una máquina o con una transformación, no es suficiente para ser materia elegible a patentabilidad. Para que el procedimiento sea materia elegible a patentabilidad, dicho vínculo debe ser con una máquina en particular o con la transformación en particular de un artículo específico y cumplir con dos requisitos;

En primer lugar, el uso de una máquina particular o la transformación de un artículo particular, debe definir un límite significativo para el alcance de la reclamación; por lo tanto, el hecho de tener una máquina vinculada a un único campo de actividad podría no ser suficiente.

En segundo lugar, la aplicación de la máquina particular o la transformación del objeto particular, debe implicar más que una actividad insignificante extra a la solución.

Una máquina o aparato "particular" o transformación de un artículo "particular" significa que el método involucra una máquina o artículo específico, no cualquiera o todas las máquinas o artículos posibles.

Una actividad insignificante extra a la solución significa una actividad que no es fundamental para el objetivo del método propuesto por el solicitante. Por ejemplo, la recopilación de datos para aplicarse en un procedimiento, cuando todas las aplicaciones del procedimiento que requirieran alguna forma de recopilación de datos, no definieran un límite significativo en el alcance de la reivindicación.

En conclusión lo contenido en las reivindicaciones 1 a 12 no se considera una invención, dado que estas reivindicaciones reclaman un procedimiento que es considerado un programa de ordenador según la definición de la OMPI, expuesta en la decisión Andina 351 de 1993 artículo 3, que dice que un software es "un conjunto de instrucciones mediante palabras, códigos, planes o en cualquier otra forma que, al ser incorporadas en un dispositivo de lectura automatizada, es capaz de hacer que un ordenador -un aparato electrónico o similar capaz de elaborar informaciones-, ejecute determinada tarea u obtenga determinado resultado. El programa de ordenador comprende también la documentación técnica y los manuales de uso" y no puede ser considerada materia elegible a estudio de patentabilidad porque no cumple los requisitos mencionados con anterioridad. Inclusive la descripción recalca la independencia del método de la máquina y confirma su naturaleza de ser un programa de ordenador de la siguiente forma. "Dependiendo de ciertos requerimientos de implementación de los métodos inventivos, los métodos inventivos se pueden implementar mediante hardware o software" (Fl. 48).

Por otra parte, el objeto de las reivindicación 13 no se considera una invención dado que esta reivindicación reclama un programa de ordenador.

Con el fin de superar las objeciones realizadas por el Examinador se modificó el capítulo reivindicatorio. Las alteraciones efectuadas se justificarán individualmente a continuación:

Con respecto a la reivindicación 13(AN), que menciona explícitamente un programa de computador, fue eliminada de acuerdo a las instrucciones del Examinador.

En referencia a las reivindicaciones 1 a 12 (NN), se modificaron fragmentos que serán explicados en el transcurso del presente documento, por lo que las reivindicaciones se transformaron en las reivindicaciones 1 a 12 (NN). A continuación se presenta la siguiente argumentación que evidencia las razones que justifican que las reivindicaciones 1 a 12 (NN) deben ser sometidas a estudio de patentabilidad:

En el capítulo 6 de la GUÍA PARA EXAMEN DE SOLICITUDES DE PATENTE DE INVENCION Y MODELO DE UTILIDAD se proporcionan las instrucciones que el Examinador debe tomar como guía para determinar si la materia reclamada por el solicitante, que involucre un programa de computador, es elegible a estudio de patentabilidad.

Inicialmente la guía indica que el Examinador debe tener en cuenta se deben cumplir los siguientes criterios:

“(1) La invención reivindicada, debe estar dirigida a una de las dos categorías legales aceptables según el artículo 14 D.486: Producto o Procedimiento.

(2) La materia reclamada, no debe ser dirigida por completo a una excepción a la patentabilidad de las relacionadas en el artículo 15 de la D.486. “ (GUÍA PARA EXAMEN DE SOLICITUDES DE PATENTE DE INVENCION Y MODELO DE UTILIDAD, 2012, pág. 233)

Con respecto al cumplimiento del primer criterio la guía define un procedimiento de la siguiente manera:

“Procedimiento Método o proceso: *Es un acto o una serie de actos o pasos que están vinculados a una determinada máquina, aparato ó dispositivo, o a la transformación de un artículo en particular a un estado u objeto diferente.” (GUÍA PARA EXAMEN DE SOLICITUDES DE PATENTE DE INVENCION Y MODELO DE UTILIDAD, 2012, pág. 234)*

En la cita anterior se resalta la conjunción o, que indica que el proceso debe cumplir al menos **una** de las características de estar vinculado a una determinada máquina o a la transformación de un artículo en particular a un estado diferente.

En el caso de la reivindicación 11 (NN) la serie de pasos se encuentra definida claramente de la siguiente manera:

1. Un método para clasificar distintos segmentos de una señal, en el cual la señal comprende segmentos de un primer tipo y un segundo tipo, y el método comprende:
 clasificar en un corto plazo (150) la señal sobre la base de un rasgo distintivo de corto plazo extraída de la señal y entregar un resultado de clasificación de corto plazo (152);
 clasificar en un largo plazo (154) la señal sobre la base de un rasgo distintivo de corto plazo y un rasgo distintivo de largo plazo extraídas de la señal y entregar un resultado de clasificación de largo); y
 combinar (158) el resultado de la clasificación de corto plazo (152) con el resultado de la clasificación de largo plazo (156) para proveer una señal de salida (160) que indica si un segmento de la señal es del primer tipo o del segundo tipo.

De la misma manera, todas las reivindicaciones tratadas, 2 - 12 (NN) también se encuentran expresadas en términos de pasos.

En el caso de necesitar una descripción más detallada el lector puede remitirse al capítulo descriptivo, en el cual se da una explicación clara de la importancia de seleccionar dichos pasos en los procesos la clasificación de distintos segmentos de una señal.

Ahora bien los métodos de las reivindicaciones 1 – 12 (NN) cumplen con la definición de método, ya que la serie de pasos está vinculada a la transformación de un artículo particular en particular a un estado u objeto diferente. Donde el artículo particular en este caso es la señal de audio (110) que es transformada en una señal de salida (160). Aunque una señal de audio a primera vista puede no ser considerada como un artículo particular que pueda someterse a una transformación al no tener materia (sólida, líquida, o gaseosa), la guía del Examinador, en el capítulo 6.5, define lo siguiente:

La "**transformación**" de un artículo significa que el "artículo" ha cambiado a otro estado o a otro objeto. Cambiar a otro estado o a otro objeto por lo general, significa más que el simple uso de un artículo o cambiar la ubicación de un artículo. Una función o uso diferente, puede ser evidencia de que un artículo ha sido transformado. La manufactura y composiciones de la materia son el resultado de la transformación de materias primas en algo nuevo con una función o un uso diferente. (GUÍA PARA EXAMEN DE SOLICITUDES DE PATENTE DE INVENCION Y MODELO DE UTILIDAD, 2012, págs. 243-244)

Como una persona versada en la materia puede entender que las señales son la materia prima en el mundo de la electrónica, la señal de audio (110) que entra al método enunciado por la reivindicación 1(NN) puede considerarse como la materia prima de entrada al método, y una señal de salida (160), que es la salida del mismo, es algo nuevo con una función diferente o es apta para una aplicación diferente. Por lo mencionado anteriormente el método en cuestión logra el cumplimiento del primer criterio citado anteriormente.

Adicionalmente el argumento anterior se reafirma con la siguiente cita de la guía del Examinador:

"Para los datos, la manipulación matemática por sí sola, no se considera como una transformación, pero, la transformación de datos electrónicos puede ser considerada cuando la naturaleza de los datos se ha cambiado de tal manera que tiene una función diferente o es adecuada para una aplicación diferente." (GUÍA PARA EXAMEN DE SOLICITUDES DE PATENTE DE INVENCION Y MODELO DE UTILIDAD, 2012, pág. 244)

Con respecto al segundo criterio que indica que la materia reclamada no debe ser dirigida por completo a una excepción a la patentabilidad de las relacionadas en el artículo 15 de la D.486., el Examinador está dirigido según la guía del Examinador a preguntarse si: ¿Se puede considerar la materia reclamada una Aplicación Práctica?"

Como respuesta a la pregunta anterior se manifiesta que los métodos reclamados en las reivindicaciones 1 - 12 (NN) sí se limitan a una aplicación práctica, y pueden someterse a estudio, ya que son métodos correspondientes procesos reales con aplicación industrial, relacionados con la clasificación de distintos segmentos de una señal.

Se reitera que la reivindicación no trata de reclamar una ley de la naturaleza ni un proceso mental, ya que al tener una aplicación real, se evidencia que la materia reclamada NO es abstracta.

Ahora bien, al haber aprobado los criterios anteriores es necesario cuestionarse si la materia reclamada está conectada con una transformación en particular de un artículo específico. A lo anterior una persona versada en la materia entenderá que una señal de audio abarca una región específica del rango de todo el tipo de señales que existen en la electrónica, y que la clasificación de distintos segmentos de una señal cumple claramente con la característica de ser una transformación particular, por ende, también se aprueba la restricción enunciada.

Finalmente la transformación debe imponer un límite real en el procedimiento reivindicado, e igualmente debe implicar más que una actividad insignificante extra a la solución. A lo anterior se responde que la reivindicación en sí sólo puede llegar al resultado deseado (solución), llevando a cabo la serie de pasos que el Examinador cataloga como método con naturaleza de programa de computación, por ende la ejecución del programa en sí es el límite real del proceso reivindicado. Por ende, como la ejecución del método, con naturaleza de programa de computador, es el medio único para obtener el resultado deseado, no es una actividad insignificante extra a la solución.

Por todo lo anterior se concluye que las reivindicaciones 1 - 12 (NN) deben ser admitidas para estudio de patentabilidad. Adicionalmente se presenta a continuación, en la figura 1, el Diagrama M-T Para Determinar La Elegibilidad De Materia A Estudio De La Categoría De Procesos, que ayuda a expresar de manera gráfica las restricciones aprobadas por las reivindicaciones que las habilitan para ser estudiadas.

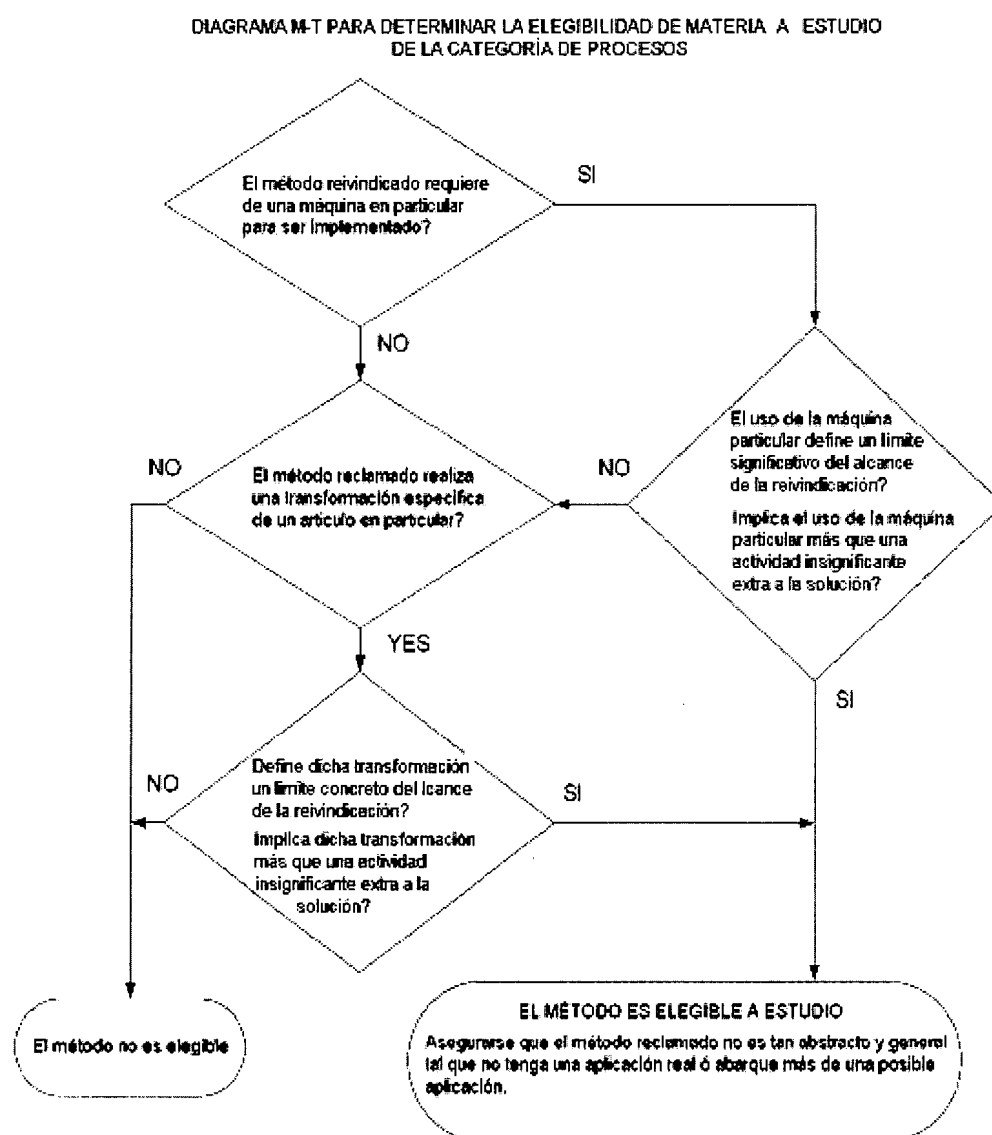


FIG. 1. Diagrama M-T Para Determinar La Elegibilidad De Materia A Estudio
De La Categoría De Procesos

2. Respecto a las Objeciones a la Claridad y Concisión de las reivindicaciones (Art. 30 D486 y Art 22 PCT).

En el numeral 5 del oficio No. 6553, se presentan las siguientes objeciones a la claridad de las reivindicaciones

- Las reivindicación 14 no es clara porque el término "...por lo menos un rasgo distintivo..." es impreciso, se sugiere sustituirlos por un término preciso o un rango concreto.
- La reivindicación 14, 16 y 17 presenta los siguientes términos "...un clasificador de corto plazo...", "...un clasificador de largo plazo ...", "...circuito de decisión...", "...una entrada...", "...un primer elemento procesador...", "...un segundo elemento procesador...", "...un discriminador...",

"...dispositivo conmutador...", "...codificador de voz..." y "...codificador de música...", los cuales son de carácter general que sugieren de forma imprecisa que la protección se extiende a otras posibles variaciones o modificaciones.

- Las reivindicaciones 14, 15 y 16 no están caracterizadas por sus características esenciales sino por resultados a alcanzar definidos por los términos "...configurado para recibir una señal de audio y para determinar si un segmento actual de la señal de audio es un segmento de voz o un segmento de música...", "...configurado para combinar el resultado de la clasificación de corto plazo (152) con el resultado de la clasificación de largo plazo (156)...", "...configurado para proveer la señal de salida...", "...configurada para recibir una señal de audio...", "...configurado para procesar segmentos de voz ...", "...configurado para procesar segmentos de música ...", "... configurado para aplicar la señal de audio proveniente de la entrada..." y en general el término "...configurado/a/os /as para..." que caracteriza los elementos por sus resultados a alcanzar. Es así que estas reivindicaciones no se pueden aceptar, ya que equivaldría a reivindicar todas las alternativas presentes o futuras que llegan al resultado a alcanzar.
- La reivindicación 17 no es clara porque presenta una falsa dependencia. La reivindicación 17 se presenta como una reivindicación independiente pero hace referencia a la reivindicación 16.

Con el fin de superar las objeciones presentadas con respecto a la claridad y concisión de las reivindicaciones, **es deseo del solicitante presentar un nuevo capítulo reivindicatorio compuesto por 17 reivindicaciones**, que encuentran su debido sustento en las reivindicaciones y la descripción originalmente presentadas, sin que ello conlleve ampliación de la invención.

A continuación se explicará cómo este nuevo capítulo reivindicatorio busca superar cada una de las objeciones de claridad expuestas previamente:

- Con respecto a la reivindicación 14 (AN) que no es clara debido a que el término "...por lo menos un rasgo distintivo..." es impreciso, se eliminó la expresión "por lo menos", no sólo de la reivindicación 14, sino de todo el capítulo reivindicatorio.
- Con respecto a las objeciones correspondientes a las reivindicaciones 14, 16 y 17 (AN), que presentan términos de carácter general, los cuales

sugieren de forma imprecisa que la protección se extiende a otras posibles variaciones o modificaciones, no se está de acuerdo con el Examinador por las siguientes razones:

El lenguaje utilizado en las partes del aparato reclamado es natural en el área de la técnica tratada, y es necesario hacer claro que una persona versada en la materia entendería claramente que lo que se desea reclamar no es la utilización de las partes individuales por separado, sino la conexión específica de las mismas. Ahora bien, para un tercero que no conozca el alcance real de la invención, las partes como “un casificador” son demasiado generales, pero en el momento de ver de manera macroscópica la totalidad del aparato reclamado, se identifica que las partes tienen la especificidad necesaria y suficiente para que la protección se asigne solamente a la solución proporcionada por el solicitante, ya que dicha solución es única.

Normalmente, en ésta área del conocimiento técnico, se expresa la información y conformación de los dispositivos por medio de diagramas de bloques, tanto así que se ha vuelto un estándar global en el momento de realizar los dibujos de las publicaciones internacionales de aplicaciones para proteger propiedad intelectual; se entiende que el Examinador percibe que cada una de estas partes conflictivas está representado como uno de los bloques de los diagramas de bloques de las figuras de la aplicación, y que por esto son demasiado generales e imprecisos, pero cabe hacer la anotación de que la conexión única de todos los bloques hace que se pierda la generalidad que se aprecia al analizar los elementos por separado.

Cabe resaltar que los términos “generales” conflictivos de esta aplicación fueron aprobados en aplicaciones presentadas en Europa, pero para que haya suficiente claridad en que el lenguaje utilizado es el apropiado y suficiente, inclusive bajo la legislación colombiana, en el Apéndice A, tablas A.1. – A.5., se presentan cinco ejemplos de patentes concedidas en Colombia, las cuales tienen el mismo lenguaje de abstracción acerca de las partes de un aparato que pueden intuirse como partes de un diagrama de bloques.

Para ser más precisos se muestra a continuación los términos afectados por generalidad en la aplicación, y posteriormente algunos de los términos encontrados en el Apéndice A:

Términos afectados en la aplicación:

*"...un clasificador de corto plazo...", "...un clasificador de largo plazo ...", "...circuito de decisión...", "...una entrada...", "...un primer elemento **procesador**...", "...un segundo elemento **procesador**...", "...un discriminador...", "...dispositivo conmutador...", "...codificador de voz..." y "...codificador de música..."*

Términos encontrados en el apéndice A:

*"componente de conexión", "componente de medida", "un **procesador**", "sistema de **circuitos** de comunicación ", "una fuente de energía", "una memoria", "un controlador", "un separador ", "un transformador, "una parte de generación" y "un microcomputador"*

Aunque se haya resaltado en negrilla algunos de los términos encontrados en los dos listados, el objetivo de la comparación no es sólo mencionar que ya han sido aprobados algunos de ellos anteriormente, sino que el tipo de información es apropiada para describir las partes del aparato, y se utiliza de manera usual.

Por lo presentado anteriormente se concluye que los términos no son demasiado generales para utilizarlos como partes, ya que la protección no se extenderá a otras posibles variaciones o modificaciones, debido a que la forma en que están conectados todos ellos garantiza una forma única de llegar a la solución del problema suministrada en la presente invención.

- Con respecto a las objeciones de las reivindicaciones 14, 15 y 16, en las cuales el Examinador indica que se trata de caracterizar la invención por sus resultados a alcanzar, se modificaron de manera que se superara la objeción de claridad.
- Con respecto a la reivindicación 17, que no es clara porque presenta una falsa dependencia, ya que se presenta como reivindicación independiente pero hace referencia a la reivindicación 16, se eliminó la expresión conflictiva.

3. Con respecto a la Determinación del Estado de la Técnica y al Examen de Patentabilidad

Novedad

En los numerales 6, 7 y 8 del oficio citado, ese Despacho concluye que las reivindicaciones de la presente solicitud de patente carecen de novedad frente a las enseñanzas de los documentos **US2003101050 (D1)**.

El señor Examinador considera que la novedad de la presente invención, en la reivindicación 14, está afectada debido a que D1 revela algunas o todas las características esenciales de la invención. En este sentido, el Examinador presenta la siguiente comparación:

Características esenciales	D1
Clasificador de corto plazo	Extractor de características que extrae las características de corto plazo y de largo plazo (Reiv. 14)
Clasificador de largo plazo	Extractor de características que extrae las características de corto plazo y de largo plazo (Reiv. 14)
Circuito de decisión	Módulo de clasificación (Reiv. 14)

Aunque el Examinador haya citado el documento US2003101050 (D1) para objetar la novedad y la altura inventiva de la presente invención, es posible afirmar que este no enseña las características esenciales de la invención, como será demostrado a continuación.

Específicamente el documento D1, al menos, no da a conocer la siguiente característica:

“usar las características de corto plazo y largo plazo para la clasificación de largo plazo, y combinar los resultados de la clasificación obtenida de las clasificaciones del corto plazo y el largo plazo”

Para ser más específicos, la segunda característica de la reivindicación 1 relativo a la clasificación de largo plazo requiere el uso de tanto el largo plazo y las características de corto plazo extraídas. Como se verá más adelante, esto no se describe en el documento D1, por el contrario, las dos características se utilizan independiente el uno del otro.

La tercera característica de la reivindicación 1 en el archivo que define el resultado de la clasificación a corto plazo y el resultado de la clasificación a largo plazo se combinan para proporcionar una señal de salida que indica si la señal actual es una señal de voz o una señal de música. Como se verá más adelante, el documento D1 no combina el resultado de la clasificación de corto plazo y el resultado de la clasificación a largo plazo.

(a) La divulgación de documento D1:

El documento D1 describe un clasificador en tiempo real de voz y música. Para la clasificación, características de largo plazo y corto plazo son extraídas para cada marco (ver resumen), por lo cual características de largo plazo son usadas para detectar un punto de conmutación potencial al conmutar un codificador a modo de operación, y las características de largo plazo son usadas para clasificar cada marco y validar el conmutador potencial en el punto de conmutación potencial de acuerdo a la clasificación y criterio predefinido.

La estructura básica del clasificador está mostrada en la figura 2, del documento D1. El clasificador recibe las muestras de audio en un "look-ahead buffer 210" desde el cual las muestras son enviadas al extractor de características 220 que determina características de largo plazo 221 y características de corto plazo 222 que son alimentadas a un módulo clasificador singular 230 (operando como descrito con referencia a la figura 3). Las características de plazo corto son usadas para determinar un punto potencial de conmutación y las características son entonces usadas para determinar de manera más precisa si conmutar en aquel punto por clasificar los marcos de audio y validar el potencial de conmutación detectado de acuerdo a un criterio de conmutación predeterminado (observar párrafo [0037]). La figura 3 describe esta aproximación en mayor detalle. Las señales de audio recibidas son formateadas en marcos y se ponen en cola dentro del "look-ahead buffer" (ver figura 3 y párrafo [0038]). En un paso 340, un set de características de largo plazo y un set de características de corto plazo son extraídas, y subsecuentemente, en el paso 350 se es determinado si una conmutación potencial es indicado de acuerdo a las características de corto plazo del marco de codificación actual. En caso de que lo anterior no sea afirmativo, el método procede al siguiente marco, i.e. en caso de que la característica de plazo largo indique que no se requiera conmutación, no es tomada ninguna otra acción con respecto a las características de largo plazo. Sólo en el caso de que las características de corto plazo indiquen que la conmutación pueda ser deseada,

los pasos adicionales 360-390 son ejecutados y, en particular, en el paso 370 el marco es clasificado de acuerdo a las características de largo plazo extraídas (ver párrafo [0038], líneas 5 a 9 y líneas 16 – 17).

En los párrafos [0040] a [0058] son descritos en detalle ejemplos para derivar las características de largo plazo y corto plazo, y del párrafo [0061], líneas 1- 3, es claro que los valores de característica de largo plazo y los valores de característica de corto plazo son calculados para las características descritas.

(b) Uso de las características de largo plazo u corto plazo para la clasificación de las características de largo plazo.

El documento D1 no describe que la clasificación del plazo largo está basado en características de corto y largo plazo. En realidad, e.g. en el párrafo [0061], enuncia:

"[0061] las características de los valores a largo y corto plazo son calculados por las características seleccionadas tal como las que están descritas arriba. Una ventana de tiempo típico para la medición de una característica a corto plazo es 0,2 segundos, que corresponde a, por ejemplo 10 marcos, mientras que para una característica a largo plazo, la ventana de tiempo típico es de 1 segundo, correspondiente a, por ejemplo, 50 marcos, a 20 milisegundos-por-marco. Mediante el uso tanto a corto plazo como a largo plazo valores de características para la clasificación y la determinación del tiempo de conmutación, el clasificador realiza de manera más eficiente y precisa de clasificadores típicos"

La primera parte (valores a largo plazo y valores a corto plazo son calculados por las características seleccionadas...) solo dice que los valores a largo y corto plazo son calculados en una forma como se describen en los párrafos (0040) a (0058) sin embargo, los párrafos (0040) hasta (0058) no mencionan que para la clasificación de los plazos a largo plazo se usan la características de los plazos a corto y a largo plazo.

La última parte (usando las características de los valores a largo y a corto plazo por clasificación y cambiando la determinación del tiempo) solo describe que estas características son usadas para clasificación, es decir en una manera que es descrito con la referencia de la figura 3 (determinación de

conmutación por características de corto plazo y validando por la característica de largo plazo).

Por lo tanto, el solicitante considera que el párrafo [0061] no proporciona ninguna base o constatación de que la clasificación a largo plazo de acuerdo con el documento D1 sea basada en las características de corto y largo plazo.

(c) Combinación de los resultados de clasificación.

El documento D1 no describe la combinación de los resultados de corto plazo y largo plazo. En realidad el documento D1, e.g. en el párrafo [0038] menciona:

“[0038] Para cada uno de los marcos grabados, un set de características de largo plazo y un set de características corto plazo son extraídos en el paso 340. Subsecuentemente en el paso 350, se determina si una conmutación potencial es indicada de acuerdo a las características de corto plazo en el marco de codificación actual y el modo de codificación actual. Si el paso 350 rinde un “sí”, el método procede al paso 360 donde el marco actual es marcado como la ubicación potencial de conmutación. De lo contrario, el proceso retorna al paso 340 para el análisis de un marco subsecuente. Siguiendo el paso 630, los pasos 370 y 380 son usados para determinar si conmutar el modo de operación actual del codificador. En particular, en el paso 370 el marco es clasificado de acuerdo a las características de largo plazo, y la clasificación de marcos es usada en el paso 380 para determinar su conmutar el modo de operación actual de codificador basado en un criterio predefinido. En el paso 390, el codificador permanece en su modo de operación actual o conmuta, de acuerdo a la decisión de conmutación del paso 380 para el marco, y el proceso vuelve al paso 340 para procesar un marco subsecuente...”

No existe una declaración en este párrafo (y tampoco en el resto del documento D1) permitiendo para la conclusión que los resultados de largo y corto plazo son combinados en un modo tal que una señal combinada es obtenida en la base de que una indicación de voz o música es realizada. En realidad, se menciona que el primer resultado de corto plazo es usado y en caso de indicarse conmutación, también la característica de resultado de largo plazo es utilizada. Esto, sin embargo, no es una “combinación” de los resultados.

En vista de los comentarios anteriores, se cree que el Examinador concordará en que la reivindicación en cuestión es novedosa con respecto al documento evidenciado como referencia del estado de la técnica.

El señor Examinador considera que la novedad de la presente invención, en la reivindicación 16, está afectada debido a que D1 revela algunas o todas las características esenciales de la invención. En este sentido, el Examinador presenta la siguiente comparación:

Características esenciales	D1
Una entrada	Un codificador que recibe segmentos de audio (Reiv. 16)
Un primer elemento procesador	Codificador con dos modos de operación; uno para codificar voz y otro para codificar música (Reiv. 16)
Un segundo elemento procesador	Codificador con dos modos de operación; uno para codificar voz y otro para codificar música (Reiv. 16)
Un discriminador	Clasificador que define en que modo se codifica (voz o música) basado en las características de corto y largo plazo. (Reiv. 16)
Un dispositivo conmutador	Clasificador que define en que modo se codifica (voz o música) basado en las características de corto y largo plazo. (Reiv. 16)

Aunque el Examinador haya citado el documento US2003101050 (D1) para objetar la novedad y la altura inventiva de la presente invención, es posible afirmar que este no enseña las características esenciales de la invención, como será demostrado a continuación.

La reivindicación 16 reclama un procesador de señales de audio, el cual, dentro de sus partes incluye al discriminador novedoso correspondiente a la reivindicación 14. Aunque el documento D1 exponga a un elemento que se puede relacionar con un discriminador, se hace evidente que no es mismo elemento novedoso de la solicitud. Por lo anterior se intuye que elemento de la reivindicación 16, también es novedoso.

El señor Examinador considera que la novedad de la presente invención, en la reivindicación 17, está afectada debido a que D1 revela algunas o todas las características esenciales de la invención. En este sentido, el Examinador presenta la siguiente comparación:

Características esenciales	D1
Una entrada	Un codificador que recibe segmentos de audio (Reiv. 16)
Un codificador voz	Codificador con dos modos de operación; uno para codificar voz y otro para codificar música (Reiv. 16)
Codificador de música	Codificador con dos modos de operación; uno para codificar voz y otro para codificar música (Reiv. 16)
Un discriminador	Clasificador que define en que modo se codifica (voz o música) basado en las características de corto y largo plazo. (Reiv. 16)
Un dispositivo conmutador	Clasificador que define en que modo se codifica (voz o música) basado en las características de corto y largo plazo. (Reiv. 16)

Aunque el Examinador haya citado el documento US2003101050 (D1) para objetar la novedad y la altura inventiva de la presente invención, es posible afirmar que este no enseña las características esenciales de la invención, como será demostrado a continuación.

La reivindicación 17 reclama un codificador de audio, el cual, dentro de sus partes incluye al discriminador novedoso correspondiente a la reivindicación 14. Aunque el documento D1 exponga a un elemento que se puede relacionar con un discriminador, se hace evidente que no es mismo elemento novedoso de la solicitud. Por lo anterior se intuye que elemento de la reivindicación 17, también es novedoso.

Con el fin de dar mayor claridad a los argumentos presentados anteriormente, se anexa el examen técnico realizado por la oficina europea de patentes

(EPO), en el cual se aprecia que inicialmente se afectaron las reivindicaciones independientes por novedad, pero se utilizó un argumento similar al expuesto anteriormente para evidenciar las características novedosas de la presente invención.

4. Conclusión

Las modificaciones realizadas a las reivindicaciones de la presente solicitud de patente y las aclaraciones presentadas a lo largo del presente escrito, permiten superar completamente las objeciones realizadas a la claridad de las reivindicaciones, por lo cual, la presente solicitud cumple a cabalidad las exigencias establecidas por el artículo 30 de la Decisión 486 y el artículo 22 del Tratado de Cooperación en Materia de Patentes PCT, según los requerimientos del examinador.

De otra parte, los argumentos expuestos en el numeral 4 del presente escrito, ponen de manifiesto de una manera clara y contundente, que lo revelado en las nuevas reivindicaciones de la presente solicitud, resulta completamente NOVEDOSO E INVENTIVO sobre las enseñanzas del estado del arte más cercano representado por el documento D1, toda vez que nada dentro de dichos documentos revela en forma directa o al menos llega a sugerir el método y discriminador para clasificar distintos segmentos de una señal, descrito en la invención, por consiguiente, no se puede derivar la inexistencia de los requisitos de ley para la concesión del privilegio de patentabilidad.

En consecuencia, me permito solicitar a ese Despacho, proceder con la revisión de las modificaciones y de los argumentos aquí presentados, para conceder el privilegio de patente solicitado para la materia objeto de las 17 reivindicaciones ahora presentadas en el capítulo reivindicatorio modificado, y que de subsistir alguna duda o inquietud con respecto a la patentabilidad de la presente invención, a pesar de las modificaciones y argumentos técnicos ahora presentados, sin apartarse del espíritu inventivo originalmente revelado en la solicitud internacional, se le brinde la oportunidad al solicitante de aclararla o de limitar aún más la invención, mediante la emisión de un segundo examen de fondo, teniendo en cuenta el nuevo capítulo reivindicatorio que se somete a revisión, antes de que se

emita una decisión definitiva por parte de ese Despacho, de conformidad con lo dispuesto en 1.2.2.5.1 del artículo primero de la Resolución 54093 de 2012.

5. Anexos

- Capítulo reivindicatorio modificado, en donde se han llevado a cabo las modificaciones mencionadas anteriormente.
- Recibo de caja No. _____ por concepto de reivindicaciones adicionales.
- Anexo A. con tablas de ejemplos de aplicaciones precedentes.
- Examen técnico realizado por la oficina europea de patentes (EPO).

6. Petición

Solicito al Despacho que proceda a emitir un segundo examen de fondo sobre el nuevo capítulo reivindicatorio, en el evento en que el examinador considere que pese a las modificaciones presentadas, aún persisten las objeciones planteadas.

Atentamente,



JUANITA ACOSTA GOMEZ

C.C 52.618.636 de Bogotá

T.P. 79.686 C.S.J.

ABM

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SIC. (s.f.). *VALVULA ELECTRONICA CONTROLABLE DE BAJA DISIPACION, UN CONTROLADOR DE ENERGIA Y METODO PARA CONTROLAR LA ENERGIA SUMINISTRADA A UNA CARGA.*

Recuperado el 08 de 07 de 2013, de http://serviciospub.sic.gov.co/~oparra/serv_57/exter

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO DELEGATURA PARA LA PROPIEDAD INDUSTRIAL DE NUEVAS CREACIONES. (MAYO de 2012). GUÍA PARA EXAMEN DE SOLICITUDES DE PATENTE DE INVENCION Y MODELO DE UTILIDAD. BOGOTA D.C., COLOMBIA.

ANEXO A: Información de patentes de invención presentadas en Colombia.

TABLA A.1:

Expediente	10 147848	Fecha de solicitud	24/11/2010 17:28
Sector	INGENIERIA ELECTRICA	Clasificación Ipc	A46B 15/0 AC;
Datos Pct	-Inicio Fase nacional	07/12/2010	
	-Fecha presentación Internacional	07/05/2008	
	-Solicitud Internacional Nº	PCT/US2008/062864	
	-Publicación Internacional Nº	WO2009/136918	
	-Fecha publicación Internacional	12/11/2009	
Título	MÉTODO PARA DAR SALIDA DE SEÑALES DE AUDIO DESDE UN IMPLEMENTO DE CUIDADO ORAL DEPENDIENDO DE LA ORIENTACIÓN DE ESTE		
Solicitante(s)	COLGATE-PALMOLIVE COMPANY		
Inventor(es)	JOHN GATZEMEYER		
	EDUARDO JIMENEZ		
	ROBERT A. MOSKOVICH		
	KENNETH WAGUESPACK		
	JAMES KEMP		
	DOUGLAS HOHLBEIN		
	MARY HORCHOS		
	THOMAS MINTEL		
Gaceta	Numero	Fecha	NP
	626	22/03/2011	33
Estado	CONCESION 2013-03-18 16:08:32		
	<u>Etapas del Trámite</u>		
Resumen	Los aspectos de la presente invención permiten a una persona conocer cuando ella/él ha cepillado sus dientes por un periodo de tiempo mientras disfruta de un interludio de audio.		
	En un aspecto, un aparato incluye un componente de conexión configurado a conectar el aparato a cualquiera de una pluralidad de aparatos diferentes.		
	En otro aspecto, un cepillo de dientes incluye por lo menos un componente de medida configurado para medir un parámetro de uso del cepillo de dientes en una región de cuidado oral, y un procesador configurado para cambiar la salida de una primera señal de audio de una pluralidad de señales de audio a una segunda señal de audio de una pluralidad de señales de audio, basado en el parámetro de medición.		
	En otro aspecto, un cepillo de dientes incluye un procesador configurado para recibir los primeros datos de una fuente externa y dar salida a los segundos datos correspondientes a los primeros datos recibidos para por lo menos un dispositivo de salida; el por lo menos dispositivo de salida está configurado para dar salida a los segundos datos del procesador.		
	Aquí se discuten una variedad de configuraciones de diferentes módulos de audio de salida y cepillos de		

	dientes, cada uno creando un ambiente agradable durante el cepillado de los dientes. Estas configuraciones proporcionan una mejora ventajosa para la higiene oral para niños y adolescentes.

TABLA A.1. MÉTODO PARA DAR SALIDA DE SEÑALES DE AUDIO DESDE UN IMPLEMENTO DE CUIDADO ORAL DEPENDIENDO DE LA ORIENTACIÓN DE ESTE. (SIC, MÉTODO PARA DAR SALIDA DE SEÑALES DE AUDIO DESDE UN IMPLEMENTO DE CUIDADO ORAL DEPENDIENDO DE LA ORIENTACIÓN DE ESTE)

TABLA A.2.

Expediente	10 89251	Fecha de solicitud	22/07/2010 14:49
Sector	INGENIERIA ELECTRICA	Clasificación Ipc	G5D 5/0 AC;
Título	IMPLANTE PARA LA RECOPIACIÓN DE DATOS CON UN SENSOR CON CAPACIDAD DE GENERAR DATOS DE SALIDA EN RESPUESTA AL IMPLANTE QUE RECIBE SEÑAL DE INTERROGACIÓN Y MÉTODO PARA CALIBRAR DICHO IMPLANTE		
Solicitante(s)	CODMAN NEURO SCIENCES SARL		
Inventor(es)	ROCCO CRIVELLI		
	DANILLO ROTH		
	ALEC GINGGEN		
Gaceta	Numero	Fecha	NP
	628	20/05/2011	75
Estado	CONCESION 2013-02-25 17:09:40		
	<u>Etapas del Trámite</u>		
Resumen			
	Un implante incluye un procesador, un sistema de circuitos de comunicación por RF, un sistema de circuitos de comunicación óptica, una fuente de energía y una memoria, todos sellados herméticamente dentro de un alojamiento con una ventana transparente. Las lecturas del sensor se transmiten por RF con el uso del sistema de circuitos de comunicación por RF hacia un lector remoto después de recibir las señales de interrogación del lector. Durante la calibración del sensor, se calculan los coeficientes correctivos mediante la comparación de las lecturas reales de la presión del sensor con lecturas de presión conocidas. Los coeficientes correctivos se transmiten a la memoria del sistema de circuitos de control con el uso de comunicación óptica, en donde la luz modulada se transmite a través de la ventana transparente del alojamiento al fotodetector.		

TABLA A.2. IMPLANTE PARA LA RECOPIACIÓN DE DATOS CON UN SENSOR CON CAPACIDAD DE GENERAR DATOS DE SALIDA EN RESPUESTA AL IMPLANTE QUE RECIBE SEÑAL DE INTERROGACIÓN Y MÉTODO PARA CALIBRAR DICHO IMPLANTE. (SIC, IMPLANTE PARA LA RECOPIACIÓN DE DATOS CON UN SENSOR CON CAPACIDAD DE GENERAR DATOS DE SALIDA EN RESPUESTA AL IMPLANTE QUE RECIBE SEÑAL DE INTERROGACIÓN Y MÉTODO PARA CALIBRAR DICHO IMPLANTE)

TABLA A.3.

Expediente	97 3703	Fecha de solicitud	27/01/1997 17:02
Sector	INGENIERIA ELECTRICA	Clasificación Ipc	H1L 29/0 ;
Certificado	26693	Tipo concesión	TOTAL
Vigencia desde	27/01/1997	Hasta	27/01/2017
Título	VALVULA ELECTRONICA CONTROLABLE DE BAJA DISIPACION, UN CONTROLADOR DE ENERGIA Y METODO PARA CONTROLAR LA ENERGIA SUMINISTRADA A UNA CARGA		
Dueño(s)	BENSYS CORP.		
Inventor(es)	ACATRINEI BENIAMIN		
Gaceta	Numero	Fecha	NP
	460	08/05/1998	716
Estado	CADUCADO 2007-06-08 14:48:30		
	Etapas del Trámite		
Resumen	1.- Una válvula electrónica controlable para controlar una		
	energía suministrada a un circuito de carga en respuesta a una fuente de potencia de entrada, comprende:		
	un controlador de potencia para controlar un voltaje a través de dicho circuito de carga, una corriente de entrada que se introduce en dicho controlador de potencia a través de un electrodo de voltaje de entrada (V entrada) dicha corriente de entrada se genera por dicha fuente de potencia de entrada, dicha corriente de entrada incluye una corriente de carga y una corriente interna (I interna) dicha corriente de carga sale por dicho controlador de potencia hacia dicho circuito de carga, I interna es la salida a través de la salida conmutada;		
	un controlador de corriente para mantener I interna en un valor constante, dicho controlador de corriente tiene una salida acoplada a una tierra, tiene una entrada, y tiene al menos un electrodo de control de corriente;		
	un controlador de umbral de voltaje para suministrar una corriente umbral, dicho controlador de umbral de voltaje tiene al menos una entrada y al menos una salida; y		
	un separador de corriente para controlar el pasaje de I interna y dicha corriente umbral a dicha fuente de corriente constante, una primera entrada de dicho separador de corriente está acoplado con dicha salida conmutada de dicho controlador de potencia, una segunda entrada de dicho separador de corriente está acoplada con dicha salida de dicho controlador de umbral de voltaje, dicha salida de dicho separador de corriente está acoplada con dicha entrada de dicho controlador de corriente.		

TABLA A.3. VALVULA ELECTRONICA CONTROLABLE DE BAJA DISIPACION, UN CONTROLADOR DE ENERGIA Y METODO PARA CONTROLAR LA ENERGIA SUMINISTRADA A UNA CARGA. (SIC, VALVULA ELECTRONICA CONTROLABLE DE BAJA DISIPACION, UN CONTROLADOR DE ENERGIA Y METODO PARA CONTROLAR LA ENERGIA SUMINISTRADA A UNA CARGA)

TABLA A.4.

Expediente	10 140782	Fecha de solicitud	10/11/2010 13:49						
Sector	INGENIERIA ELECTRICA	Clasificación lpc	G5D 23/19 AC;						
Datos Pct	-Inicio Fase nacional	27/04/2011							
	-Fecha presentación Internacional	08/09/2009							
	-Solicitud Internacional Nº	PCT/KR2009/005066							
	-Publicación Internacional Nº	WO2010/035967							
	-Fecha publicación Internacional	01/04/2010							
Título	CONTROLADOR DE TEMPERATURA QUE TIENE CONTROL DE FASE Y FUNCION DE CONTROL DE CICLO CRUZADO CERO								
Solicitante(s)	AUTONICS CORPORATION								
Inventor(es)	HWAN-KI PARK								
Gaceta	Numero	Fecha		NP					
	632	20/09/2011		1181					
Estado	CONCESION 2013-06-27 10:41:47								
	<u>Etapas del Trámite</u>								
Resumen	La presente invención se relaciona con un controlador de temperatura que tiene control de fase y función de control de ciclo cruzado cero que se puede conseguir a un costo bajo, controlando la potencia que se suministra a una carga, mediante la generación de una señal de control de fase o una señal de control cruzado cero, de acuerdo con la temperatura objetivo de control de una carga, utilizando un microcomputador.								
	Una implementación ejemplar de la presente invención proporciona un controlador de temperatura que tiene control de fase y función de control de ciclo cruzado cero, que controla una carga a una temperatura objetivo preestablecida, mediante el funcionamiento del control de fase o del control cruzado cero sobre la potencia suministrada a la carga, después de detectar y analizar la temperatura de la carga con un sensor de temperatura, el cual incluye: una parte del circuito de sincronización de la fuente de potencia que saca una señal de sincronización proveniente de una potencia AC; una parte del circuito de potencia en la cual una fuente de potencia AC se conecta con una primera bobina de un transformador, y una parte de generación de potencia de conducción y una parte de generación de potencia de activación del triac se acondicionan respectivamente sobre una segunda bobina; un microcomputador que genera una señal de control de fase o una señal de control de ciclo cruzado cero, para analizar la temperatura de la carga detectada mediante un sensor de temperatura y controlar la temperatura hasta la temperatura objetivo; y una parte de conducción del triac que aplica potencia generada desde la parte de generación de la fuente de potencia de activación, como una señal de activación, hacia una entrada de un triac conectado a la carga, de acuerdo con una señal de control de fase o una señal de control de ciclo cruzado cero del microcomputador.								

TABLA A.4. CONTROLADOR DE TEMPERATURA QUE TIENE CONTROL DE FASE Y FUNCION DE CONTROL DE CICLO CRUZADO CERO. (SIC, CONTROLADOR DE TEMPERATURA QUE TIENE CONTROL DE FASE Y FUNCION DE CONTROL DE CICLO CRUZADO CERO)

TABLA A.5.

Expediente	9 70588	Fecha de solicitud	08/07/2009 15:41						
Sector	INGENIERIA ELECTRICA	Clasificación Ipc	H4B 7/26 AC;						
Certificado	2309	Tipo concesión							
Vigencia desde	07/12/2007	Hasta	07/12/2027						
Datos Pct	-Inicio Fase nacional	08/08/2009							
	-Fecha presentación Internacional	07/12/2007							
	-Solicitud Internacional Nº	PCT/EP2007/063493							
	-Publicación Internacional Nº	WO2008/083886							
	-Fecha publicación Internacional	17/07/2008							
Título	MÉTODOS PARA DETECTAR E INDICAR PARÁMETROS DE TIEMPO E IDENTIDAD DE UN GRUPO DE CELDAS PARTICULAR A PARTIR DE UN NÚMERO DE GRUPOS DE CELDAS EN UNA SEÑAL RECIBIDA POR UN SISTEMA DE COMUNICACIÓN CELULAR QUE EMPLEA UN MARCO DE RADIO EN UNA CAPA FÍSICA								
Dueño(s)	TELEFONAKTIEBOLAGET L M ERICSSON (PUBL)								
Inventor(es)	BENGT LINDOFF								
	ROBERT BALDEMAIR								
	ERIK DAHLMAN								
Prioridad	US 60/883.898 08/01/2007 AC								
Gaceta	Numero	Fecha	NP						
	613	19/02/2010	1276						
Estado	CONCESION 2012-11-26 23:32:10								
	<u>Etapas del Trámite</u>								
Resumen	Un método para indicar parámetros de tiempo y la identidad de un grupo de células en particular a partir de un número, M, de posibles grupos de células en una señal transmitida por un sistema de comunicación celular que emplea un bastidor de radio en un nivel físico; el bastidor de radio que comprende un número de intervalos de tiempo, el método que comprende:								
	transmitir, en uno de los intervalos de tiempo conocidos del bastidor de radio, una señal de sincronización, S ₁ , que comprende un par de secuencias								
	organizadas en una primera ordenación, y								
	transmitir, en otro de los intervalos de tiempo conocidos del bastidor de radio, una señal de sincronización, S ₂ , que comprende el par de secuencias								
	organizadas en una segunda ordenación,								
	en donde:								
cada miembro del par de secuencias,									

	es seleccionado de entre un grupo que comprende por lo menos diferentes secuencias de
	el par de secuencias seleccionadas es identificado únicamente con el grupo de células en particular, donde:
	la primera ordenación de secuencias es utilizada solo para transmitir en uno de los intervalos de tiempo conocidos del bastidor de radio, y la segunda ordenación de secuencias es utilizada solamente para transmitir en otro de los intervalos de tiempo conocidos.

TABLA A.5. MÉTODOS PARA DETECTAR E INDICAR PARÁMETROS DE TIEMPO E IDENTIDAD DE UN GRUPO DE CELDAS PARTICULAR A PARTIR DE UN NÚMERO DE GRUPOS DE CELDAS EN UNA SEÑAL RECIBIDA POR UN SISTEMA DE COMUNICACIÓN CELULAR QUE EMPLEA UN MARCO DE RADIO EN UNA CAPA FÍSICA. (SIC, MÉTODOS PARA DETECTAR E INDICAR PARÁMETROS DE TIEMPO E IDENTIDAD DE UN GRUPO DE CELDAS PARTICULAR A PARTIR DE UN NÚMERO DE GRUPOS DE CELDAS EN UNA SEÑAL RECIBIDA POR UN SISTEMA DE COMUNICACIÓN CELULAR QUE EMPLEA UN MARCO DE RADIO EN UNA CAPA FÍSICA)

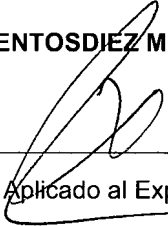
SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO
NIT : 800.176.089-2
- / -

 Industria y Comercio SUPERINTENDENCIA	RECIBO DE CAJA	No. 13 - 0069612
		Bogotá D.C., Julio 12 de 2013 - 09:44:38

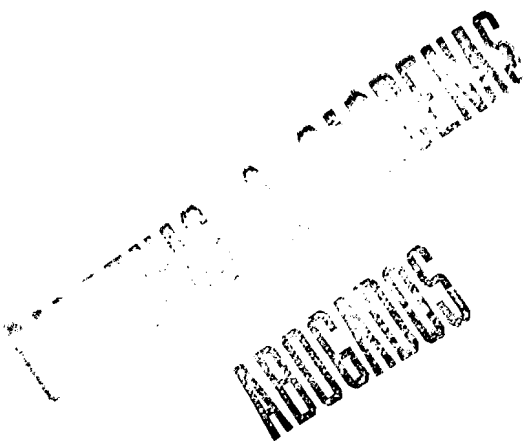
RECIBIDO DE : CARDENAS & CARDENAS ABOGADOS PI LTDA					NI 830.083.491
*** Soporte del Pago ***					
TIPO PAGO	BANCO	CUENTA	No. PAGO	FECHA PAGO	VR.PAGO
CONSIGNACION	BANCO DE BOGOTA	062754387	196846554	12/07/2013	4.245.000.00

*** Conceptos Pagados ***				
CANT.	RENTISTICO	CONCEPTO	Vr.UNDITARIO	Vr.CONCEPTO
7 50005-01-01	SOLICITUDES	1607 REIVINDICACION PATENTE UNITARIA ADICIONAL A LAS 10 INIC	30.000.00	210.000.00
				\$210.000.00
=====				

SON: **DOSCIENTOSDIEZ MIL PESOS MONEDA CORRIENTE***

Responsable: 

Recibo de Caja Aplicado al Expediente No. _____



NUEVO CAPÍTULO REIVINDICATORIO

1. Un método para clasificar distintos segmentos de una señal, en el cual la señal comprende segmentos de un primer tipo y un segundo tipo, y el método comprende:

clasificar en un corto plazo (150) la señal sobre la base de un rasgo distintivo de corto plazo extraída de la señal y entregar un resultado de clasificación de corto plazo (152);

clasificar en un largo plazo (154) la señal sobre la base de un rasgo distintivo de corto plazo y un rasgo distintivo de largo plazo extraídas de la señal y entregar un resultado de clasificación de largo);
y

combinar (158) el resultado de la clasificación de corto plazo (152) con el resultado de la clasificación de largo plazo (156) para proveer una señal de salida (160) que indica si un segmento de la señal es del primer tipo o del segundo tipo.

2. El método de acuerdo con la reivindicación 1, en el cual la etapa de combinar comprende proveer la señal de salida sobre la base de una comparación del resultado de la clasificación de corto plazo (152) con el resultado de la clasificación de largo plazo (156)

3. El método de acuerdo con cualquiera de las reivindicaciones 1 o 2, en el cual

se obtiene un rasgo distintivo de corto plazo analizando el segmento actual de la señal a ser clasificada;

se obtiene un rasgo distintivo de largo plazo analizando el segmento actual de la señal a ser clasificada y uno o más segmentos anteriores de la señal; y

la señal de salida (160) indica si el segmento actual es del primer tipo o del segundo tipo.

4. El método de acuerdo con cualquiera de las reivindicaciones 1 a 3, en el cual

un rasgo distintivo de corto plazo se obtiene analizando una ventana de análisis (168) que tiene una primera longitud y usando un primer método de análisis; y

un rasgo distintivo de largo plazo se obtiene analizando una ventana de análisis (162) que tiene una segunda longitud y usando un segundo método de análisis, siendo la primera longitud más corta que la segunda longitud, y siendo los métodos de análisis primera y segunda diferentes.

5. El método de acuerdo con la reivindicación 4, en el cual la primera longitud se extiende a lo largo del segmento actual de la señal, la segunda longitud se extiende a lo largo del segmento actual de la señal y uno o mas segmentos anteriores de la señal, y las longitudes primera y segunda comprenden un periodo adicional (164) que cubre un periodo de análisis.
6. El método de acuerdo con cualquiera de las reivindicaciones 1 a 5, en el cual combinar (158) el resultado de la clasificación de corto plazo (152) con el resultado de la clasificación de largo plazo (156) comprende una decisión de histéresis sobre la base de un resultado combinado, en el cual el resultado combinado comprende el resultado de la clasificación de corto plazo (152) y el resultado de la clasificación de largo plazo (156), cada uno ponderado por un factor de ponderación predeterminado.
7. El método de acuerdo con cualquiera de las reivindicaciones 1 a 6, en el cual la señal es una señal digital y un segmento de la señal comprende un número predefinido de muestras obtenido a una tasa de muestreo específico.
8. El método de acuerdo con cualquiera de las reivindicaciones 1 a 7, en el cual

la señal comprende segmentos de voz y de música;

un rasgo distintivo de corto plazo comprende los parámetros PLPCC; y

un rasgo distintivo de largo plazo comprende información característica de frecuencia fundamental.

9. El método de acuerdo con cualquiera de las reivindicaciones 1 a 8, en el cual el rasgo distintivo de corto plazo usados para la clasificación de corto plazo y el rasgo distintivo de corto plazo usados para la clasificación de largo plazo son las mismas o diferentes.

10. Un método para procesar una señal que comprende segmentos de un primer tipo y un segundo tipo, en el cual el método comprende:

clasificar (116) un segmento de la señal con el método de acuerdo con cualquiera de las reivindicaciones 1 a 9;

procesar (102; 206; 106; 208) el segmento de acuerdo con un primer proceso o un segundo proceso, dependiendo de la señal de salida (160) entregada por la etapa de clasificar (116); y

emitir el segmento procesado.

11. El método de acuerdo con la reivindicación 10, en el cual

la señal comprende segmentos de voz y de música.

se procesa el segmento con un codificador de voz (102) cuando la señal de salida (160) indica que el segmento es un segmento de voz; y

se procesa el segmento con un codificador de música (106) cuando la señal de salida (160) indica que el segmento es un segmento de música.

12. El método de acuerdo con la reivindicación 11, que comprende además:

combinar (108) el segmento codificado e información de la señal de salida (160) que indica el tipo del segmento.

13. Un discriminador que comprende:

un clasificador de corto plazo (150) permite recibir una señal y proveer un resultado de clasificación de corto plazo (152) de la señal sobre la base de un rasgo distintivo de corto plazo extraída de la señal, en lo cual la señal comprende segmentos de un primer tipo y un segundo tipo;

un clasificador de largo plazo (154) permite recibir una señal y proveer un resultado de clasificación de largo plazo (156) de la señal sobre la base de un rasgo distintivo de corto plazo y un rasgo distintivo de largo plazo extraídos de la señal; y

un circuito de decisión (158) que combina el resultado de la clasificación de corto plazo (152) con el resultado de la clasificación de largo plazo (156) para proveer una señal de salida (160) que indica si un segmento de la señal es del primer tipo o del segundo tipo.

14. El discriminador de acuerdo con la reivindicación 13, en el cual el circuito de decisión (158) provee la señal de salida sobre la base de una comparación del resultado de la clasificación de corto plazo (152) con el resultado de la clasificación de largo plazo (156).

15. El discriminador de acuerdo con cualquiera de las reivindicaciones 13 o 14, en el cual la señal comprende segmentos de voz y de música, y en el cual la señal de salida (160) indica si un segmento de una señal es un segmento de voz o un segmento de música.

16. Un aparato procesador de señal, que comprende:

una entrada (110) configurada para recibir una señal a ser procesada, en el cual la señal comprende segmentos de un primer tipo y un segundo tipo;

un primer elemento procesador (102; 206) que procesa segmentos de un primer tipo;

un segundo elemento procesador (104; 208) que procesa segmentos de un segundo tipo;

un discriminador (116; 204) de acuerdo con cualquiera de las reivindicaciones 14 a 16 acoplado a la entrada;

y un dispositivo conmutador (112; 202) acoplado entre la entrada y los elementos procesadores primero y segundo y que aplica la señal proveniente de la entrada (110) a uno de los elementos procesadores primero y segundo dependiendo de la señal de salida (160) proveniente del discriminador (116).

17. Un codificador de audio, que comprende:

un aparato procesador de señal

en el cual la señal es una señal de audio que comprende segmentos de voz y de música, y

en el cual el primer elemento procesador comprende un codificador de voz (102) y el segundo elemento procesador comprende un codificador de música (106).

NUEVO CAPÍTULO REIVINDICATORIO CON MARCAS DE CORRECCIÓN.

1. Un método para clasificar distintos segmentos de una señal, en el cual la señal comprende segmentos de ~~per lo menos~~ un primer tipo y un segundo tipo, y el método comprende:

clasificar en un corto plazo (150) la señal sobre la base de ~~per lo menos~~ un rasgo distintivo de corto plazo extraída de la señal y entregar un resultado de clasificación de corto plazo (152);

clasificar en un largo plazo (154) la señal sobre la base de ~~per lo menos~~ un rasgo distintivo de corto plazo y ~~per lo menos~~ un rasgo distintivo de largo plazo extraídas de la señal y entregar un resultado de clasificación de largo); y

combinar (158) el resultado de la clasificación de corto plazo (152) con el resultado de la clasificación de largo plazo (156) para proveer una señal de salida (160) que indica si un segmento de la señal es del primer tipo o del segundo tipo.

2. El método de acuerdo con la reivindicación 1, en el cual la etapa de combinar comprende proveer la señal de salida sobre la base de una comparación del resultado de la clasificación de corto plazo (152) con el resultado de la clasificación de largo plazo (156)

3. El método de acuerdo con cualquiera de las reivindicaciones 1 o 2, en el cual

se obtiene ~~la per lo menos~~ un rasgo distintivo de corto plazo analizando el segmento actual de la señal a ser clasificada;

se obtiene ~~la per lo menos~~ un rasgo distintivo de largo plazo analizando el segmento actual de la señal a ser clasificada y uno o más segmentos anteriores de la señal; y

la señal de salida (160) indica si el segmento actual es del primer tipo o del segundo tipo.

4. El método de acuerdo con cualquiera de las reivindicaciones 1 a 3, en el cual

| ~~la por lo menos~~ un rasgo distintivo de corto plazo se
obtiene analizando una ventana de análisis (168) que
tiene una primera longitud y usando un primer método
de análisis; y

| ~~la por lo menos~~ un rasgo distintivo de largo plazo se
obtiene analizando una ventana de análisis (162) que
tiene una segunda longitud y usando un segundo método
de análisis, siendo la primera longitud más corta que
la segunda longitud, y siendo los métodos de análisis
primera y segunda diferentes.
5. El método de acuerdo con la reivindicación 4, en el
cual la primera longitud se extiende a lo largo del
segmento actual de la señal, la segunda longitud se
extiende a lo largo del segmento actual de la señal y
uno o mas segmentos anteriores de la señal, y las
longitudes primera y segunda comprenden un periodo
adicional (164) que cubre un periodo de análisis.
6. El método de acuerdo con cualquiera de las
reivindicaciones 1 a 5, en el cual combinar (158) el
resultado de la clasificación de corto plazo (152)
con el resultado de la clasificación de largo plazo
(156) comprende una decisión de histéresis sobre la
base de un resultado combinado, en el cual el
resultado combinado comprende el resultado de la
clasificación de corto plazo (152) y el resultado de
la clasificación de largo plazo (156), cada uno
ponderado por un factor de ponderación
predeterminado.
7. El método de acuerdo con cualquiera de las
reivindicaciones 1 a 6, en el cual la señal es una
señal digital y un segmento de la señal comprende un
número predefinido de muestras obtenido a una tasa de
muestreo específico.
8. El método de acuerdo con cualquiera de las
reivindicaciones 1 a 7, en el cual

la señal comprende segmentos de voz y de música;

| ~~la por lo menos~~ un rasgo distintivo de corto plazo
comprende los parámetros PLPCC; y

| ~~la por lo menos~~ un rasgo distintivo de largo plazo
comprende información característica de frecuencia
fundamental.

9. El método de acuerdo con cualquiera de las
reivindicaciones 1 a 8, en el cual el rasgo
distintivo de corto plazo usados para la
clasificación de corto plazo y el rasgo distintivo de
corto plazo usados para la clasificación de largo
plazo son las mismas o diferentes.

10. Un método para procesar una señal que comprende
segmentos de ~~por lo menos~~ un primer tipo y un segundo
tipo, en el cual el método comprende:

clasificar (116) un segmento de la señal con el
método de acuerdo con cualquiera de las
reivindicaciones 1 a 9;

procesar (102; 206; 106; 208) el segmento de acuerdo
con un primer proceso o un segundo proceso,
dependiendo de la señal de salida (160) entregada por
la etapa de clasificar (116); y

emitir el segmento procesado.

11. El método de acuerdo con la reivindicación 10, en el
cual

la señal comprende segmentos de voz y de música.

se procesa el segmento con un codificador de voz
(102) cuando la señal de salida (160) indica que el
segmento es un segmento de voz; y

se procesa el segmento con un codificador de música
(106) cuando la señal de salida (160) indica que el
segmento es un segmento de música.

12. El método de acuerdo con la reivindicación 11, que
comprende además:

combinar (108) el segmento codificado e información
de la señal de salida (160) que indica el tipo del
segmento.

~~13.~~ ~~Un programa de computación que, cuando se ejecuta en una computadora, lleva a cabo el método de acuerdo con cualquiera de las reivindicaciones 1 a 12.~~

~~14.~~13. Un discriminador que comprende:

un clasificador de corto plazo (150) ~~configurado para~~permite recibir una señal y proveer un resultado de clasificación de corto plazo (152) de la señal sobre la base de ~~por lo menos~~ un rasgo distintivo de corto plazo extraída de la señal, en lo cual la señal comprende segmentos de ~~por lo menos~~ un primer tipo y un segundo tipo;

un clasificador de largo plazo (154) ~~configurado para~~permite recibir una señal y proveer un resultado de clasificación de largo plazo (156) de la señal sobre la base de ~~por lo menos~~ un rasgo distintivo de corto plazo y ~~por lo menos~~ un rasgo distintivo de largo plazo extraídos de la señal; y

un circuito de decisión (158) ~~configurado para~~combinar ~~combina~~ el resultado de la clasificación de corto plazo (152) con el resultado de la clasificación de largo plazo (156) para proveer una señal de salida (160) que indica si un segmento de la señal es del primer tipo o del segundo tipo.

~~15.~~14. El discriminador de acuerdo con la reivindicación ~~14~~13, en el cual el circuito de decisión (158) ~~está configurado para proveer~~ la señal de salida sobre la base de una comparación del resultado de la clasificación de corto plazo (152) con el resultado de la clasificación de largo plazo (156).

~~16.~~15. El discriminador de acuerdo con cualquiera de las reivindicaciones ~~14 o 15~~13 o 14, en el cual la señal comprende segmentos de voz y de música, y en el cual la señal de salida (160) indica si un segmento de una señal es un segmento de voz o un segmento de música.

~~17.~~16. Un aparato procesador de señal, que comprende:

una entrada (110) configurada para recibir una señal a ser procesada, en el cual la señal comprende

segmentos de ~~por lo menos~~ un primer tipo y un segundo tipo;

un primer elemento procesador (102; 206) ~~configurado para que~~ procesar segmentos de un primer tipo;

un segundo elemento procesador (104; 208) ~~configurado para que~~ procesar segmentos de un segundo tipo;

un discriminador (116; 204) de acuerdo con cualquiera de las reivindicaciones 14 a 16 acoplado a la entrada;

y un dispositivo conmutador (112; 202) acoplado entre la entrada y los elementos procesadores primero y segundo y ~~configurado para que~~ aplicar la señal proveniente de la entrada (110) a uno de los elementos procesadores primero y segundo dependiendo de la señal de salida (160) proveniente del discriminador (116).

~~18-17.~~ Un codificador de audio, que comprende:

un aparato procesador de señal ~~de acuerdo con la reivindicación 17,~~

en el cual la señal es una señal de audio que comprende segmentos de voz y de música, y

en el cual el primer elemento procesador comprende un codificador de voz (102) y el segundo elemento procesador comprende un codificador de música (106).

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(PCT Rule 71.1)

To:

SCHOPPE, ZIMMERMANN, STÖCKELER &
ZINKLER
Postfach 246
D-82043 Pullach
ALLEMAGNE

Date of mailing
(day/month/year)

22.10.2010

Applicant's or agent's file reference
FH090608PCT

IMPORTANT NOTIFICATION

International application No.
PCT/EP2009/004339

International filing date (day/month/year)
16.06.2009

Priority date (day/month/year)
11.07.2008

Applicant

FRAUNHOFER GESELLSCHAFT ZUR FÖRDERUNG

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary report on patentability and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary report on patentability. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the international
preliminary examining authority:



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PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference FH090608PCT		FOR FURTHER ACTION	See Form PCT/PEA/416
International application No. PCT/EP2009/004339	International filing date (day/month/year) 16.06.2009	Priority date (day/month/year) 11.07.2008	
International Patent Classification (IPC) or national classification and IPC INV. G10L11/00			
Applicant FRAUNHOFER GESELLSCHAFT ZUR FÖRDERUNG			
1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36. 2. This REPORT consists of a total of <u>5</u> sheets, including this cover sheet. 3. This report is also accompanied by ANNEXES, comprising: a. ☒ sent to the applicant and to the International Bureau) a total of <u>6</u> sheets, as follows: ☒ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see paragraph 3bis of Annex C of the Administrative Instructions).			
4. This report contains indications relating to the following items: ☒ Box No. I Basis of the report ☐ Box No. II Priority ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability ☐ Box No. IV Lack of unity of invention ☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement ☐ Box No. VI Certain documents cited ☐ Box No. VII Certain defects in the international application ☐ Box No. VIII Certain observations on the international application			
Date of submission of the demand 2010-05-11		Date of completion of this report 22.10.2010	
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Fax: +49 89 2399 - 4465		Authorized officer Tilp, Jan Telephone No. +49 89 2399-4753 	

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/EP2009/004339

Box No. I Basis of the report

1. With regard to the **language**, this report is based on
 - ☒ the international application in the language in which it was filed
 - ☐ a translation of the international application into , which is the language of a translation furnished for the purposes of:
 - ☐ international search (under Rules 12.3(a) and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4(a))
 - ☐ international preliminary examination (under Rules 55.2(a) and/or 55.3(a))
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

Description, Pages

1-34 as originally filed

Claims, Numbers

1-17 filed with the letter of 05-08-2010

Drawings, Sheets

1/6-6/6 as originally filed

- ☐ a sequence listing - see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
 - ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):
 4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since either they are considered to go beyond the disclosure as filed, or they were not accompanied by a letter indicating the basis for the amendments in the application as filed, as indicated in the Supplemental Box (Rules 70.2(c) and (c-bis)):
 - ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 5. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 70.2 (e)).
 6. ☐ Supplementary international search report(s) from Authority(ies) have been received and taken into account in drawing up this report (Rule 45bis.8(b) and (c)).

INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY

International application No.
PCT/EP2009/004339

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	<u>5, 6, 8</u>
	No: Claims	<u>1-4, 7, 9-17</u>
Inventive step (IS)	Yes: Claims	
	No: Claims	<u>5, 6, 8</u>
Industrial applicability (IA)	Yes: Claims	<u>1-17</u>
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

- 1 Reference is made to the following document:
 - D2 US 2003/101050 A1 (KHALIL HOSAM ADEL [US] ET AL) 29 May 2003 (2003-05-29)
- 2 INDEPENDENT CLAIMS

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of the independent **claims 1, 10, 13, 14, 16 and 17** is not new in the sense of Article 33(2) PCT.

 - 2.1 Document D2 discloses (the references in parentheses applying to this document) - applying the wording of present amended **claim 1**:

"A method for classifying different segments of an audio signal, the audio signal comprising speech and music segments (paragraph [0008], lines 1-5), the method comprising:

short-term classifying (150) the audio signal on the basis of at least one short-term feature extracted from the audio signal to determine whether a current segment of the audio signal is a speech segment or a music segment (paragraph [0038], lines 8-10, wherein determining a potential switch as disclosed therein necessitates estimating the signal type (i.e. classifying) of the current segment), and delivering a short-term classification result (152) indicating that the current segment of the audio signal is a speech segment or a music segment (paragraph [0038], lines 8-12, wherein i) indicating by "yes" a potential switch for the current frame and ii) the current coding mode being "music" represents "speech" as a short-term classification result);

long-term classifying (154) the audio signal on the basis of at least one short-term feature and at least one long-term feature extracted from the audio signal to determine whether a current segment of the audio signal is a speech segment or a music segment, and delivering a long-term classification result (156) indicating that the current segment of the audio signal is a speech segment or a music segment (figure 2 in conjunction with paragraph [0061], lines 7-11); and

combining (158) the short-term classification result (152) and the long-term classification result (156) to provide an output signal (160) indicating whether the current segment of the audio signal is a speech segment or a music

segment (paragraph [0038], lines 8-23, wherein the switching decision disclosed therein represents the claimed output signal, and the claimed combining is represented by conditioning the long-term classification with the above-mentioned result of the short-term classification)."

Consequently, claim 1 fails to fulfill the requirements of the PCT with respect to novelty (Article 33(2) PCT).

- 2.2 The document D2 discloses (the references in parentheses applying to this document) - applying the wording of **claim 10**:

"A method for processing a signal comprising segments of at least a first type and a second type (paragraph [0008], lines 1-5), the method comprising:

classifying (116) a segment of the signal in accordance with the method of one of claims 1 to 9 (see references cited above against claim 1);

dependent on the output signal (160) provided by the classifying step (116), processing (102, 206; 106, 208) the segment in accordance with a first process or a second process; and outputting the processed segment (paragraph [0032])."

Consequently, claim 10 fails to fulfill the requirements of the PCT with respect to novelty (Article 33(2) PCT).

- 2.3 The subject-matter of **claims 13 and 14** corresponds in terms of computer program features and device features to that of claim 1. The objections raised above against said latter claim therefore also apply, mutatis mutandis, to claims 13 and 14, which thus fail to fulfill the requirements of the PCT with respect to novelty (Article 33(2) PCT).

- 2.4 The subject-matter of **claims 16 and 17** is already disclosed by D2 (see references cited above against claims 1, 10, 13 and 14). Consequently, claims 17 and 18 also fail to fulfill the requirements of the PCT with respect to novelty (Article 33(2) PCT).

3 DEPENDENT CLAIMS

The dependent claims do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty (**claims 2-4, 7, 9, 11, 12 and 15**) or inventive step (**claims 5, 6, 8**), see document D2 and the corresponding passages cited in the search report.

Claims

1. A method for classifying different segments of an audio signal, the audio signal comprising speech and music segments, the method comprising:
- 5 short-term classifying (150) the audio signal on the basis of at least one short-term feature extracted from the audio signal to determine whether a current segment of the audio signal is a speech segment or a music segment, and delivering a short-term classification result (152) indicating that the current segment of the audio signal is a speech segment or a music segment;
- 10 long-term classifying (154) the audio signal on the basis of at least one short-term feature and at least one long-term feature extracted from the audio signal to determine whether a current segment of the audio signal is a speech segment or a music segment, and delivering a long-term classification result (156) indicating that the current segment of the audio signal is a speech segment or a music segment; and
- 15 combining (158) the short-term classification result (152) and the long-term classification result (156) to provide an output signal (160) indicating whether the current segment of the audio signal is a speech segment or a music segment.
- 20
- 25
- 30
2. The method of claim 1, wherein the step of combining comprises providing the output signal on the basis of a comparison of the short-term classification result (152) to the long-term classification result (156).
- 35
3. The method of claim 1 or 2, wherein

the at least one short-term feature is obtained by analyzing a current segment of the audio signal which is to be classified; and

5 the at least one long-term feature is obtained by analyzing the current segment of the audio signal and one or more preceding segments of the audio signal.

10 4. The method of one of claims 1 to 3, wherein

the at least one short-term feature is obtained by analyzing an analysis window (168) of a first length and a first analysis method; and

15 the at least one long-term feature is obtained by analyzing an analysis window (162) of a second length and second analysis method, the first length being shorter than the second length, and the first and second analysis methods being different.

20 5. The method of claim 4, wherein the first length spans a current segment of the audio signal, the second length spans the current segment of the audio signal and one or more preceding segments of the audio signal, and the first and second lengths comprise an
25 additional period (164) covering an analysis period.

30 6. The method of one of claims 1 to 5, wherein combining (158) the short-term classification result (152) and the long-term classification result (156) comprises a hysteresis decision on the basis of a combined result, wherein the combined result comprises the short-term classification result (152) and the long-term classification result (156), each weighted by a
35 predefined weighting factor.

7. The method of one of claims 1 to 6, wherein the audio signal is a digital signal and a segment of the audio

signal comprises as predefined number of samples obtained at a specific sampling rate.

8. The method of one of claims 1 to 7, wherein
- 5 the at least one short-term feature comprises PLPCCs parameters; and
- 10 the at least one long-term feature comprises pitch characteristic information.
9. The method of one of claims 1 to 8, wherein the short-term feature used for short-term classification and the short-term feature used for long-term
- 15 classification are the same or different.
10. A method for processing an audio signal comprising speech and music segments, the method comprising:
- 20 classifying (116) a current segment of the audio signal in accordance with the method of one of claims 1 to 9;
- 25 dependent on the output signal (160) provided by the classifying step (116), processing (102, 206; 106, 208) the current segment in accordance with a first process or a second process; and
- 30 outputting the processed segment.
11. The method of claim 10, wherein
- 35 the segment is processed by a speech encoder (102) when the output signal (160) indicates that the segment is a speech segment; and

the segment is processed by a music encoder (106) when the output signal (160) indicates that the segment is a music segment.

- 5 12. The method of claim 11, further comprising:

combining (108) the encoded segment and information from the output signal (160) indicating the type of the segment.

10

13. A computer program for performing, when running on a computer, the method of one of claims 1 to 12.

14. A discriminator, comprising:

15

a short-term classifier (150) configured to receive an audio signal and to determine whether a current segment of the audio signal is a speech segment or a music segment, and to provide a short-term classification result (152) of the audio signal on the basis of at least one short-term feature extracted from the audio signal, the short-term classification result (152) indicating that the current segment of the audio signal is a speech segment or a music segment, the audio signal comprising speech and music segments;

20

25

a long-term classifier (154) configured to receive a audio signal and to determine whether a current segment of the audio signal is a speech segment or a music segment, and to provide a long-term classification result (156) of the audio signal on the basis of at least one short-term feature and at least one long-term feature extracted from the audio signal, the long-term classification result (156) indicating that the current segment of the audio signal is a speech segment or a music segment; and

30

35

- 5 a decision circuit (158) configured to combine the short-term classification result (152) and the long-term classification result (156) to provide an output signal (160) indicating whether the current segment of the audio signal is a speech segment or a music segment.
- 10 15. The discriminator of claim 14, wherein the decision circuit (158) configured to provide the output signal on the basis of a comparison of the short-term classification result (152) to the long-term classification result (156).
- 15 16. An audio signal processing apparatus, comprising:
- 20 a input (110) configured to receive a audio signal to be processed, wherein the audio signal comprises speech and music segments;
- a first processing stage (102; 206), configured to process speech segments;
- 25 a second processing stage (104; 208) configured to process music segments;
- a discriminator (116; 204) of claim 14 or 15 coupled to the input; and
- 30 a switching device (112; 202) coupled between the input and the first and second processing stages and configured to apply the audio signal from the input (110) to one of the first and second processing stages dependent on the output signal (160) from the discriminator (116).
- 35 17. An audio encoder, comprising:
- an audio signal processing apparatus of claim 16,

wherein the first processing stage comprises a speech encoder (102) and the second processing stage comprises a music encoder (106).

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September 27, 2010

International Patent Application PCT/EP 2009/004339
Applicant: Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V.
Our Ref.: FH090608PCT / gz /ba

In reply to the Written Opinion dated August 25, 2010:

The Applicant and the undersigned representative of the Applicant thank the Examiner for his detailed statement regarding his concerns concerning the allowability of the subject matter of the pending claims.

From the Communication it is understood that the Examiner feels that document D2 (US 2003/0101050 A1) discloses all features of the independent claim so that these claims, in the Examiner's opinion, lack clarity.

Having reviewed document D2, this conclusion is respectfully traversed. To be more specific, the inventive approach aims at a method for classifying different segments of an audio signal, more specifically for classifying speech and music segments in such an audio signal. In accordance with the inventive approach, a short-term classification and a long-term classification is made and the results of the two classifications are combined. The inventive approach operates on the basis of short-term features and on the basis of long-term features.

A similar approach is outlined in document D2 that describes a real-time speech and music classifier. As is outlined in the Abstract of document D2, for the classification long-

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Partnerschaftsgesellschaft,
eingetragen in das PR unter Nr. PR 974

USt- Nr. 148/233/00493
VAT Registration No. DE 270564910

term and short-term features are extracted relative to each frame, whereby short-term features are used to detect a potential switching point at which to switch a coder operating mode and the long-term features are used to classify each frame and validate the potential switch at the potential switch point according to the classification and a predefined criterion. The basic structure of the classifier is shown in Fig. 2. The classifier receives the audio samples at a look-ahead buffer 210 from which the samples are forwarded to the feature extractor 220 that determines long-term features 221 and short-term features 222 that are fed to a single classification module 230.

The functionality in accordance with document D2 is such that the short-term features are used to determine a potential switching point and the long-term features are then used to more precisely determine whether to switch at that point by classifying the audio frames and validating the detected potential switch according to a predetermined switching criterion (see paragraph [0037]). Fig. 3 describes this approach in further detail. As can be seen from Fig. 3 in combination with paragraph [0038] of the specification of document D2, the received audio signals are formatted into frames and queued inside the look-ahead buffer. At step 340, a set of long-term features and a set of short-term features are extracted and, subsequently, at step 350 it is determined whether a potential switch is indicated according to the short-term features of the current coding frame. In case this is not true the method proceeds to the next frame, i.e. in case the short-term feature indicates that no switching is required, no further action with regard to the long-term features is taken. Only in case the short-term features indicate that a switching may be desired, the additional steps 360-390 are executed and, in particular, at step 370 the frame is classified according to the extracted long-term features (see paragraph [0038], lines 5-9 and lines 16 and 17).

In paragraph [0040] to [0058], examples for deriving the long-term and the short-term features are described in detail and from paragraph [0061], lines 1-3 it is clear that the long-term feature values and the short-term feature values are calculated for the features described in the just mentioned paragraph.

With regard to Figs. 7 to 9, an embodiment of the classification approach is described in further detail, however, the basic steps remain the same as they are described with regard to Fig. 3. This is confirmed in paragraph [0074] where it is described that in accordance with this embodiment, again, the decision to switch is made on the basis of the short-term features, however, the actual change of the coder operation is determined according to the long-term features. The same is true for the further alternative embodiments described

in paragraph [0075] and with regard to Figs. 10 and 11. In these embodiments, only the way the actual change of operation on the basis of the long-term features is different from the embodiment described with regard to Figs. 7 to 9, however, the basic functionality described in document D2 remains the same. It is noted that also all independent claims describe this functionality, namely that after detecting a potential switch point according to at least one short-term feature, the actual switching of the current coding mode is based on at least one long-term feature.

To summarize, in accordance with the teachings of document D2, the short-term features and the long-term features are used independent from each other for determining a switching of the coder. As outlined above, in case the short-term features do not indicate a potential switch, the long-term features are not used at all. Only in case a short-term feature indicates a potential switch, the further features, namely the long-term features are used alone for actually determining as to whether a switch-off coder operation is required or not.

Turning now to the subject matter as described by the present invention and specifically to the wording of the independent claims, it may be said that in accordance with the teachings of document D2 a step 350 some kind of short-term classification of the audio signal on the basis of short-term features is carried out. The result of the classification is that it is either indicated that no switching is required or that a switching is possible. Only in case a switching is possible, the second stage classification takes place, namely a classification on the basis of a long-term feature indicating as to whether a switching of the coder operation should actually be done or not. However, as is clear from the disclosure of document D2 summarized above, the long-term classification at step 370 is done only on the basis of the long-term features. The short-term features are not used for this classification.

Contrary thereto, the claim language defines with regard to the step of long-term classifying that this is done

"on the basis of the at least one short-term feature and at least one long-term feature extracted from the audio signal".

Thus, in accordance with the inventive approach the long-term classification requires the input of both the long-term and the short-term features extracted. This is not described in document D2 as here, the two features are used independent from each other. It is not

mentioned in document D2 that for the classification both the long-term features and the short-term features should be used in step 370.

Further, the claim language requires that the short-term classification result and the long-term classification results are to be combined to provide an output signal indicating whether the current signal is a speech signal or a music signal. As can be seen from Fig. 3 and also from the embodiments of document D2, there is no combination of the output signals or classification results in a way that these two results would be combined. Actually, the output signal of the short-term classification in step 250 only triggers as to whether a long-term classification will occur or not for a current frame. However, the output signal itself is not combined with the output signal from the classification step 370 to obtain the classification signal. This is only obtained on the basis of the classification from the long-term features.

Thus, the Applicant feels that document D2 besides using the short- and long-term features for the long-term classification, document D2 also does not describe combining the classification results obtained from the short-term and the long-term classifications.

Thus, since document D2 in the Applicant's view at least does not describe the above mentioned two features, the subject matter of claim 1 and also of the remaining claims on file is considered novel over the disclosure of document D2.

Further, nothing in the available art suggests modifying the arrangement of document D2 in such a way that the short-term features should also be used in the classification step 370 shown in Fig. 3 so that the claims are also based on an inventive step.

Thus, the subject matter as defined in the pending claims is considered allowable over the available art, especially over document D2 so that it is kindly requested to issue a favorable international preliminary examination report.

Respectfully submitted,



Tancred Zimmermann

BEI JEDEM BESCHEID AUSFÜLLEN

☒

Im Bescheid sind NEUE/ ~~KEINE~~ Entgegenhaltungen genannt
(Familienrecherche wg. DE/EP - Schriften)

Die genannten Entgegenhaltungen sind bereits bekannt aus:

- ☐ Anmeldetext; ☐ Früherem Bescheid; ☐ Recherchenbericht

☐

File History runtergeladen beim USPTO

☐

Es gibt Parallelanmeldungen US – IL (nicht erteilt)

ACHTUNG bei Auslandsbescheiden

Frist für ein IDS notiert (ab Ausstellungsdatum des BE 3 Mon.)

Frist: _____

☐

Die Parallelanmeldungen sind bereits erteilt

(Achtung: die Patentschriften müssen vorliegen! - wenn nicht → Anwälte fragen bzw. IDS machen!!!)

☐

US FINAL Office Action (EF 1 Monat ab BE notieren mit AEF 2 Monate ab BE + Vermerk Final)

☐

EF bei EP Erst-Bescheiden für Teilanmeldungen 20 Mon. ab Absendedatum

EF bei MT 21 Monate ab Absendedatum mit Vermerk Erinnerung

☐

HP VF in 1 Monat vor EF (!) notieren, (Achtung es gibt Flatrates, RFQ nicht vergessen) – Achtung wg. Schriften: keine WO / EP / US (Aktenzeichen größer als 3,000,000)

☐

Murata weiterleiten + US Kollegen **ACHTUNG** wegen Teilanmeldungsfrist; **BE weiterleiten an MT jetzt nur noch per Email** (2 Monate vor EF die VF + Vorschlag an MT notieren + pending claims im Wordformat)

☐

Hickman in TiVo-Akten: BE per Email weiterleiten + pending claims (im word-format)

☐

Ratner Prestia bei EP-Bescheiden immer Teilanmeldungsfrist mitteilen

☐

VOLVO Bescheide vorab kommentarlos weiterleiten

☐

Agilent Flatrate €850,00 für BE, Kosten für ÜBE Bescheid werden, wenn flatrate im IP Foundation hochgeladen (dazu WV 1 Monat notieren) per revised RFC geschickt
VF 1 Monat vor Endfrist, da kein FG ohne RFC möglich ist
Infosheet nicht vergessen

☐

FhG

- bei **HHI** BE sofort weiterleiten (Vorschlag folgt)!!!!
- bei **IEM** BE sofort weiterleiten. (Vorschlag folgt)
- bei **IMS** BE sofort weiterleiten (anfragen)
- bei **ESK** BE sofort an Frau Gerloff (anfragen)
- bei **IDMT** BE sofort weiterleiten. (Vorschlag folgt)

(Ausland: **EF 6 Wochen vor Kollegenendfrist: „Vorschlag für weitere Vorgehensweise an FhG“ und Vermerk der AEF in unserer roten Frist, PDE, PEP, PCT: 6 Wo vor EF die VF**)

- bei **IMS+ESK** jeweils mit dem Zusatz: bis zum 1 Monat Frist setzen, ob wir Vorschlag ausarbeiten sollen!!!!!!

☐

INFINEON

prüfen, ob es parallele US Anmeldung gibt, in der wir nicht Vertreter sind
Wenn das der Fall ist, bekommt IO den Bescheide vorab per Formbrief ID: IO_Bescheid

☐

Verigy

bekommt Bescheide per Formbrief ID: V5_Bescheid

☐

BÖWE

bekommt Bescheid vorab mit der Info über die EF und VF 1 Monat ab heute ob wir was tun sollen (Formbrief ID: BW-Bescheid)

11S

PATENT COOPERATION TREATY

56

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

SCHOPPE, ZIMMERMANN, STÖCKELER &
ZINKLER
Postfach 246
D-82043 Pullach
ALLEMAGNE

26. AUG. 2010

PCT

WRITTEN OPINION OF THE
INTERNATIONAL PRELIMINARY
EXAMINING AUTHORITY
(PCT Rule 66)

Applicant's or agent's file reference FH090608PCT		Date of mailing (day/month/year) 25.08.2010
International application No. PCT/EP2009/004339	International filing date (day/month/year) 16.06.2009	Priority date (day/month/year) 11.07.2008
International Patent Classification (IPC) or both national classification and IPC INV. G10L11/00		
Applicant FRAUNHOFER GESELLSCHAFT ZUR FÖRDERUNG		

1. ☒ The written opinion established by the International Searching Authority:
☒ is ☐ is not
considered to be a written opinion of the International Preliminary Examining Authority.

2. This third opinion contains indications relating to the following items:

☒ Box No. I Basis of the opinion

☐ Box No. II Priority

☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

☐ Box No. IV Lack of unity of invention

☒ Box No. V Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

☐ Box No. VI Certain documents cited

☐ Box No. VII Certain defects in the international application

☐ Box No. VIII Certain observations on the international application

3. The applicant is hereby **invited to reply** to this opinion.

When? See the time limit indicated above. The applicant may, before the expiration of that time limit, request this Authority to grant an extension, see Rule 66.2(e).

How? By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 66.8 and 66.9.

Also: For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4bis. For an informal communication with the examiner, see Rule 66.6. For an additional opportunity to submit amendments, see Rule 66.4.

If no reply is filed, the international preliminary examination report will be established on the basis of this opinion.

4. The final date by which the international preliminary report on patentability (Chapter II of the PCT) must be established according to Rule 69.2 is: 11.11.2010

FRISTENDE	27.09.10	db
VOR-	13.09.10	db
FRIST		

Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Fax: +49 89 2399 - 4465	Authorized Officer  Tilp, Jan Telephone No. +49 89 2399-4753
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**WRITTEN OPINION OF THE INTERNATIONAL
PRELIMINARY EXAMINING AUTHORITY**

International application No.
PCT/EP2009/004339

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of:
- ☒ the international application in the language in which it was filed
 - ☐ a translation of the international application into ,
which is the language of a translation furnished for the purposes of:
 - ☐ international search (under Rules 12.3(a) and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4(a))
 - ☐ international preliminary examination (under Rules 55.2(a) and/or 55.3(a))
2. With regard to the elements of the international application, this opinion has been established on the basis of
(*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed"*):

Description, Pages

1-34 as originally filed

Claims, Numbers

1-17 filed with the letter of 05-08-2010

Drawings, Sheets

1/6-6/6 filed with the letter of 27-07-2009

- ☐ a sequence listing - see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
4. ☐ This opinion has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
5. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 66.1(d-bis)).
6. ☐ Supplementary international search report(s) from Authority(ies) have been received and taken into account in drawing up this opinion (Rule 45bis.8(b) and (c)).

Box No. V Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>1-4, 7, 9-17</u>
Inventive step (IS)	Claims	<u>5, 6, 8</u>
Industrial applicability (IA)	Claims	

2. Citations and explanations:

see separate sheet

Re Item V

Reasoned statement under Rule 66.2(a)ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

- 1 Whilst acknowledging the new set of claims submitted by the applicant, it is considered that the present set of claims still does not fulfill the requirements of the PCT, the reasons therefor being illustrated below:
- 2 Document D2 discloses (the references in parentheses applying to this document) - applying the wording of present amended **claim 1**:

"A method for classifying different segments of an audio signal, the audio signal comprising speech and music segments (paragraph [0008], lines 1-5), the method comprising:

short-term classifying (150) the audio signal on the basis of at least one short-term feature extracted from the audio signal to determine whether a current segment of the audio signal is a speech segment or a music segment (paragraph [0038], lines 8-10, wherein determining a potential switch as disclosed therein necessitates estimating the signal type (i.e. classifying) of the current segment), and delivering a short-term classification result (152) indicating that the current segment of the audio signal is a speech segment or a music segment (paragraph [0038], lines 8-12, wherein i) indicating by "yes" a potential switch for the current frame and ii) the current coding mode being "music" represents "speech" as a short-term classification result);

long-term classifying (154) the audio signal on the basis of at least one short-term feature and at least one long-term feature extracted from the audio signal to determine whether a current segment of the audio signal is a speech segment or a music segment, and delivering a long-term classification result (156) indicating that the current segment of the audio signal is a speech segment or a music segment (figure 2 in conjunction with paragraph [0061], lines 7-11); and

combining (158) the short-term classification result (152) and the long-term classification result (156) to provide an output signal (160) indicating whether the current segment of the audio signal is a speech segment or a music segment (paragraph [0038], lines 8-23, wherein the switching decision disclosed therein represents the claimed output signal)."

Consequently, claim 1 fails to fulfill the requirements of the PCT with respect to novelty (Article 33(2) PCT).

**WRITTEN OPINION OF THE INTERNATIONAL
PRELIMINARY EXAMINING AUTHORITY
(SEPARATE SHEET)**

International application No.

PCT/EP2009/004339

- 3 The objections raised against originally-filed claims 2-18 (see sections 2.2-3 of the Written Opinion attached to the International Search Report) also apply, *mutatis mutandis*, to present amended **claims 2-17** when being confronted with the disclosure of D2 (see the relevant passages thereof cited in the International Search Report) instead of that of D1.

SCHOPPE ZIMMERMANN STÖCKELER ZINKLER PARTNER

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5. August 2010

International Patent Application PCT/EP 2009/004339**Applicant: Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V.****Our Ref.: FH090608PCT / kh/ ak**In reply to the written opinion dated June 11, 2010:

First of all, the applicant and the undersigned representative of the applicant thanks the Examiner for his comments provided in the above referenced written opinion, especially his comments with regard to the amendments conducted upon filing the demand and the arguments represented.

To overcome the objections outlined in section 2 of the written opinion new claims 1 to 17 are submitted herewith. The new claims replace the pending claims. For the Examiner's convenience, a marked-up version of the claims is also enclosed indicating the amendments when compared to the pending claims.

New claim 1 is based on original claim 1 and the original specification on page 7, line 32 to page 8, line 9. Further support for the amendments can be found in original claims 8, 11 and 17. On the basis of the above mentioned portions of the originally filed application documents it was clarified that the inventive approach is for classifying different segments of "an audio signal" wherein the audio signal comprises "speech and music segments". Further, on the basis of the specification on pages 7 and 8, it was clarified that the short-

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term classifier is for determining whether a current segment of the audio signal is a speech segment or a music segment and that this classifier outputs as a classification result in indication that the current segment of the audio signal is a speech segment or a music segment. A similar amendment was introduced into the feature defining the long-term classifying step indicating that this is done to determine whether a current segment of the audio signal is a speech segment or a music segment and that the long-term classification results indicates that the current segment or a music segment. Further, it was clarified that the output signal indicates whether a current segment is the speech or the music segment.

New claims 2 to 13 are based on original claims 2 to 13, which include the necessary amendments for adapting the dependent claims to new claim 1.

New claim 14 is based on original claim 14 and those portions of the originally filed application document as mentioned above with regard to new claim 1. Claim 14 was amended in a similar manner as new claim 1.

New claim 15 is based on original claim 15, and new claims 16 and 17 are based on original claims 17 and 18.

Original claim 16 was deleted.

The subject matter as defined in the new claims is considered to be clearly distinguishable over the available art, especially over document D1. More specifically, the applicant feels that the new claims define the subject matter for which protection is sought in further detail and the amendments are believed to overcome the objections raised in the written opinion attached to the International Search Report and raised in section 2 of the above referenced written opinion.

To be more specific, document D1 shown in Fig. 2 (see page 155) a high-level description of a speech/music discriminator. This discriminator comprises an input receiving the input signal and an output from the decision logic outputting a mode bit indicating to a switch (see Fig. 1) a switch position for connecting the input signal either to the music encoder or to the speech encoder. The input of the speech/music discriminator is coupled to the

decision logic via the block VAD that has a structure as is described in Reference 5, cited on page 156 of document D1.

In accordance with this reference, a discrimination method is described to separate information carrying signals from ambient noise for a wideband coding application. In accordance with the teachings of this document a two-stage procedure is applied, in accordance with which a local decision is made based on a set of extracted parameters to update an estimated noise level, wherein these parameters are chosen to reliably detect speech as well as music signals. The final decision (output by the VAD block) is made based only on a frequency dependent signal to noise ratio indicating whether the input signal comprises useful information or is to be considered noise (see the reference in section 1, "Introduction", 1st paragraph, lines 3-5; section 5, "Final VAD decision", 2nd paragraph, lines 6-8; section 7, "Conclusion", lines 1-2). The activity flag indicates to the decision logic that the input signal is a useful signal or noise, so that the actual discrimination described in document D1 is only effective in parts of the input signal having low-energy frames (see section 2.4). The upper part of the discriminator results in a long-term statistic for generating a speech/music classification signal S/NS as is outlined in sections 2.1 to 2.3 of document D1.

Thus, document D1 describes an approach for discriminating between speech and music in an input signal. By means of the block parameter estimation, long-term statistics and classification shown in Fig. 2, a long-term classification of the input signal is generated to determine whether a frame of the input signal is a speech frame or a non-speech. The discrimination signal is used, however, only in case the activity flag indicates a useful signal.

Contrary to document D1, however, the subject matter as defined in the new claims also requires a short-term classification of the audio signal to determine whether a current segment of the audio signal is a speech segment or a music segment. As far as the block VAD is concerned, only a signal/noise discrimination is done, i.e. document D1 does not disclose using in parallel to the long-term classifier and a short-term classifier both determining whether a current segment of the input signal comprises a speech segment or a music segment.

Further, the block VAD only outputs an activity flag so that the S/NS discrimination is effective only in parts of the input signal showing a low-energy. As is taught in document D1 in section 2.4, preference is given to the audio coder, and the CELP coder is only used when clean speech is detected. In other words, the decision from the long-term analysis is overruled by the activity flag in case low-energy frames are detected and irrespective of the discrimination in the long-term classification branch the segment is encoded by means of the music encoder.

Contrary thereto, the present invention teaches to "combine" the short-term and long-term classification results and the term "combining" is quite clear in that both results are involved in generating the common output signal. This is a clear teaching that is not derivable from document D1, as there is clearly no combination of the activity flag and the S/NS discrimination signal in the decision logic.

To summarize, it is believed that the subject matter as defined in the new claims, more specifically the subject as defined in all new independent claims, is clearly novel over the disclosure of document D1, as document D1 does not describe short-term classifying an audio signal for determining whether the audio signal comprises as a current segment a speech segment or a music segment. Further, document D1 does not describe combining the output signals indicative of the current segment being a speech signal or a music signal to obtain a common output signal.

Thus, the subject matter of the new claims is novel over the disclosure of document D1.

As already outlined in our comments submitted together with the demand, to which explicit reference is hereby made, document D1 and also the other documents do not suggest replacing the block VAD by a second branch performing in parallel to the long-term statistics branch a short-term statistics branch for generating a further classification result that is then combined in the decision logic for generating an output signal.

Thus, the subject matter as defined in the new claims is also considered inventive over the available art.

In view of the above comments and the new claims it is kindly requested to issue a favorable International Preliminary Examination Report in this matter.

In case the Examiner feels that no favorable International Preliminary Examination Report can be issued, it is kindly requested to discuss the subject matter of the present application with the undersigned representative of the applicant prior to issuing the International Preliminary Examination Report.

Respectfully submitted,


Ferdinand Stockeler

Encl.

New claims 1 to 17, marked-up version

Claims

1. A method for classifying different segments of an audio signal, the audio signal comprising speech and music segments, the method comprising:

5 short-term classifying (150) the audio signal on the basis of at least one short-term feature extracted from the audio signal to determine whether a current segment of the audio signal is a speech segment or a music segment, and delivering a short-term classification result (152) indicating that the current segment of the audio signal is a speech segment or a music segment;

10 long-term classifying (154) the audio signal on the basis of at least one short-term feature and at least one long-term feature extracted from the audio signal to determine whether a current segment of the audio signal is a speech segment or a music segment, and delivering a long-term classification result (156) indicating that the current segment of the audio signal is a speech segment or a music segment; and

15 combining (158) the short-term classification result (152) and the long-term classification result (156) to provide an output signal (160) indicating whether the current segment of the audio signal is a speech segment or a music segment.

20

25

30
2. The method of claim 1, wherein the step of combining comprises providing the output signal on the basis of a comparison of the short-term classification result (152) to the long-term classification result (156).

35
3. The method of claim 1 or 2, wherein

the at least one short-term feature is obtained by analyzing a current segment of the audio signal which is to be classified; and

5 the at least one long-term feature is obtained by analyzing the current segment of the audio signal and one or more preceding segments of the audio signal.

10 4. The method of one of claims 1 to 3, wherein

the at least one short-term feature is obtained by analyzing an analysis window (168) of a first length and a first analysis method; and

15 the at least one long-term feature is obtained by analyzing an analysis window (162) of a second length and second analysis method, the first length being shorter than the second length, and the first and second analysis methods being different.

20

5. The method of claim 4, wherein the first length spans a current segment of the audio signal, the second length spans the current segment of the audio signal and one or more preceding segments of the audio signal, and the first and second lengths comprise an additional period (164) covering an analysis period.

25

30 6. The method of one of claims 1 to 5, wherein combining (158) the short-term classification result (152) and the long-term classification result (156) comprises a hysteresis decision on the basis of a combined result, wherein the combined result comprises the short-term classification result (152) and the long-term classification result (156), each weighted by a
35 predefined weighting factor.

7. The method of one of claims 1 to 6, wherein the audio signal is a digital signal and a segment of the audio

signal comprises as predefined number of samples obtained at a specific sampling rate.

- 5
8. The method of one of claims 1 to 7, wherein
- the at least one short-term feature comprises PLPCCs parameters; and
- the at least one long-term feature comprises pitch characteristic information.
- 10
9. The method of one of claims 1 to 8, wherein the short-term feature used for short-term classification and the short-term feature used for long-term classification are the same or different.
- 15
10. A method for processing an audio signal comprising speech and music segments, the method comprising:
- 20
- classifying (116) a current segment of the audio signal in accordance with the method of one of claims 1 to 9;
- dependent on the output signal (160) provided by the classifying step (116), processing (102, 206; 106, 208) the current segment in accordance with a first process or a second process; and
- 25
- outputting the processed segment.
- 30
11. The method of claim 10, wherein
- the segment is processed by a speech encoder (102) when the output signal (160) indicates that the segment is a speech segment; and
- 35

the segment is processed by a music encoder (106) when the output signal (160) indicates that the segment is a music segment.

- 5 12. The method of claim 11, further comprising:

combining (108) the encoded segment and information from the output signal (160) indicating the type of the segment.

10

13. A computer program for performing, when running on a computer, the method of one of claims 1 to 12.

14. A discriminator, comprising:

15

a short-term classifier (150) configured to receive an audio signal and to determine whether a current segment of the audio signal is a speech segment or a music segment, and to provide a short-term classification result (152) of the audio signal on the basis of at least one short-term feature extracted from the audio signal, the short-term classification result (152) indicating that the current segment of the audio signal is a speech segment or a music segment, the audio signal comprising speech and music segments;

20

25

a long-term classifier (154) configured to receive a audio signal and to determine whether a current segment of the audio signal is a speech segment or a music segment, and to provide a long-term classification result (156) of the audio signal on the basis of at least one short-term feature and at least one long-term feature extracted from the audio signal, the long-term classification result (156) indicating that the current segment of the audio signal is a speech segment or a music segment; and

30

35

5 a decision circuit (158) configured to combine the short-term classification result (152) and the long-term classification result (156) to provide an output signal (160) indicating whether the current segment of the audio signal is a speech segment or a music segment.

10 15. The discriminator of claim 14, wherein the decision circuit (158) configured to provide the output signal on the basis of a comparison of the short-term classification result (152) to the long-term classification result (156).

15 16. An audio signal processing apparatus, comprising:

a input (110) configured to receive a audio signal to be processed, wherein the audio signal comprises speech and music segments;

20 a first processing stage (102; 206), configured to process speech segments;

a second processing stage (104; 208) configured to process music segments;

25 a discriminator (116; 204) of claim 14 or 15 coupled to the input; and

30 a switching device (112; 202) coupled between the input and the first and second processing stages and configured to apply the audio signal from the input (110) to one of the first and second processing stages dependent on the output signal (160) from the discriminator (116).

35 17. An audio encoder, comprising:

an audio signal processing apparatus of claim 16,

wherein the first processing stage comprises a speech encoder (102) and the second processing stage comprises a music encoder (106).

Claims
(marked-up version)

1. A method for classifying different segments of a—an
5 audio signal, the audio signal comprising speech and
music segments—~~of at least a first type and a second~~
~~type~~, the method comprising:
- 10 short-term classifying (150) the audio signal on the
basis of at least one short-term feature extracted
from the audio signal to determine whether a current
segment of the audio signal is a speech segment or a
music segment, and delivering a short-term
15 classification result (152) indicating that the
current segment of the audio signal is a speech
segment or a music segment;
- 20 long-term classifying (154) the audio signal on the
basis of at least one short-term feature and at least
one long-term feature extracted from the audio signal
to determine whether a current segment of the audio
signal is a speech segment or a music segment, and
delivering a long-term classification result (156)
25 indicating that the current segment of the audio
signal is a speech segment or a music segment; and
- 30 combining (158) the short-term classification result
(152) and the long-term ~~analysis~~-classification result
(156) to provide an output signal (160) indicating
whether ~~a~~ the current segment of the audio signal is
~~of the first type or of the second type~~ a speech
segment or a music segment.
2. The method of claim 1, wherein the step of combining
35 comprises providing the output signal on the basis of
a comparison of the short-term classification result
(152) to the long-term classification result (156).

marked-up version

3. The method of claim 1 or 2, wherein

the at least one short-term feature is obtained by analyzing a current segment of the audio signal which is to be classified; and

the at least one long-term feature is obtained by analyzing the current segment of the audio signal and one or more preceding segments of the audio signal; ~~and~~

~~the output signal (160) indicates whether the current segment is of the first type or of the second type.~~

4. The method of one of claims 1 to 3, wherein

the at least one short-term feature is obtained by analyzing an analysis window (168) of a first length and a first analysis method; and

the at least one long-term feature is obtained by analyzing an analysis window (162) of a second length and second analysis method, the first length being shorter than the second length, and the first and second analysis methods being different.

5. The method of claim 4, wherein the first length spans a current segment of the audio signal, the second length spans the current segment of the audio signal and one or more preceding segments of the audio signal, and the first and second lengths comprise an additional period (164) covering an analysis period.

6. The method of one of claims 1 to 5, wherein combining (158) the short-term classification result (152) and the long-term classification result (156) comprises a hysteresis decision on the basis of a combined result, wherein the combined result comprises the short-term

marked-up version

classification result (152) and the long-term classification result (156), each weighted by a predefined weighting factor.

- 5 7. The method of one of claims 1 to 6, wherein the audio signal is a digital signal and a segment of the audio signal comprises as predefined number of samples obtained at a specific sampling rate.
- 10 8. The method of one of claims 1 to 7, wherein
~~the signal comprises speech and music segments;~~
the at least one short-term feature comprises ~~the~~
15 PLPCCs parameters; and
the at least one long-term feature comprises pitch characteristic information.
- 20 9. The method of one of claims 1 to 8, wherein the short-term feature used for short-term classification and the short-term feature used for long-term classification are the same or different.
- 25 10. A method for processing ~~a~~ an audio signal comprising speech and music segments ~~of at least a first type and a second type~~, the method comprising:
classifying (116) a current segment of the audio
30 signal in accordance with the method of one of claims 1 to 9;
dependent on the output signal (160) provided by the classifying step (116), processing (102, 206; 106,
35 208) the current segment in accordance with a first process or a second process; and
outputting the processed segment.

marked-up version

11. The method of claim 10, wherein
- ~~the signal comprises speech and music segments;~~
- 5 the segment is processed by a speech encoder (102) when the output signal (160) indicates that the segment is a speech segment; and
- 10 the segment is processed by a music encoder (106) when the output signal (160) indicates that the segment is a music segment.
12. The method of claim 11, further comprising:
- 15 combining (108) the encoded segment and information from the output signal (160) indicating the type of the segment.
- 20 13. A computer program for performing, when running on a computer, the method of one of claims 1 to 12.
14. A discriminator, comprising:
- 25 a short-term classifier (150) configured to receive a an audio signal and to determine whether a current segment of the audio signal is a speech segment or a music segment, and to provide a short-term classification result (152) of the audio signal on the
- 30 basis of at least one short-term feature extracted from the audio signal, the short-term classification result (152) indicating that the current segment of the audio signal is a speech segment or a music segment, the audio signal comprising speech and music
- 35 ~~segments of at least a first type and a second type;~~
- a long-term classifier (154) configured to receive a audio signal and to determine whether a current

segment of the audio signal is a speech segment or a music segment, and to provide a long-term classification result (156) of the audio signal on the basis of at least one short-term feature and at least one long-term feature extracted from the audio signal, the long-term classification result (156) indicating that the current segment of the audio signal is a speech segment or a music segment; and

10 a decision circuit (158) configured to combine the short-term classification result (152) and the long-term classification result (156) to provide an output signal (160) indicating whether a the current segment of the audio signal is ~~of the first type or is of the second type~~ a speech segment or a music segment.

15. The discriminator of claim 14, wherein the decision circuit (158) configured to provide the output signal on the basis of a comparison of the short-term classification result (152) to the long-term classification result (156).

~~16. The discriminator of claim 14 or 15, wherein the signal comprises speech and music segments, and wherein the output signal (160) indicates whether a segment of a signal is speech segment or a music segment.~~

~~17.~~ 16. ~~A~~ An audio signal processing apparatus, comprising:

30 a input (110) configured to receive a audio signal to be processed, wherein the audio signal comprises speech and music segments ~~of at least a first type and of a second type;~~

35 a first processing stage (102; 206), configured to process speech segments ~~of the first type;~~

a second processing stage (104; 208) configured to process music segments ~~of the second type~~;

5 a discriminator (116; 204) of ~~one of claims 14 to 16~~
claim 14 or 15 coupled to the input; and

10 a switching device (112; 202) coupled between the input and the first and second processing stages and configured to apply the audio signal from the input (110) to one of the first and second processing stages dependent on the output signal (160) from the discriminator (116).

15 ~~18.~~17. An audio encoder, comprising:

a an audio signal processing apparatus of claim ~~17~~16,

20 ~~wherein the signal is an audio signal comprising speech and music segments, and~~

wherein the first processing stage comprises a speech encoder (102) and the second processing stage comprises a music encoder (106).

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

WRITTEN OPINION OF THE
INTERNATIONAL PRELIMINARY
EXAMINING AUTHORITY
(PCT Rule 66)

To:

SCHOPPE, ZIMMERMANN, STÖCKELER &
ZINKLER
Postfach 246
D-82043 Pullach
ALLEMAGNE

13. JUN 2010

Date of mailing
(day/month/year) 11.06.2010

Applicant's or agent's file reference
FH090608PCT

REPLY DUE within 2 month(s)
from the above date of mailing

International application No.
PCT/EP2009/004339

International filing date (day/month/year)
16.06.2009

Priority date (day/month/year)
11.07.2008

International Patent Classification (IPC) or both national classification and IPC
INV. G10L11/00

FRISTENDE	1.08.2010	8
VOR- 1.	11.07.2010	8
FRIST 2.		
BELEDIGT		

Applicant
FRAUNHOFER GESELLSCHAFT ZUR FÖRDERUNG

1. ☒ The written opinion established by the International Searching Authority:
☒ is ☐ is not
considered to be a written opinion of the International Preliminary Examining Authority.

2. This second opinion contains indications relating to the following items:

☒ Box No. I Basis of the opinion

☐ Box No. II Priority

☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

☐ Box No. IV Lack of unity of invention

☒ Box No. V Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

☐ Box No. VI Certain documents cited

☐ Box No. VII Certain defects in the international application

☐ Box No. VIII Certain observations on the international application

3. The applicant is hereby **invited to reply** to this opinion.

When? See the time limit indicated above. The applicant may, before the expiration of that time limit, request this Authority to grant an extension, see Rule 66.2(e).

How? By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 66.8 and 66.9.

Also: For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4bis. For an informal communication with the examiner, see Rule 66.6. For an additional opportunity to submit amendments, see Rule 66.4.

If no reply is filed, the international preliminary examination report will be established on the basis of this opinion.

4. The final date by which the international preliminary report on patentability (Chapter II of the PCT) must be established according to Rule 69.2 is: 11.11.2010

Name and mailing address of the international preliminary examining authority:

 European Patent Office
D-80298 Munich
Tel. +49 89 2399 - 0
Fax: +49 89 2399 - 4465

Authorized Officer

Tilp, Jan

Telephone No. +49 89 2399-4753



WRITTEN OPINION OF THE INTERNATIONAL
PRELIMINARY EXAMINING AUTHORITY

International application No.
PCT/EP2009/004339

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of:
- ☒ the international application in the language in which it was filed
 - ☐ a translation of the international application into ,
which is the language of a translation furnished for the purposes of:
 - ☐ international search (under Rules 12.3(a) and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4(a))
 - ☐ international preliminary examination (under Rules 55.2(a) and/or 55.3(a))
2. With regard to the elements of the international application, this opinion has been established on the basis of
(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed"):

Description, Pages

1-34 as originally filed

Claims, Numbers

1-18 filed with the demand for preliminary international examination

Drawings, Sheets

1/5-5/5 as originally filed

- ☐ a sequence listing - see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
4. ☐ This opinion has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
5. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 66.1(d-bis)).
6. ☐ Supplementary international search report(s) from Authority(ies) have been received and taken into account in drawing up this opinion (Rule 45bis.8(b) and (c)).

WRITTEN OPINION OF THE INTERNATIONAL
PRELIMINARY EXAMINING AUTHORITY

International application No.
PCT/EP2009/004339

Box No. V Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>1-4, 7, 9-18</u>
Inventive step (IS)	Claims	<u>5, 6, 8</u>
Industrial applicability (IA)	Claims	

2. Citations and explanations:

see separate sheet

Re Item V

Reasoned statement under Rule 66.2(a)ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1 Whilst acknowledging the amendments submitted by the applicant in the demand, it is considered that the present set of claims - not least due to the broad claim wording - does not overcome the objections raised in the Written Opinion attached to the International Search Report - the reasons therefor being exemplarily further illustrated below with respect to independent claim 1.

2 Document D1 discloses (the references in parentheses applying to this document) - applying the wording of present amended claim 1:

"A method for classifying different segments of a signal, the signal comprising segments of at least a first type and a second type (abstract, lines 2-5, wherein - according to section 2 (see e.g. page 154, lines 1 and 11) - a first type of segments containing music, a second type of segments containing speech and a third type of segments containing noise are discriminated), the method comprising:

short-term classifying (150) the signal on the basis of at least one short-term feature extracted from the signal and delivering a short-term classification result (152) (figure 2 and section 2, page 154, line 11 - page 155, line 1, wherein said short-term classifying (as to the aspect of short-term analysis, see reference [5] cited in D1) is represented by a binary discrimination between segments of the second type (i.e. speech) and segments of the third type (i.e. noise));

long-term classifying (154) the signal on the basis of at least one short-term feature and at least one long-term feature extracted from the signal and delivering a long-term classification result (156) (figure 2, section 2.1, lines 4-7, 9-15, wherein said long-term classifying is represented by a binary discrimination between segments of the first type (i.e. music) and segments of the second type (i.e. speech), and wherein the feature of the short-term energy disclosed in lines 5-6 is also used as basis for the above-claimed short-term classifying (see also page 152, section 3, right-hand column, paragraph below figure 2, of reference [5] cited in D1)); and

combining (158) (see block "decision logic" of D1, figure 2, as well as D1,

section 2.4) the short-term classification result (152) (i.e. the above-mentioned result of the discrimination between speech and noise as of D1) and the long-term analysis classification (156) (i.e. the above-mentioned result of the discrimination between music and speech as of D1) to provide an output signal (160) (see mode bit of D1, figure 2) indicating whether a segment of the signal is of the first type or of the second type."

Consequently, claim 1 fails to fulfill the requirements of the PCT with respect to novelty (Article 33(2) PCT).

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

To:

ZIMMERMANN, Tankred
Schoppe, Zimmermann, Stöckeler, Zinkler & Partner
Postfach 246
D-82043 Pullach
ALLEMAGNE

NOTIFICATION OF RECEIPT
OF DEMAND BY COMPETENT INTERNATIONAL
PRELIMINARY EXAMINING AUTHORITY

(PCT Rules 59.3(e) and 61.1(b), first sentence
and Administrative Instructions, Section 601(a))

Date of mailing
(day/month/year)

25-05-2010

Applicant's or agent's file reference
FH090608PCT

IMPORTANT NOTIFICATION

International application No.

PCT/EP2009/004339

International filing date (day/month/year)

16 June 2009 (16-06-2009)

Priority date (day/month/year)

11 July 2008 (11-07-2008)

Applicant

FRAUNHOFER GESELLSCHAFT ZUR FÖRDERUNG

1. The applicant is hereby **notified** that this International Preliminary Examining Authority considers the following date as the date of receipt of the demand for international preliminary examination of the international application:

11 May 2010 (11-05-2010)

2. This date of receipt is:



the actual date of receipt of the demand by this Authority (Rule 61.1(b)).



the actual date of receipt of the demand on behalf of this Authority (Rule 59.3(e)).



the date on which this Authority has, in response to the invitation to correct defects in the demand (Form PCT/IPEA/404), received the required corrections.

3. ☒ **ATTENTION:** That date of receipt is **after** the expiration of 19 months from the priority date. Consequently, in respect of some Offices, the demand does not have the effect of postponing the entry into the national phase until 30 months from the priority date (or later in some Offices) (Article 39(1)) and the acts for entry into the national phase must therefore be performed within 20 months from the priority date (or later in some Offices). However, in respect of some other Offices, the time limit of 30 months (or later) may nevertheless apply. See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters and the WIPO Internet site.



(If applicable) This notification confirms the information given by telephone, facsimile transmission or in person on:

4. Only where paragraph 3 applies, a copy of this notification has been sent to the International Bureau.

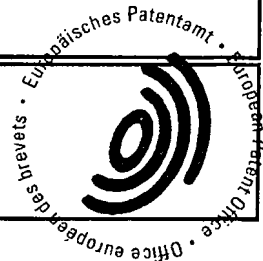
Name and mailing address of the IPEA



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

Authorized officer

Marra, Emanuela
Tel: (+49-89)2399-7235



The demand must be filed directly with the competent International Preliminary Examining Authority or, if two or more Authorities are competent, with the one chosen by the applicant. The full name or two-letter code of that Authority may be indicated by the applicant on the line below:

IPEA/ EPO

PCT

CHAPTER II

DEMAND

under Article 31 of the Patent Cooperation Treaty:
The undersigned requests that the international application specified below be the subject of international preliminary examination according to the Patent Cooperation Treaty.

For International Preliminary Examining Authority use only	
Identification of IPEA	Date of receipt of DEMAND
Box No. I IDENTIFICATION OF THE INTERNATIONAL APPLICATION	
Applicant's or agent's file reference FH090608PCT	
International application No. PCT/EP2009/004339	International filing date (day/month/year) 16/06/2009
(Earliest) Priority date (day/month/year) 11/07/2008	
Title of invention METHOD AND DISCRIMINATOR FOR CLASSIFYING DIFFERENT SEGMENTS OF A SIGNAL	
Box No. II APPLICANT(S)	
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)	
FRAUNHOFER-GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V. Hansastraße 27c 80686 Muenchen	
Telephone No.	
Facsimile No.	
Applicant's registration No. with the Office	
☐ E-mail authorization: Marking this check-box authorizes the International Preliminary Examining Authority to use the e-mail address indicated in this Box to send, if the Authority so wishes, advance copies of notifications in respect of this international application. (See also the Notes to Box No. II.)	
E-mail address	
State (that is, country) of nationality: DE	State (that is, country) of residence: DE
Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)	
FUCHS, Guillaume Parkstraße 12 90409 Nuernberg	
State (that is, country) of nationality: FR	State (that is, country) of residence: DE
☒ Further applicants are indicated on a continuation sheet.	

Sa

Continuation of Box No. II APPLICANT(S)

If none of the following sub-boxes is used, this sheet should not be included in the demand.

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)

BAYER, Stefan
Dortmunder Straße 14
90425 Nuernberg

State (that is, country) of nationality:
DE

State (that is, country) of residence:
DE

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)

NAGEL, Frederik
Wilhelmshavener Straße 72
90425 Nuernberg

State (that is, country) of nationality:
DE

State (that is, country) of residence:
DE

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)

HERRE, Juergen
Hallerstraße 24
91054 Buckenhof

State (that is, country) of nationality:
DE

State (that is, country) of residence:
DE

Name and address: (Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)

RETTELBACH, Nikolaus
Spessartstraße 38
90427 Nuernberg

State (that is, country) of nationality:
DE

State (that is, country) of residence:
DE

☒ Further applicants are indicated on another continuation sheet.

Continuation of Box No. II APPLICANT(S)	
<i>If none of the following sub-boxes is used, this sheet should not be included in the demand.</i>	
Name and address: <i>(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)</i>	
WABNIK, Stefan Fichtenweg 5 98693 Ilmenau	
State <i>(that is, country)</i> of nationality: DE	State <i>(that is, country)</i> of residence: DE
Name and address: <i>(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)</i>	
YOKOTANI, Yoshikazu Kibune 336-101, Hamamatsu Shizuoka 434-0038	
State <i>(that is, country)</i> of nationality: JP	State <i>(that is, country)</i> of residence: JP
Name and address: <i>(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)</i>	
HIRSCHFELD, Jens Steinweg 32 36266 Heringen	
State <i>(that is, country)</i> of nationality: DE	State <i>(that is, country)</i> of residence: DE
Name and address: <i>(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)</i>	
LECOMTE, Jérémie Sulzbacher Straße 39 90489 Nuernberg	
State <i>(that is, country)</i> of nationality: FR	State <i>(that is, country)</i> of residence: DE
☐ Further applicants are indicated on another continuation sheet.	

Box No. III AGENT OR COMMON REPRESENTATIVE; OR ADDRESS FOR CORRESPONDENCEThe following person is ☐ agent ☒ common representativeand ☒ has been appointed earlier and represents the applicant(s) also for international preliminary examination.☐ is hereby appointed and any earlier appointment of (an) agent(s)/common representative is hereby revoked.☐ is hereby appointed, specifically for the procedure before the International Preliminary Examining Authority, in addition to the agent(s)/common representative appointed earlier.Name and address: *(Family name followed by given name; for a legal entity, full official designation. The address must include postal code and name of country.)*ZIMMERMANN, Tankred
Schoppe, Zimmermann, Stöckeler, Zinkler & Partner
P.O. Box 246
82043 Pullach

Telephone No.

0049-89 790 44 50

Facsimile No.

0049-89 790 22 15

Agent's registration No. with the Office

☐ **E-mail authorization:** Marking this check-box authorizes the International Preliminary Examining Authority to use the e-mail address indicated in this Box to send, if the Authority so wishes, advance copies of notifications in respect of this international application. *(See also the Notes to Box No. II.)*

E-mail address

☐ **Address for correspondence:** Mark this check-box where no agent or common representative is/has been appointed and the space above is used instead to indicate a special address to which correspondence should be sent.**Box No. IV BASIS FOR INTERNATIONAL PRELIMINARY EXAMINATION****Statement concerning amendments:***

1. The applicant wishes the international preliminary examination to start on the basis of:

☐ the international application as originally filedthe description ☒ as originally filed☐ as amended under Article 34the claims ☐ as originally filed☐ as amended under Article 19 (together with any accompanying statement)☒ as amended under Article 34the drawings ☒ as originally filed☐ as amended under Article 342. ☐ The applicant wishes any amendment to the claims under Article 19 to be considered as reversed.3. ☐ Where the IPEA wishes to start the international preliminary examination at the same time as the international search in accordance with Rule 69.1(b), the applicant requests the IPEA to **postpone** the start of the international preliminary examination until the expiration of the applicable time limit under Rule 69.1(d).4. ☐ The applicant expressly wishes the international preliminary examination to **start earlier** than at the expiration of the applicable time limit under Rule 54bis.1(a).

* Where no check-box is marked, international preliminary examination will start on the basis of the international application as originally filed or, where a copy of amendments to the claims under Article 19 and/or amendments of the international application under Article 34 are received by the International Preliminary Examining Authority before it has begun to draw up a written opinion or the international preliminary examination report, as so amended.

Language for the purposes of international preliminary examination: English☒ which is the language in which the international application was filed.☐ which is the language of a translation furnished for the purposes of international search.☒ which is the language of publication of the international application.☐ which is the language of the translation (to be) furnished for the purposes of international preliminary examination.**Box No. V ELECTION OF STATES**

The filing of this demand constitutes the election of all Contracting States which are designated and are bound by Chapter II of the PCT.

Box No. VI CHECK LIST

The demand is accompanied by the following elements, in the language referred to in Box No. IV, for the purposes of international preliminary examination:

- | | | | |
|--|---|-------|--------|
| 1. translation of international application | : | _____ | sheets |
| 2. amendments under Article 34 | : | 5 | sheets |
| 3. copy (or, where required, translation) of amendments under Article 19 | : | _____ | sheets |
| 4. copy (or, where required, translation) of statement under Article 19 | : | _____ | sheets |
| 5. letter | : | 6 | sheets |
| 6. other (<i>specify</i>) | : | _____ | sheets |

For International Preliminary Examining Authority use only

received	not received
☐	☐
☐	☐
☐	☐
☐	☐
☐	☐
☐	☐

The demand is also accompanied by the item(s) marked below:

- | | |
|--|--|
| 1. ☒ fee calculation sheet | 5. ☐ statement explaining lack of signature |
| 2. ☐ original separate power of attorney | 6. ☐ sequence listing in electronic form |
| 3. ☐ original general power of attorney | 7. ☐ other (<i>specify</i>): |
| 4. ☐ copy of general power of attorney; reference number, if any: | |

Box No. VII SIGNATURE OF APPLICANT, AGENT OR COMMON REPRESENTATIVE

Next to each signature, indicate the name of the person signing and the capacity in which the person signs (if such capacity is not obvious from reading the demand).


Tankred Zimmermann

For International Preliminary Examining Authority use only

1. Date of actual receipt of DEMAND:

2. Adjusted date of receipt of demand due to CORRECTIONS under Rule 60.1(b):

- | | |
|--|--|
| 3. ☐ The date of receipt of the demand is AFTER the expiration of 19 months from the priority date and item 4 or 5, below, does not apply.
☐ The applicant has been informed accordingly. | 6. ☐ The date of receipt of the demand is AFTER the expiration of the time limit under Rule 54bis.1(a) and item 7 or 8, below, does not apply. |
| 4. ☐ The date of receipt of the demand is WITHIN the time limit of 19 months from the priority date as extended by virtue of Rule 80.5. | 7. ☐ The date of receipt of the demand is WITHIN the time limit under Rule 54bis.1(a) as extended by virtue of Rule 80.5. |
| 5. ☐ Although the date of receipt of the demand is after the expiration of 19 months from the priority date, the delay in arrival is EXCUSED pursuant to Rule 82. | 8. ☐ Although the date of receipt of the demand is after the expiration of the time limit under Rule 54bis.1(a), the delay in arrival is EXCUSED pursuant to Rule 82. |

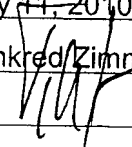
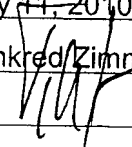
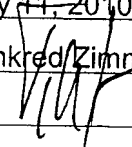
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Demand received from IPEA on:

PCT

FEE CALCULATION SHEET

Annex to the Demand

<table border="1" style="width: 100%; border-collapse: collapse;"><tr><td style="width: 50%; padding: 2px;">International application No. PCT/EP2009/004339</td><td style="width: 50%; padding: 2px;">For International Preliminary Examining Authority use only</td></tr><tr><td style="width: 50%; padding: 2px;">Applicant's or agent's file reference FH090608PCT</td><td style="width: 50%; padding: 2px;">Date stamp of the IPEA</td></tr></table>	International application No. PCT/EP2009/004339	For International Preliminary Examining Authority use only	Applicant's or agent's file reference FH090608PCT	Date stamp of the IPEA			
International application No. PCT/EP2009/004339	For International Preliminary Examining Authority use only						
Applicant's or agent's file reference FH090608PCT	Date stamp of the IPEA						
Applicant Fraunhofer-Gesellschaft... et al.							
CALCULATION OF PRESCRIBED FEES <table style="width: 100%;"><tr><td style="width: 50%;">1. Preliminary examination fee</td><td style="width: 50%; text-align: right;">EUR 1.760,00 P</td></tr><tr><td>2. Handling fee (<i>Applicants from certain States are entitled to a reduction of 90% of the handling fee. Where the applicant is (or all applicants are) so entitled, the amount to be entered at H is 10% of the handling fee.</i>)</td><td style="text-align: right;">EUR 132,00 H</td></tr><tr><td>3. Total of prescribed fees Add the amounts entered at P and H and enter total in the TOTAL box</td><td style="text-align: right;"> EUR 1.892,00 TOTAL </td></tr></table>		1. Preliminary examination fee	EUR 1.760,00 P	2. Handling fee (<i>Applicants from certain States are entitled to a reduction of 90% of the handling fee. Where the applicant is (or all applicants are) so entitled, the amount to be entered at H is 10% of the handling fee.</i>)	EUR 132,00 H	3. Total of prescribed fees Add the amounts entered at P and H and enter total in the TOTAL box	EUR 1.892,00 TOTAL
1. Preliminary examination fee	EUR 1.760,00 P						
2. Handling fee (<i>Applicants from certain States are entitled to a reduction of 90% of the handling fee. Where the applicant is (or all applicants are) so entitled, the amount to be entered at H is 10% of the handling fee.</i>)	EUR 132,00 H						
3. Total of prescribed fees Add the amounts entered at P and H and enter total in the TOTAL box	EUR 1.892,00 TOTAL						
MODE OF PAYMENT <i>(Not all modes of payment may be available at all IPEAs)</i> <table style="width: 100%;"><tr><td style="width: 50%; vertical-align: top;">☒ authorization to charge current account with the IPEA (see below) ☐ cheque ☐ postal money order ☐ bank transfer</td><td style="width: 50%; vertical-align: top;">☐ credit card (<i>details should be furnished separately and not included on this sheet</i>) ☐ revenue stamps ☐ cash ☐ other (<i>specify</i>):</td></tr></table>		☒ authorization to charge current account with the IPEA (see below) ☐ cheque ☐ postal money order ☐ bank transfer	☐ credit card (<i>details should be furnished separately and not included on this sheet</i>) ☐ revenue stamps ☐ cash ☐ other (<i>specify</i>):				
☒ authorization to charge current account with the IPEA (see below) ☐ cheque ☐ postal money order ☐ bank transfer	☐ credit card (<i>details should be furnished separately and not included on this sheet</i>) ☐ revenue stamps ☐ cash ☐ other (<i>specify</i>):						
AUTHORIZATION TO CHARGE (OR CREDIT) CURRENT ACCOUNT <i>(This mode of payment may not be available at all IPEAs)</i> <table style="width: 100%;"><tr><td style="width: 50%; vertical-align: top;">☒ Authorization to charge the total fees indicated above. ☒ (<i>This check-box may be marked only if the conditions for current accounts of the IPEA so permit</i>) Authorization to charge any deficiency or credit any overpayment in the total fees indicated above.</td><td style="width: 50%; vertical-align: top;">IPEA/ <u>EPO</u> Current Account No.: <u>2800 2246</u> Date: <u>May 11, 2010</u> Name: <u>Tankred Zimmermann</u> Signature: <u></u></td></tr></table>		☒ Authorization to charge the total fees indicated above. ☒ (<i>This check-box may be marked only if the conditions for current accounts of the IPEA so permit</i>) Authorization to charge any deficiency or credit any overpayment in the total fees indicated above.	IPEA/ <u>EPO</u> Current Account No.: <u>2800 2246</u> Date: <u>May 11, 2010</u> Name: <u>Tankred Zimmermann</u> Signature: <u></u>				
☒ Authorization to charge the total fees indicated above. ☒ (<i>This check-box may be marked only if the conditions for current accounts of the IPEA so permit</i>) Authorization to charge any deficiency or credit any overpayment in the total fees indicated above.	IPEA/ <u>EPO</u> Current Account No.: <u>2800 2246</u> Date: <u>May 11, 2010</u> Name: <u>Tankred Zimmermann</u> Signature: <u></u>						

SCHOPPE ZIMMERMANN STÖCKELER ZINKLER & PARTNER

Patentanwälte · European Patent Attorneys · European Trademark Attorneys

Patentanwälte Postfach 246 · 82043 Pullach bei München

European Patent Office

80298 Munich

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Franz Zinkler · Dipl.-Ing.

Markus Schenk · Dipl.-Phys.

Günter Hersina · Dipl.-Ing.

Markus Burger · Dipl.-Ing.

Stefan Göttling · Dipl.-Ing.

May 11, 2010

International Patent Application PCT/EP 2009/004339**Applicant: Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V.****Our Ref.: FH090608PCT / sm / gi**In preparation of the International Preliminary Examination:

1. In reply to the Written Opinion attached to the International Search Report, amended claims are submitted herewith. More specifically, new claims 1 to 18 are submitted herewith, of which claims 2 to 18 correspond to pending claims 2 to 18. Claim 1 corresponds to original claim 1 except that in the second feature, the term "long-term" was replaced by the term "long-term classifying". Support for this amendment can be found in the original specification on page 6, line 34.

Otherwise, as mentioned, the claims correspond to the original claims, which, for the reasons set forth below, are considered to define subject matter, which is neither anticipated nor rendered obvious by the prior art documents cited in the International Search Report.

2. It was outlined in the Written Opinion attached to the International Search Report that the subject matter of the originally filed claims, especially the subject matter of the originally filed independent claims 1 and 14, lacks novelty in view of the disclosure of

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 Kanzleianschrift/Office address:
 Hermann-Roth-Weg 1, 82049 Pullach bei München

Partnerschaftsgesellschaft,
 eingetragen in das PR unter Nr. PR 974
 USt- Nr. 148/233/00493
 VAT Registration No. DE 270564910

document D1 (the article to Tancerel et al.) or document D2 (US 2003/0101050 A1). For the following reasons, this conclusion is respectfully traversed.

The present application is concerned with a novel and inventive approach for classifying different segments of a signal, for example, music and speech in an input signal to provide for a switching signal to a switching element that supplies the input signal segments to the appropriate coders/decoders. This basic approach of discriminating between speech and music is well known in the art. However, as is outlined in the introductory portion of the present application, especially for real-time applications, conventional approaches are disadvantageous as the delay introduced by the discriminator for switching is undesirable (see pages 4 and 5 of the present application).

Therefore, it is the object underlying the present invention to provide for an improved approach for discriminating segments of a different type in a signal, while keeping any delay introduced by the discrimination low. In accordance with the present invention, this is achieved by providing a new approach for classifying different segments, which leaves the conventional approaches of only doing a "single" discrimination considering both short-term and long-term features of the signal. Rather as is clearly defined in the claim language, two different classifications are done, namely a first classification that operates on the basis of at least one short-term feature, the so-called short-term classification and a second classification that also operates on this short-term feature and, in addition, on a long-term feature, which is called the long-term classification. It is important to note that the claim language and also the specification clearly specify that two different classification processes are executed, which result in two different classification results, which are then combined to obtain an indication of the type of the segment of the signal currently analyzed.

Thus, in accordance with the present invention, short-term features are used both in a short-term classifier and in a long-term classifier so that the two classifiers exploit different statistics of the same feature, for example, the short-term classifier will extract only the instantaneous information, because it has access to only one set of features, while, on the other hand, the long-term classifier has access to several sets of features and may exploit more characteristics of the signal. The long-term classifier may receive the short-term feature directly from the short-term classifier.

By means of the inventive approach, the delay introduced is limited, while keeping a reliable decision, since the short-term classification result that may be used for switching is made more robust by providing, in addition, the long-term classification result so that only a minor delay is introduced at any time and switching occurs substantially while the current frame is processed, i.e. unnecessary delays are avoided by the inventive approach.

Turning now to the disclosure of the prior art documents cited in the International Search Report, after reviewing same, the applicant feels that same do not go beyond the conventional discriminator approaches already described in the introductory portion and considered disadvantageous as same also introduce undesired delays.

Actually, neither document D1 (the article to Tancerel et al.) nor document D2 (US 2003/0101050 A1) describe an approach allowing for a reduction of the delay by exploiting information about the quality of the signal (speech or music) obtained by a short-term feature analysis. In short, document D1 uses a VAD (voice activity detector, see Fig. 2) and document D2 uses a feature extractor 220 that may also extract short-term features (see. Fig. 2), however the VAD and feature extractor, respectively, are used only for determining an appropriate switching instant. In accordance with the teachings of documents D1 and D2 the VAD and feature extractor are not exploited for obtaining information about the quality of the signal (speech or music), which is in contradiction to the teachings of the present invention. As a consequence, neither of these documents can achieve a low delay classification. Note e.g. that Fig. 5b of document D2 explicitly shows that the short-term analysis does not help to reduce the overall delay.

Document D1 describes a combined speech and audio coding by discrimination and the conventional encoder structure is given in Fig. 1 showing the discriminator acting on a switch for selecting one of two encoders for an input signal dependent on whether the input signal is a speech signal or a music signal. The speech/music discrimination is described in further detail in chapter 2 on pages 154 and 155 and Fig. 2 thereof shows a high-level description of the speech/music discriminator. As can be seen, this discriminator has three blocks, namely the parameter examination block, the long-term statistics and normalization block and the speech/music identification block. As can be seen in Fig. 2, these three blocks are arranged in series and output the signal S/NS, i.e. the classifying signal indicating a speech/non-speech decision. Thus, what document D1

actually teaches is that the input signal is received at the discriminator and first of all parameters for doing the long-term statistics are extracted in the parameter examination block and the respective long-term statistics are done over a length of 500 ms (see section 2.2 of document D1) in order to generate a final feature vector on the basis of which the classification is done in the speech/music classification block. Thus, despite the fact that in the parameter estimation block, also the short-term energy of the input signal every 5 ms on frames of lengths of 15 ms is computed, the basic approach of the discriminator of document D1 is such that a single classification step is executed on the basis of the parameters determined, which are then applied to a long-term statistic module that operates over 500 ms that, in accordance with the teachings of document D1, is a good compromise between global discrimination efficiency and local switching accuracy. Thus, at best, document D1 describes a discriminator comprising a single classifier, namely a long-term classifier introducing a delay of 500 ms. Nothing in document D1 teaches or suggests that an additional "branch" should be provided in parallel to the long-term classifier that operates only on the basis of short-term features to provide a short-term classification result in a manner as is taught by the present invention. As to this aspect, it is noted that while document D1 shows in Fig. 2 thereof a discriminator having a parallel branch including the VAD decision block (voice activity detector block), this block does not qualify as a short-term classifier as defined by the present invention. Actually, this block is only used for constraining the switching decision in low-energy frames according to the VAD decision, so that the discrimination is effective only in these parts of the signal, as is outlined in section 2.4 of document D1. However, this does not suggest using a short-term classifier, the output of which is used for switching and is made more robust by combining it with the classification results of a long-term classifier. Actually, the VAD block outputs an activity flag that enables the output of the discrimination signal from the long-term discriminator dependent on whether the current part of the signal is a low energy frame or not.

Thus, when starting from document D1 as being one possible closest prior art, it is to be emphasized that nothing in this document suggests providing an additional classifier operating on short-term features only in a manner as discussed above and as defined in the claim language.

Basically, the same is true for document D2 that describes a real-time speech and music classifier. When looking at the disclosure of document D2, especially Fig. 2 thereof, the

classifier comprises a look-ahead buffer 210 that receives audio samples and forwards the samples to the feature extractor 220 that extracts long-term features and short-term features, which are both introduced into a classification module 230, which outputs classified frames. As is outlined in paragraph [0011], the feature extractor extracts a set of long-term and short-term features from each frame in the buffer, which are then provided to the classification module that first detects a potential switching time according to the short-term feature of the current coding frame and then classifies each frame according to the long-term features and determines whether to switch the operation mode of the coder for the classified frame at the potential switching time according to the predefined switch criterion. Thus, as can be seen from Fig. 2, by means of the classifier 111, a delay by buffering the input samples is introduced, which is undesired in accordance with the teachings of the present invention. Document D2 does not suggest providing a further classifier operating only on the short-term features without any delay so that, basically, this document, like document D1, does not go beyond the conventional approach of providing a delayed classification result that is determined on the basis of long-term features and short-term features derived from an audio sample. Document D2, like document D1, however, does not suggest using two parallel classifications, namely a short-term classification operating only on the basis of a short-term feature and a long-term classification operating both on the long-term and the short-term features, which are then combined in a manner as described above.

Thus, document D2, like document D1, does not suggest the inventive approach of using two classifiers for providing two classification results, which are then combined for determining an output signal indicating the type of a currently processed segment of a signal.

Therefore, contrary to the conclusion given in the Written Opinion attached to the International Search Report, the applicant feels that the prior art documents cited neither anticipate nor render obvious the subject matter of the present application so that this subject matter is clearly patentable over the available art.

3. In view of the above comments, it is kindly requested to issue a favorable International Preliminary Examination Report.

Should the Examiner still have concerns with regard to the allowability of the subject matter of the present application, it is requested to issue a Written Opinion or discuss this matter during a telephone conversation.

Respectfully submitted,



Tankred Zimmermann

Encl.:

New claims 1 to 18

Claims

1. A method for classifying different segments of a signal, the signal comprising segments of at least a first type and a second type, the method comprising:
 - 5 short-term classifying (150) the signal on the basis of at least one short-term feature extracted from the signal and delivering a short-term classification result (152);
 - 10 long-term classifying (154) the signal on the basis of at least one short-term feature and at least one long-term feature extracted from the signal and delivering a long-term classification result (156); and
 - 20 combining (158) the short-term classification result (152) and the long-term analysis classification (156) to provide an output signal (160) indicating whether a segment of the signal is of the first type or of the second type.
2. The method of claim 1, wherein the step of combining comprises providing the output signal on the basis of a comparison of the short-term classification result (152) to the long-term classification result (156).
3. The method of claim 1 or 2, wherein
 - 30 the at least one short-term feature is obtained by analyzing a current segment of the signal which is to be classified;
 - 35 the at least one long-term feature is obtained by analyzing the current segment of the signal and one or more preceding segments of the signal; and

the output signal (160) indicates whether the current segment is of the first type or of the second type.

- 4. The method of one of claims 1 to 3, wherein
 - 5 the at least one short-term feature is obtained by analyzing an analysis window (168) of a first length and a first analysis method; and
 - 10 the at least one long-term feature is obtained by analyzing an analysis window (162) of a second length and second analysis method, the first length being shorter than the second length, and the first and second analysis methods being different.
 - 15
- 5. The method of claim 4, wherein the first length spans a current segment of the signal, the second length spans the current segment of the signal and one or more preceding segments of the signal, and the first and second lengths comprise an additional period (164) covering an analysis period.
- 20
- 6. The method of one of claims 1 to 5, wherein combining (158) the short-term classification result (152) and the long-term classification result (156) comprises a hysteresis decision on the basis of a combined result, wherein the combined result comprises the short-term classification result (152) and the long-term classification result (156), each weighted by a predefined weighting factor.
- 25
- 30
- 7. The method of one of claims 1 to 6, wherein the signal is a digital signal and a segment of the signal comprises as predefined number of samples obtained at a specific sampling rate.
- 35
- 8. The method of one of claims 1 to 7, wherein

the signal comprises speech and music segments;

the at least one short-term feature comprises the
PLPCCs parameters; and

5

the at least one long-term feature comprises pitch
characteristic information.

9. The method of one of claims 1 to 8, wherein the short-
10 term feature used for short-term classification and
the short-term feature used for long-term
classification are the same or different.

10. A method for processing a signal comprising segments
15 of at least a first type and a second type, the method
comprising:

classifying (116) a segment of the signal in
accordance with the method of one of claims 1 to 9;

20

dependent on the output signal (160) provided by the
classifying step (116), processing (102, 206; 106,
208) the segment in accordance with a first process or
a second process; and

25

outputting the processed segment.

11. The method of claim 10, wherein

30

the signal comprises speech and music segments;

the segment is processed by a speech encoder (102)
when the output signal (160) indicates that the
segment is a speech segment; and

35

the segment is processed by a music encoder (106) when
the output signal (160) indicates that the segment is
a music segment.

12. The method of claim 11, further comprising:
- 5 combining (108) the encoded segment and information from the output signal (160) indicating the type of the segment.
13. A computer program for performing, when running on a computer, the method of one of claims 1 to 12.
- 10 14. A discriminator, comprising:
- 15 a short-term classifier (150) configured to receive a signal and to provide a short-term classification result (152) of the signal on the basis of at least one short-term feature extracted from the signal, the signal comprising segments of at least a first type and a second type;
- 20 a long-term classifier (154) configured to receive a signal and to provide a long-term classification result (156) of the signal on the basis of at least one short-term feature and at least one long-term feature extracted from the signal; and
- 25 a decision circuit (158) configured to combine the short-term classification result (152) and the long-term classification result (156) to provide an output signal (160) indicating whether a segment of the
- 30 signal is of the first type or is of the second type.
15. The discriminator of claim 14, wherein the decision circuit (158) configured to provide the output signal on the basis of a comparison of the short-term classification result (152) to the long-term classification result (156).
- 35

16. The discriminator of claim 14 or 15, wherein the
signal comprises speech and music segments, and
wherein the output signal (160) indicates whether a
segment of a signal is speech segment or a music
segment.

17. A signal processing apparatus, comprising:

a input (110) configured to receive a signal to be
processed, wherein the signal comprises segments of at
least a first type and of a second type;

a first processing stage (102; 206), configured to
process segments of the first type;

a second processing stage (104; 208) configured to
process segments of the second type;

a discriminator (116; 204) of one of claims 14 to 16
coupled to the input; and

a switching device (112; 202) coupled between the
input and the first and second processing stages and
configured to apply the signal from the input (110) to
one of the first and second processing stages
dependent on the output signal (160) from the
discriminator (116).

18. An audio encoder, comprising:

a signal processing apparatus of claim 17,

wherein the signal is an audio signal comprising
speech and music segments, and

wherein the first processing stage comprises a speech
encoder (102) and the second processing stage
comprises a music encoder (106).

From the INTERNATIONAL BUREAU

PCTNOTIFICATION CONCERNING
SUBMISSION OR TRANSMITTAL
OF PRIORITY DOCUMENT

25 SEP 2009

To:

ZIMMERMANN, Tankred
SCHOPPE, ZIMMERMANN, STÖCKELER &
ZINKLER
Postfach 246
82043 Pullach bei München
ALLEMAGNE

(PCT Administrative Instructions, Section 411)

Date of mailing (day/month/year) 15 September 2009 (15.09.2009)	
Applicant's or agent's file reference FH090608PCT	IMPORTANT NOTIFICATION
International application No. PCT/EP2009/004339	International filing date (day/month/year) 16 June 2009 (16.06.2009)
International publication date (day/month/year) Not yet published	Priority date (day/month/year) 11 July 2008 (11.07.2008)
Applicant FRAUNHOFER-GESELLSCHAFT ZUR FÖRDERUNG DER ANGEWANDTEN FORSCHUNG E.V. et al	

- By means of this Form, which replaces any previously issued notification concerning submission or transmittal of priority documents, the applicant is hereby notified of the date of receipt by the International Bureau of the priority document(s) relating to all earlier application(s) whose priority is claimed. Unless otherwise indicated by the letters "NR", in the right-hand column or by an asterisk appearing next to a date of receipt, the priority document concerned was submitted or transmitted to the International Bureau in compliance with Rule 17.1(a) or (b).
- (If applicable)* The letters "NR" appearing in the right-hand column denote a priority document which, on the date of mailing of this Form, had not yet been received by the International Bureau under Rule 17.1(a) or (b). Where, under Rule 17.1(a), the priority document must be submitted by the applicant to the receiving Office or the International Bureau, but the applicant fails to submit the priority document within the applicable time limit under that Rule, the attention of the applicant is directed to Rule 17.1(c) which provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.
- (If applicable)* An asterisk (*) appearing next to a date of receipt, in the right-hand column, denotes a priority document submitted or transmitted to the International Bureau but not in compliance with Rule 17.1(a) or (b) (the priority document was received after the time limit prescribed in Rule 17.1(a) or the request to prepare and transmit the priority document was submitted to the receiving Office after the applicable time limit under Rule 17.1(b)). Even though the priority document was not furnished in compliance with Rule 17.1(a) or (b), the International Bureau will nevertheless transmit a copy of the document to the designated Offices, for their consideration. In case such a copy is not accepted by the designated Office as the priority document, Rule 17.1(c) provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.

Priority date	Priority application No.	Country or regional Office or PCT receiving Office	Date of receipt of priority document
11 July 2008 (11.07.2008)	61/079,875	US	24 August 2009 (24.08.2009)

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Authorized officer

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Form PCT/IB/304 (October 2005)

I/D6Z3NFAD0

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

PCT

To: SCHOPPE, ZIMMERMANN, STÖCKELER & ZINKLER Attn. Zimmermann, Tankred Postfach 246 D-82043 Pullach bei München ALLEMAGNE		NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT AND THE WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY, OR THE DECLARATION	
		(PCT Rule 44.1)	
		Date of mailing (day/month/year) 31/07/2009	
Applicant's or agent's file reference FH090608PCT		FOR FURTHER ACTION See paragraphs 1 and 4 below	
International application No. PCT/EP2009/004339		International filing date (day/month/year) 16/06/2009	
Applicant FRAUNHOFER-GESELLSCHAFT ZUR FÖRDERUNG DER ...			

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

Filing of amendments and statement under Article 19:
 The applicant is entitled, if he so wishes, to amend the claims of the International Application (see Rule 46):

When? The time limit for filing such amendments is normally two months from the date of transmittal of the International Search Report.

Where? Directly to the International Bureau of WIPO, 34 chemin des Colombettes
 1211 Geneva 20, Switzerland, Facsimile No.: (41-22) 338.82.70

For more detailed instructions, see the notes on the accompanying sheet.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3. ☐ **With regard to the protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.

☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Reminders**

Shortly after the expiration of **18 months** from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established. These comments would also be made available to the public but not before the expiration of 30 months from the priority date.

Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase **until 30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months.

See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters and the WIPO Internet site.

Name and mailing address of the International Searching Authority  European Patent Office, P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer Rosa Poquet
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NOTES TO FORM PCT/ISA/220

These Notes are intended to give the basic instructions concerning the filing of amendments under article 19. The Notes are based on the requirements of the Patent Cooperation Treaty, the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the *PCT Applicant's Guide*, a publication of WIPO.

In these Notes, "Article", "Rule", and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions, respectively.

INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report and the written opinion of the International Searching Authority, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international publication. Furthermore, it should be emphasized that provisional protection is available in some States only (see *PCT Applicant's Guide*, Volume I/A, Annexes B1 and B2).

The attention of the applicant is drawn to the fact that amendments to the claims under Article 19 are not allowed where the International Searching Authority has declared, under Article 17(2), that no international search report would be established (see *PCT Applicant's Guide*, Volume I/A, paragraph 296).

What parts of the international application may be amended?

Under Article 19, only the claims may be amended.

During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Examining Authority.

Upon entry into the national phase, all parts of the international application may be amended under Article 28 or, where applicable, Article 41.

When?

Within 2 months from the date of transmittal of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

Where not to file the amendments?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been/is filed, see below.

How?

Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Section 205(b)).

The amendments must be made in the language in which the international application is to be published.

What documents must/may accompany the amendments?

Letter (Section 205(b)):

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if the language of the international application is French, the letter must be in French.

NOTES TO FORM PCT/ISA/220 (continued)

The letter must indicate the differences between the claims as filed and the claims as amended. It must, in particular, indicate, in connection with each claim appearing in the international application (it being understood that identical indications concerning several claims may be grouped), whether

- (i) the claim is unchanged;
- (ii) the claim is cancelled;
- (iii) the claim is new;
- (iv) the claim replaces one or more claims as filed;
- (v) the claim is the result of the division of a claim as filed.

The following examples illustrate the manner in which amendments must be explained in the accompanying letter:

1. [Where originally there were 48 claims and after amendment of some claims there are 51]:
"Claims 1 to 29, 31, 32, 34, 35, 37 to 48 replaced by amended claims bearing the same numbers; claims 30, 33 and 36 unchanged; new claims 49 to 51 added."
2. [Where originally there were 15 claims and after amendment of all claims there are 11]:
"Claims 1 to 15 replaced by amended claims 1 to 11."
3. [Where originally there were 14 claims and the amendments consist in cancelling some claims and in adding new claims]:
"Claims 1 to 6 and 14 unchanged; claims 7 to 13 cancelled; new claims 15, 16 and 17 added." or
"Claims 7 to 13 cancelled; new claims 15, 16 and 17 added; all other claims unchanged."
4. [Where various kinds of amendments are made]:
"Claims 1–10 unchanged; claims 11 to 13, 18 and 19 cancelled; claims 14, 15 and 16 replaced by amended claim 14; claim 17 subdivided into amended claims 15, 16 and 17; new claims 20 and 21 added."

"Statement under article 19(1)" (Rule 46.4)

The amendments may be accompanied by a statement explaining the amendments and indicating any impact that such amendments might have on the description and the drawings (which cannot be amended under Article 19(1)).

The statement will be published with the international application and the amended claims.

It must be in the language in which the international application is to be published.

It must be brief, not exceeding 500 words if in English or if translated into English.

It should not be confused with and does not replace the letter indicating the differences between the claims as filed and as amended. It must be filed on a separate sheet and must be identified as such by a heading, preferably by using the words "Statement under Article 19(1)."

It may not contain any disparaging comments on the international search report or the relevance of citations contained in that report. Reference to citations, relevant to a given claim, contained in the international search report may be made only in connection with an amendment of that claim.

Consequence if a demand for international preliminary examination has already been filed

If, at the time of filing any amendments and any accompanying statement, under Article 19, a demand for international preliminary examination has already been submitted, the applicant must preferably, at the time of filing the amendments (and any statement) with the International Bureau, also file with the International Preliminary Examining Authority a copy of such amendments (and of any statement) and, where required, a translation of such amendments for the procedure before that Authority (see Rules 55.3(a) and 62.2, first sentence). For further information, see the Notes to the demand form (PCT/IPEA/401).

If a demand for international preliminary examination is made, the written opinion of the International Searching Authority will, except in certain cases where the International Preliminary Examining Authority did not act as International Searching Authority and where it has notified the International Bureau under Rule 66.1bis(b), be considered to be a written opinion of the International Preliminary Examining Authority. If a demand is made, the applicant may submit to the International Preliminary Examining Authority a reply to the written opinion together, where appropriate, with amendments before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later (Rule 43bis.1(c)).

Consequence with regard to translation of the international application for entry into the national phase

The applicant's attention is drawn to the fact that, upon entry into the national phase, a translation of the claims as amended under Article 19 may have to be furnished to the designated/elected Offices, instead of, or in addition to, the translation of the claims as filed.

For further details on the requirements of each designated/elected Office, see the *PCT Applicant's Guide*, Volume II.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference FH090608PCT	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, Item 5 below.	
International application No. PCT/EP2009/004339	International filing date (day/month/year) 16/06/2009	(Earliest) Priority Date (day/month/year) 11/07/2008
Applicant FRAUNHOFER-GESELLSCHAFT ZUR FÖRDERUNG DER ...		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 4 sheets.
☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of:
- ☒ the international application in the language in which it was filed
- ☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))
- b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6bis(a)).
- c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box No. II)

3. ☐ **Unity of invention is lacking** (see Box No III)

4. With regard to the **title**,

- ☒ the text is approved as submitted by the applicant
- ☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

- ☒ the text is approved as submitted by the applicant
- ☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority

6. With regard to the **drawings**,

- a. the figure of the **drawings** to be published with the abstract is Figure No. 1
- ☒ as suggested by the applicant
- ☐ as selected by this Authority, because the applicant failed to suggest a figure
- ☐ as selected by this Authority, because this figure better characterizes the invention
- b. ☐ none of the figures is to be published with the abstract

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2009/004339

A. CLASSIFICATION OF SUBJECT MATTER INV. G10L11/00 G10L19/14		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols) G10L		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal, WPI Data, INSPEC, COMPENDEX		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	TANCEREL L ET AL: "Combined speech and audio coding by discrimination" SPEECH CODING, 2000. PROCEEDINGS. 2000 IEEE WORKSHOP ON SEPTEMBER 17-20, 2000, PISCATAWAY, NJ, USA, IEEE, 17 September 2000 (2000-09-17), pages 154-156, XP010520073 ISBN: 978-0-7803-6416-5 abstract section 1, left-hand column, lines 4-12 section 2 figures 1, 2 ----- -/--	1-18
☒ Further documents are listed in the continuation of Box C. ☒ See patent family annex.		
* Special categories of cited documents : *A* document defining the general state of the art which is not considered to be of particular relevance *E* earlier document but published on or after the international filing date *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) *O* document referring to an oral disclosure, use, exhibition or other means *P* document published prior to the international filing date but later than the priority date claimed *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. * & * document member of the same patent family		
Date of the actual completion of the international search 22 July 2009		Date of mailing of the international search report 31/07/2009
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016		Authorized officer Tilp, Jan

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2009/004339

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2003/101050 A1 (KHALIL HOSAM ADEL [US] ET AL) 29 May 2003 (2003-05-29) paragraphs [0001] - [0003] paragraphs [0006] - [0009] paragraphs [0031] - [0038] paragraphs [0059] - [0062] paragraph [0071] figures 1-4b -----	1-18

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No. PCT/EP2009/004339	International filing date (day/month/year) 16.06.2009	Priority date (day/month/year) 11.07.2008
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International Patent Classification (IPC) or both national classification and IPC
INV. G10L11/00 G10L19/14

Applicant
FRAUNHOFER-GESELLSCHAFT ZUR FÖRDERUNG DER ...

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Fax: +49 89 2399 - 4465	Date of completion of this opinion see form PCT/ISA/210	Authorized Officer Tilp, Jan Telephone No. +49 89 2399-4753
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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/EP2009/004339

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of:
 - ☒ the international application in the language in which it was filed
 - ☐ a translation of the international application into , which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1 (b)).
2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a))
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ on paper
 - ☐ in electronic form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in electronic form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
4. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/EP2009/004339

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	<u>5, 6, 8</u>
	No: Claims	<u>1-4, 7, 9-18</u>
Inventive step (IS)	Yes: Claims	
	No: Claims	<u>5, 6, 8</u>
Industrial applicability (IA)	Yes: Claims	<u>1-18</u>
	No: Claims	

2. Citations and explanations

see separate sheet

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/EP2009/004339

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

- 1 Reference is made to the following document:
D1: XP010520073

- 2 INDEPENDENT CLAIMS

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of the independent claims 1, 10, 13, 14, 17 and 18 is not new in the sense of Article 33(2) PCT.

- 2.1 The document D1 discloses (the references in parentheses applying to this document) - applying the wording of claim 1:

"A method for classifying different segments of a signal, the signal comprising segments of at least a first type and a second type (abstract, lines 2-5), the method comprising:

short-term classifying (150) the signal on the basis of at least one short-term feature extracted from the signal and delivering a short-term classification result (152) (figure 2 and section 2, page 154, line 11 - page 155, line 1);

long-term [classifying] (154) the signal on the basis of at least one short-term feature and at least one long-term feature extracted from the signal and delivering a long-term classification result (156) (figure 2, section 2.1, lines 4-7, 9-15); and

combining (158) the short-term classification result (152) and the long-term analysis classification (156) to provide an output signal (160) indicating whether a segment of the signal is of the first type or of the second type (figure 2)."

Consequently, claim 1 fails to fulfill the requirements of the PCT with respect to novelty (Article 33(2) PCT).

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/EP2009/004339

- 2.2 The document D1 discloses (the references in parentheses applying to this document) - applying the wording of claim 10:

"A method for processing a signal comprising segments of at least a first type and a second type (abstract), the method comprising:

classifying (116) a segment of the signal in accordance with the method of one of claims 1 to 9 (see references cited above against claim 1);

dependent on the output signal (160) provided by the classifying step (116), processing (102, 206; 106, 208) the segment in accordance with a first process or a second process; and outputting the processed segment (figure 1)."

Consequently, claim 10 fails to fulfill the requirements of the PCT with respect to novelty (Article 33(2) PCT).

- 2.3 The subject-matter of claims 13 and 14 corresponds in terms of computer program features and device features to that of claim 1. The objections raised above against said latter claim therefore also apply, *mutatis mutandis*, to claims 13 and 14, which thus fail to fulfill the requirements of the PCT with respect to novelty (Article 33(2) PCT).
- 2.4 The subject-matter of claims 17 and 18 is already disclosed by D1 (see e.g. figure 1, abstract, lines 2-5, and section 1, left-hand column, lines 6-12). Consequently, claims 17 and 18 also fail to fulfill the requirements of the PCT with respect to novelty (Article 33(2) PCT).

3 DEPENDENT CLAIMS

The dependent claims do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty (claims 2-4, 7, 9, 11, 12, 15 and 16) or inventive step (claims 5, 6, 8), see document D1 and the corresponding passages cited in the search report.

Possible steps after receipt of the international search report (ISR) and written opinion of the International Searching Authority (WO-ISA)

General information	For all international applications filed on or after 01/01/2004 the competent ISA will establish an ISR. It is accompanied by the WO-ISA. Unlike the former written opinion of the IPEA (Rule 66.2 PCT), the WO-ISA is not meant to be responded to, but to be taken into consideration for further procedural steps. This document explains about the possibilities.
Amending claims under Art. 19 PCT	Within 2 months after the date of mailing of the ISR and the WO-ISA the applicant may file amended claims under Art. 19 PCT directly with the International Bureau of WIPO. The PCT reform of 2004 did not change this procedure. For further information please see Rule 46 PCT as well as form PCT/ISA/220 and the corresponding Notes to form PCT/ISA/220.
Filing a demand for international preliminary examination	In principle, the WO-ISA will be considered as the written opinion of the IPEA. This should, in many cases, make it unnecessary to file a demand for international preliminary examination. If the applicant nevertheless wishes to file a demand this must be done before expiry of 3 months after the date of mailing of the ISR/ WO-ISA or 22 months after priority date, whichever expires later (Rule 54bis PCT). Amendments under Art. 34 PCT can be filed with the IPEA as before, normally at the same time as filing the demand (Rule 66.1 (b) PCT). If a demand for international preliminary examination is filed and no comments/amendments have been received the WO-ISA will be transformed by the IPEA into an IPRP (International Preliminary Report on Patentability) which would merely reflect the content of the WO-ISA. The demand can still be withdrawn (Art. 37 PCT).
Filing informal comments	After receipt of the ISR/WO-ISA the applicant may file informal comments on the WO-ISA directly with the International Bureau of WIPO. These will be communicated to the designated Offices together with the IPRP (International Preliminary Report on Patentability) at 30 months from the priority date. Please also refer to the next box.
End of the international phase	At the end of the international phase the International Bureau of WIPO will transform the WO-ISA or, if a demand was filed, the written opinion of the IPEA into the IPRP, which will then be transmitted together with possible informal comments to the designated Offices. The IPRP replaces the former IPER (international preliminary examination report).
Relevant PCT Rules and more information	Rule 43 PCT, Rule 43bis PCT, Rule 44 PCT, Rule 44bis PCT, PCT Newsletter 12/2003, OJ 11/2003, OJ 12/2003

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XS CPRTENFRDE

FH090608PCT

1/6

PCT REQUEST

Original (for SUBMISSION)

0	For receiving Office use only	
0-1	International Application No.	PCT/EP 2009 / 004339
0-2	International Filing Date	16 JUN 2009 (16.06.09)
0-3	Name of receiving Office and "PCT International Application"	RO/EP
0-4	Form PCT/RO/101 PCT Request	
0-4-1	Prepared Using	PCT-SAFE [EASY mode] Version 3.51.038.214 MT/FOP 20090301/0.20.5.15
0-5	Petition The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty	
0-6	Receiving Office (specified by the applicant)	European Patent Office (EPO) (RO/EP)
0-7	Applicant's or agent's file reference	FH090608PCT
I	Title of invention	METHOD AND DISCRIMINATOR FOR CLASSIFYING DIFFERENT SEGMENTS OF A SIGNAL
II	Applicant	
II-1	This person is	applicant only
II-2	Applicant for	all designated States except US
II-4	Name	FRAUNHOFER-GESELLSCHAFT ZUR FÖRDERUNG DER ANGEWANDTEN FORSCHUNG E.V.
II-5	Address	Hansastraße 27c 80686 München Germany
II-6	State of nationality	DE
II-7	State of residence	DE
III-1	Applicant and/or inventor	
III-1-1	This person is	applicant and inventor
III-1-2	Applicant for	US only
III-1-4	Name (LAST, First)	FUCHS, Guillaume
III-1-5	Address	Parkstraße 12 90409 Nürnberg Germany
III-1-6	State of nationality	FR
III-1-7	State of residence	DE

FH090608PCT

2/6

PCT REQUEST

Original (for SUBMISSION)

III-2	Applicant and/or inventor	
III-2-1	This person is	applicant and inventor
III-2-2	Applicant for	US only
III-2-4	Name (LAST, First)	BAYER, Stefan
III-2-5	Address	Dortmunder Straße 14 90425 Nürnberg Germany
III-2-6	State of nationality	DE
III-2-7	State of residence	DE
III-3	Applicant and/or inventor	
III-3-1	This person is	applicant and inventor
III-3-2	Applicant for	US only
III-3-4	Name (LAST, First)	NAGEL, Frederik
III-3-5	Address	Wilhelmshavener Straße 72 90425 Nürnberg Germany
III-3-6	State of nationality	DE
III-3-7	State of residence	DE
III-4	Applicant and/or inventor	
III-4-1	This person is	applicant and inventor
III-4-2	Applicant for	US only
III-4-4	Name (LAST, First)	HERRE, Jürgen
III-4-5	Address	Hallerstraße 24 91054 Buckenhof Germany
III-4-6	State of nationality	DE
III-4-7	State of residence	DE
III-5	Applicant and/or inventor	
III-5-1	This person is	applicant and inventor
III-5-2	Applicant for	US only
III-5-4	Name (LAST, First)	RETTELBACH, Nikolaus
III-5-5	Address	Spessartstraße 38 90427 Nürnberg Germany
III-5-6	State of nationality	DE
III-5-7	State of residence	DE

FH090608PCT

3/6

PCT REQUEST

Original (for SUBMISSION)

III-6	Applicant and/or inventor	
III-6-1	This person is	applicant and inventor
III-6-2	Applicant for	US only
III-6-4	Name (LAST, First)	WABNIK, Stefan
III-6-5	Address	Fichtenweg 5 98693 Ilmenau Germany
III-6-6	State of nationality	DE
III-6-7	State of residence	DE
III-7	Applicant and/or inventor	
III-7-1	This person is	applicant and inventor
III-7-2	Applicant for	US only
III-7-4	Name (LAST, First)	YOKOTANI, Yoshikazu
III-7-5	Address	Kibune 336-101, Hamamatsu, Shizuoka, 434-0038 Japan
III-7-6	State of nationality	JP
III-7-7	State of residence	JP
III-8	Applicant and/or inventor	
III-8-1	This person is	applicant and inventor
III-8-2	Applicant for	US only
III-8-4	Name (LAST, First)	HIRSCHFELD, Jens
III-8-5	Address	Steinweg 32 36266 Heringen Germany
III-8-6	State of nationality	DE
III-8-7	State of residence	DE
III-9	Applicant and/or inventor	
III-9-1	This person is	applicant and inventor
III-9-2	Applicant for	US only
III-9-4	Name (LAST, First)	LECOMTE, Jérémie
III-9-5	Address	Sulzbacher Straße 39 90489 Nürnberg Germany
III-9-6	State of nationality	FR
III-9-7	State of residence	DE

FH090608PCT

4/6

PCT REQUEST

Original (for SUBMISSION)

IV-1	Agent or common representative; or address for correspondence The person identified below is hereby/ has been appointed to act on behalf of the applicant(s) before the competent International Authorities as:	agent
IV-1-1	Name (LAST, First)	ZIMMERMANN, Tankred
IV-1-2	Address	SCHOPPE, ZIMMERMANN, STÖCKELER & ZINKLER Postfach 246 82043 Pullach bei München Germany
IV-1-3	Telephone No.	089/7904450
IV-1-4	Facsimile No.	089/7902215
IV-1-5	e-mail	mail@schoppe-zimmermann.com
IV-2	Additional agent(s)	additional agent(s) with same address as first named agent
IV-2-1	Name(s)	SCHOPPE, Fritz; STÖCKELER, Ferdinand; ZINKLER, Franz; SCHENK, Markus; HERSINA, Günter; BURGER, Markus; GÖTTLING, Stefan
V	DESIGNATIONS	
V-1	The filing of this request constitutes under Rule 4.9(a), the designation of all Contracting States bound by the PCT on the international filing date, for the grant of every kind of protection available and, where applicable, for the grant of both regional and national patents.	
VI-1	Priority claim of earlier national application	
VI-1-1	Filing date	11 July 2008 (11.07.2008)
VI-1-2	Number	61/079,875
VI-1-3	Country	US
VI-2	Incorporation by reference : where an element of the international application referred to in Article 11(1)(iii)(d) or (e) or a part of the description, claims or drawings referred to in Rule 20.5(a) is not otherwise contained in this international application but is completely contained in an earlier application whose priority is claimed on the date on which one or more elements referred to in Article 11(1)(iii) were first received by the receiving Office, that element or part is, subject to confirmation under Rule 20.6, incorporated by reference in this international application for the purposes of Rule 20.6.	