IPC DEFINITION PROJECT FILES/
DOSSIERS DE PROJET DE DÉFINITION DE LA CIB

ELECTRICAL FIELD/
DOMAINE DE L'ÉLECTRICITÉ

Project	Rap	Tech	Indication of approval by
D006	US	E	EP (no approval), GB (conditionally)
D007	US	E	GB (conditionally)
D008	US	E	GB
D011	DE	E	JP (cond.), EP (cond.), GB (cond.)
D045	DE	E	GB (cond.)
D047	GB	E	DE, JP

IPC/D 006/00
ORIGINAL: English/French
DATE: May 14, 2003

WORLD INTELLECTUAL PROPERTY ORGANIZATION
ORGANISATION MONDIALE DE LA PROPRIÉTÉ INTELLECTUELLE

GENEVA/GENÈVE

COMMITTEE OF EXPERTS OF THE IPC UNION
COMITÉ D'EXPERTS DE L'UNION DE L'IPC

IPC DEFINITION PROJECT FILE/DOSSIER DE PROJET DE DÉFINITION DE LA CIB

PROPOSAL BY: **US** **PROPOSITION DE :**	**IPC AREA:** **DOMAINE DE LA CIB :** **B 81 B**

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RAPPORTEUR : US **TECHNICAL FIELD/DOMAINE TECHNIQUE : E**

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United States Patent and Trademark Office

Project: D006 Subclass – B81B Date: February 11, 2003

RAPPORTEUR REPORT

Rapporteur has modified the previous definition by inclusion of the particular recommendations adopted by the Task Force on Classification Definitions included in Annex 18 of the project file. Rapporteur has placed the modified definition into the new format based on the finally approved "Guidelines for Drafting Classification Definitions" in IPC/WG/8/8, Annex F.

Title - B81B

Micro-structural devices or systems, e.g. micro-mechanical devices

Definition statement

This subclass covers:

Very small micro-mechanical devices which include at least one essential operational component that has **all** of the following attributes:

- the component is not visible (i.e., its significant features, in at least one dimension, cannot be discerned) without the use of an optical microscope (e.g., typically within the range of 10^{-4} to 10^{-7} meters) and
- the component is movable, flexible, or deformable when in use.

Very small three-dimensional structural formations (i.e., microstructures) that have **all** of the following attributes:

- they are not visible (i.e., their significant features, in at least one dimension, cannot be discerned) without the use of an optical microscope,
- all portions of their formation are immovable or unyielding (i.e., not movable, flexible, or deformable) with respect to the remainder thereof when in use, and
- they are designed to accomplish an essential and purely **structural function** and to interact with their local environment (e.g., a vane for changing surrounding fluid's flow path) in a manner that is mechanical in nature, as opposed to a chemical or electronic function, regardless of whether the formations are formed from a specific material or fabricated on a common supporting base (i.e., substrate) with separate micro-mechanical devices, **micro-electronic devices**, or **microoptical devices**.

Systems including a discrete micro-mechanical device or microstructure and at least one other discrete micro-mechanical device, **micro-electronic device**, or **microoptical device** (e.g., Micro-Mechanical Systems, Micro-Electronic-Mechanical Systems/MEMS, Microoptical-Mechanical Systems) that have **all** of the following attributes:

- they are fabricated on a common supporting base (i.e., substrate),
- they are interconnected to operate together as components of a system (e.g., pump and piping system, a micro-electronic device controlling, analyzing, or signaling the functioning of a micro-mechanical device), and

- they have separate functional utilities that are each intended to accomplish an independent aspect (i.e., neither type of micro-device is merely an essential operational component of the other type device) of at least one possible final end result of their system.

Components of micro-mechanical devices or microstructures having specialized structural features that limit them to use with their device or structure.

Relationships between large subject matter areas (e.g. special rules of classification between subclasses)

General relationship of microstructures of B81B with micro-sized structures found in the subclasses of sections C and H

The microstructures covered by this subclass are expected to perform a **structural function** when interacting with their local environment and are intentionally designed to specifically perform this type of task. This requirement precludes the classification of **micro-sized** structures within this subclass that either

- are designed to accomplish, or naturally accomplish, an electrical function or optical function (e.g., microprocessors, light guides, conductors) or
- are structures formed as mere byproducts of chemical or biological processes (e.g., chemical compounds resulting from reactions).

Micro-electronic devices and **microoptical devices** per se are classified in the subclasses of section H, "Electricity" even if they also inherently (e.g., a **micro-sized** wire between two substrates that supports the upper substrate), or intentionally (e.g., an aerodynamically shaped micro-processor on wing), accomplish a secondary **structural function**. **Micro-electronic devices** and **microoptical devices** are found in particular in G02B, G11B, and H01P.

Chemically and biologically formed structures per se that are mere byproducts of processes are classified in the subclasses of section C, "Chemistry; Metallurgy". However, chemically and biologically formed microstructures are classified in B81B when they are the primary intended product of their processes and the microstructures perform a **structural function** when interacting with their local environment.

Relationship of microstructures of B81B and micro-sized structures in B32B

Microstructures that merely form part of layered products (e.g., bonded or encased **micro-sized** substrates) are classified in B32B when their intended use is not specified or they are of general utility. However, when at least one of the layers of the layered product is **micro-sized** and accomplishes a particular **structural function** (e.g., honeycomb layer forms **micro-sized** channels for directing fluid to **micro-sized** pump) they are classified in B81B.

Special rules for classification between this subclass and other subclasses

If the operation or practical utility of **micro-sized** devices, structures, or systems covered by this subclass are not inherently limited to a microscopic environment, they are also obligatorily classified in the subclasses appropriately providing for their structural or functional features when produced at a larger scale.

References relevant to classification in this subclass

This subclass does not cover:

Microcapsules for medicinal preparations	A61K9/50
Micromanipulators	B25J7/00
Products that are essentially two-dimensional layered structures	B32B
Atomic scale structures produced by manipulation of single atoms or molecules	B82B
Micromanipulators combined with microscopes	G02B21/32
Magnetic heads used with record carriers for information storage	G11B5/127
Waveguide microstrips	H01P3/08

Informative references

Attention is drawn to the following places, which may be of interest for search:

Micro-sized chemical or biological structures per se	C
Pressure sensors	G01L9/00
Mechanical vibration measuring devices and ultrasonic, sonic, or infrasonic wave measuring devices	G01H
Devices for measuring linear or angular speed, acceleration, or deceleration	G01P
Microoptical devices per se	G02F
Photomechanical processing of semiconductor devices	G03F
Semiconductors or other solid-state devices formed on a common substrate	H01L

Special rules of classification within this subclass

Identical micro-mechanical devices, microstructures, or micro-structural systems that are not operationally interlinked to each other and are merely produced on a common substrate that is an interim product; are not classified as a system, but in the groups providing for the individual device, structure, or system.

Glossary of terms

In this subclass, the following terms or expressions are used with the meaning indicated:

Micro-electronic device	any kind of electronic device that has at least one essential operational component not visible without the use of an optical microscope
Microoptical device	any kind of optical device that has at least one essential operational component not visible without the use of an optical microscope.
Micro-sized	having a dimension not visible without the use of an optical microscope (e.g., typically within the range of 10^{-4} to 10^{-7} meters).
Structural function	effect of structural features of a microstructure on the mechanical properties of media in contact with the microstructure (e.g., directing of a sampled fluid's flow).

Synonyms and Keywords

None

EUROPEAN PATENT OFFICE
Principal Directorate Tools And Documentation

Comments
18 April 2003

Definition Project: **D006**
Subclass: **B81B**

Ref: **Annexes 21 and 11 of the project file**

EPO considers that Rapporteur's proposal (Annex 21) cannot be approved.

EPO draws the attention of the Rapporteur, and of the other offices, to

1. the existing Notes after the B81B title; and
2. EPO's comments dated 19-Oct-2001 (Annex 11)

As it is clear from (1.) and as we did point out already in (2.), **references to A61K 9/50 till H01P 3/08 are of Informative kind**, whereas **references to H01L, G02B, G02F etc, are of Limiting kind, i.e. they should appear under "References relevant to classification"**.

We invite Rapporteur to review once more the portion of our comments quoted between the tags <<begin … end>> in Annex 11.

Roberto Iasevoli

UK Patent Office **Date: 6 May 2003**

Comments on Project D006 , Subclass B81B

GB Comments on Rapporteur Proposal Dated 11th February 2003

Definition Statement
No changes proposed

Relationship between large subject matter areas
GB finds the explanation of the relationship between B81B and H, G02B, G11B and H01P found in this section to be clear enough and therefore there appears to be no practical need for an adding limiting references, as suggested by EPO. I do not think that the scope of the subclass is changed as the same information is presented clearly.

References - Limiting or Informative
The current Informative Reference to "Microoptical devices per se, G02F" should perhaps be a Limiting Reference, as it was used to define the boundaries of the subclass in the subclass notes of the 7th Edition.

In order to be internally consistent, the Informative Reference to section C should either be deleted or accompanied by an Informative Reference to section H. Both sections are discussed in the Relationship between Large Subject Matter Areas section and so there is possibly no need for additional references.

Glossary of Terms
No comment

Synonyms and Keywords
No comment

Emma Rendle

Note: I will be attending the ninth session of the IPC Working Group under my new married name, Emma Porter.

IPC/D 007/00
ORIGINAL: English/French
DATE: May 21, 2003

WORLD INTELLECTUAL PROPERTY ORGANIZATION
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IPC DEFINITION PROJECT FILE/DOSSIER DE PROJET DE DÉFINITION DE LA CIB

PROPOSAL BY: **US** **PROPOSITION DE :**	**IPC AREA:** **DOMAINE DE LA CIB :** **B 81 C**

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15	Comments	/ Observations	US	05.02
16	Comments	/ Observations	SE	10.02

RAPPORTEUR : US **TECHNICAL FIELD/DOMAINE TECHNIQUE : E**

ANNEX/ ANNEXE	CONTENT/CONTENU		ORIGIN/ ORIGINE	DATE
17	Rapporteur report	/ Rapport du rapporteur	US	05.03
18	Rapporteur proposal	/ Proposition du rapporteur	US	05.03
19	Comments	/ Observations	GB	05.03

United States Patent and Trademark Office

Project: D007 Subclass – B81C Date: February 19, 2003

RAPPORTEUR REPORT

Rapporteur has modified the previous definition for B81C by also including in this subclass the particular recommendations adopted by the Task Force on Classification Definitions included in Annex 18 of the project file for B81B when they were also appropriate for this subclass.

Rapporteur has placed the modified definition into the new format based on the finally approved "Guidelines for Drafting Classification Definitions" in IPC/WG/8/8, Annex F.

Additionally, the information in the old (1) note has been made a glossary term. The introduction to the definition statement has also been broken into three parts to make it easier to understand.

Title - B81C

Processes or apparatus specially adapted for the manufacture or treatment of micro-structural devices or systems

Definition statement

This subclass covers:

Processes having one or more steps, or apparatus adapted for performing at least one step in such processes, with specialized features directly related to the manufacture or treatment of specific types of **micro-sized** products.

The manufacturing or treating of these **micro-sized** products must create a structural, as opposed to a purely chemical or electronic, feature that is essential to their use.

The types of **micro-sized** products that are manufactured or treated in this subclass consist of the following varieties:

Mechanical devices (i.e., micro-mechanical devices) which include at least one essential operational component that has **all** of the following attributes:

- the component is not visible (i.e., its significant features, in at least one dimension, cannot be discerned) without the use of an optical microscope (i.e., **micro-sized**) and
- the component is movable, flexible, or deformable when in use.

Three-dimensional structural formations (i.e., microstructures) that have **all** of the following attributes:

- they are not visible (i.e., their significant features, in at least one dimension, cannot be discerned) without the use of an optical microscope (i.e., **micro-sized**),
- all portions of each formation are immovable or unyielding (i.e., not movable, flexible, or deformable) with respect to other portions of the formation when in use, and
- they are designed to accomplish an essential and purely **structural function** when interacting with their local environment (e.g., a vane for changing surrounding fluid's flow path) in a manner that is mechanical in nature, as opposed to a chemical or electronic function, regardless of whether the formations are formed from a specific material or fabricated on a common

supporting base (i.e., substrate) with separate micro-mechanical devices, **micro-electronic devices**, or **microoptical devices**.

Systems including a discrete micro-mechanical device or microstructure and at least one other discrete micro-mechanical device, **micro-electronic device**, or **microoptical device** (e.g., Micro-Mechanical Systems, Micro-Electronic-Mechanical Systems/MEMS, Microoptical-Mechanical Systems) that have **all** of the following attributes:

- they are fabricated on a common supporting base (i.e., substrate),
- they are interconnected to operate together as components of a system (e.g., pump and piping system, a micro-electronic device controlling, analyzing, or signaling the functioning of a micro-mechanical device), and
- they have separate functional utilities that are each intended to accomplish an independent aspect (i.e., neither type of micro-device is merely an essential operational component of the other type device) of at least one possible final end result of their system.

Components of micro-mechanical devices or microstructures having specialized structural features that limit them to use with their device or structure.

Relationships between large subject matter areas (e.g. special rules of classification between subclasses)

General relationship of B81C with subclasses of sections C and H

This class covers processes or apparatus for the manufacture or treatment of microstructures that perform a **structural function** when interacting with their local environment and are intentionally designed to specifically perform this type of task. This requirement precludes the classification of the manufacture or treatment of **micro-sized** structures per se within this subclass that either

- are designed to accomplish, or naturally accomplish, primarily an electrical function or optical function (e.g., microprocessors, light guides, conductors) or
- are structures formed as mere byproducts of chemical or biological processes (e.g., chemical compounds resulting from reactions).

However, processes or apparatus for chemically and biologically forming microstructures are classified in B81C when these microstructures are the primary intended product of their processes and the microstructures perform an appropriate **structural function** when interacting with their local environment.

Processes or apparatus for the manufacture or treatment of chemically and biologically formed **micro-sized** structures per se are classified in the subclasses of section C, “Chemistry; Metallurgy”.

Processes or apparatus for the manufacture or treatment of **micro-electronic devices** and **microoptical devices** per se are classified in the subclasses of section H, "Electricity" even if they also inherently (e.g., a **micro-sized** wire between two substrates that supports the upper substrate), or intentionally (e.g., an aerodynamically shaped micro-processor for wings), accomplish a secondary **structural function**. The manufacture or treatment of **micro-electronic devices** and **microoptical devices** is found in particular in H01L (e.g. H01L 21/00).

References relevant to classification in this subclass

This subclass does not cover:

Chemical or physical processes or relevant apparatus for making microcapsules or microballoons	B01J13/02
Specially adapted processes or apparatus restricted to the manufacture or treatment of products that are essentially two-dimensional layered structures	B32B
Specially adapted processes or apparatus involved in the manufacture of atomic scale structures produced by manipulation of atoms or molecules	B82B

Informative references

Attention is drawn to the following places, which may be of interest for search:

For processes or apparatus specially adapted to the manufacture or treatment of pressure sensors	G01L9/00
For processes or apparatus specially adapted to the manufacture or treatment of acceleration measuring devices	G01P15/00
For processes or apparatus specially adapted to the manufacture or treatment of micromanipulators structurally combined with microscopes	G02B21/32
For photomechanical processing of semiconductor devices	G03F
For processes or apparatus specially adapted to the manufacture or treatment of magnetic heads	G11B5/127
For processes or apparatus peculiar to the manufacture or treatment of piezo-electric, electrostrictive, or magnetostrictive elements per se	H01L41/22
For processes or apparatus specially adapted to the manufacture or treatment of wave-guide micro-strips	H01P3/08

Special rules of classification within this subclass

None

Glossary of terms

In this subclass, the following terms or expressions are used with the meaning indicated:

Manufacture	a chemical, electrical, or mechanical process or apparatus for accomplishing one or more of the following operations on a micro-mechanical device, micro-structure, or micro system proper for this subclass: assembling, associating, bonding, casting, coating, constructing, creating, cutting, distorting, electric photographing, etching, fabricating, fastening, finishing, joining, juxtaposing, machining, molding, positioning, shaping, or working.
Micro-electronic device	any kind of electronic device that has at least one essential operational component not visible without the use of an optical microscope.
Microoptical device	any kind of optical device that has at least one essential operational component not visible without the use of an optical microscope.
Micro-sized	having a dimension not visible without the use of an optical microscope (e.g., typically within the range of 10^{-4} to 10^{-7} meters).
Structural function	effect of structural features of a microstructure on the mechanical properties of media in contact with the microstructure (e.g., directing of a sampled fluid's flow).

Synonyms and Keywords

None

UK Patent Office **Date: 6 May 2003**

Comments on Project D007 , Subclass B81C

GB Comments on Rapporteur Proposal Dated February 19th 2003

Definition Statement
The user may find it helpful if the first time the term "micro-sized" is used it is accompanied by "(typically in the range of 10^{-4} to 10^{-7} metres)".

Relationship between large subject matter areas
In the last line of this section it could be helpful if H01P could be added as a reference for microoptical devices. The last sentence would then read:

"The manufacture of treatment of micro-electronic devices and microoptical devices is found in particular in H01L (e..g H01L 21/00) and H01P, respectively."

References - Limiting or Informative
The relationship between B81C and section C and section H is made clear in the Relationships Between Large Subject Matter Areas and so no reference appears necessary in this section. No changes required.

Glossary
No comment.

Synonyms and Keywords
No comment.

Emma Rendle

Note: I will be attending the ninth session of the IPC Working Group in Geneva under my new married name, Emma Porter.

IPC/D 008/00
ORIGINAL: English/French
DATE: May 14, 2003

WORLD INTELLECTUAL PROPERTY ORGANIZATION
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IPC DEFINITION PROJECT FILE/DOSSIER DE PROJET DE DÉFINITION DE LA CIB

PROPOSAL BY: **US** **PROPOSITION DE :**	**IPC AREA:** **DOMAINE DE LA CIB :** **B 82 B**

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12	Rapporteur report	/ Rapport du rapporteur	US	04.02
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15	Comments	/ Observations	SE	10.02
16	Rapporteur report	/ Rapport du rapporteur	US	05.03

RAPPORTEUR : US **TECHNICAL FIELD/DOMAINE TECHNIQUE : E**

ANNEX/ ANNEXE	CONTENT/CONTENU		ORIGIN/ ORIGINE	DATE
17	Rapporteur proposal	/ Proposition du rapporteur	US	05.03
18	Comments	/ Observations	GB	05.03

United States Patent and Trademark Office

Project: D008 Subclass – B82B Date: February 19, 2003

RAPPORTEUR REPORT

Rapporteur has placed the modified definition into the new format based on the finally approved "Guidelines for Drafting Classification Definitions" in IPC/WG/8/8, Annex F. In particular, the old (1) note has been made a glossary term. The special rule for classifying between subclasses has been moved.

In addition to these changes, the distinction between B82B and section C now includes a practical example.

Title - B82B

Nano-structures;

Manufacture or treatment thereof

Definition statement

This subclass covers:

Infinitesimally minute arrangements of matter having particularly shaped configurations (i.e., nano-structural assemblages) formed during manufacture which are distinct from both naturally occurring and chemically produced chemical or biological arrangements composed of similar matter, wherein each assemblage includes at least one essential integral element:

- consisting solely of an atom, a molecule, or an atomically precise limited collection of either atoms or molecules (i.e., the collection in its entirety would be undetectable by any optical microscope) and
- formed by having its atom, molecule, or limited collection individually manipulated as a discrete unit during the manufacture of its arrangement.

The essential integral elements of nano-structural assemblages when they include structural features limiting their use to these assemblages.

The manufacture or treatment of the above type of nano-structural assemblages when the manufacturing or treating creates an essential structural feature of an assemblage and utilizes either:

- processes having one or more steps with specialized features directly related to the infinitesimal minuteness of their final products, or
- apparatus specially adapted for performing at least one step in such processes.

Relationships between large subject matter areas (e.g. special rules of classification between subclasses)

General relationship of B82B with section C:

The terminology **"particularly shaped** configurations ----- **distinct** from both **naturally occurring and chemically produced** chemical or biological arrangements composed of similar matter" in the definition statement is intended to preclude classification of chemical or biological structures per se in this subclass that are similar in size. As a practical matter, what is intended by "distinct" in this phrase is that the only nano-sized structures appropriate for this subclass are those that accomplish a function that is not inherent in the chemical or biological composition from which they are formed (e.g., a nano-sized structure formed using a chemical process step is shaped so that it acts as a switch for an electrical operation).

The subclasses under section C, "Chemistry; Metallurgy", specifically provide for the majority of these excluded chemical or biological structures per se, or specially adapted processes or apparatus for the manufacture or treatment thereof (e.g., in classes C08, C12).

Special rules for additional classification in other subclasses:

Except when the operation or practical utility of the nano-structure is inherently completely limited to a microscopic environment, the nano-structures that are covered by this subclass should also be obligatorily classified in subclasses that otherwise appropriately provide for their novel and unobvious structural or functional features.

References relevant to classification in this subclass

This subclass does not cover:

Nanocapsules for medicinal preparations	A61K9/51

Informative references

Attention is drawn to the following places, which may be of interest for search:

Investigating or analyzing surface structures in atomic ranges using scanning-probe techniques	G01N13/10
Details of apparatus using scanning-probe techniques	G12B21/00
Thin magnetic film formed from spin-exchange coupled multi-layers	H01F10/32
Apparatus or processes specially adapted for manufacturing or assembling devices by applying magnetic films to substrates that are formed from nanostructures	H01F41/30

Special rules of classification within this subclass

None

Glossary of terms

In this subclass, the following terms or expressions are used with the meaning indicated:

Manufacture	a chemical, electrical, or mechanical process or apparatus for accomplishing one or more of the following operations on a nano structural assemblage or an essential integral element thereof: assembling, associating, bonding, constructing, creating, cutting, distorting, electric photographing, etching, fabricating, fastening, finishing, joining, juxtaposing, positioning, shaping, or working.

Synonyms and Keywords

None

UK Patent Office **Date: 6 May 2003**

Comments on Project D008 , Subclass B82B

GB Comments on Rapporteur Proposal Dated October 8th 2002

The proposal seems to be clear and complete and GB are prepared to accept it.

Definition Statement
No comment

Relationship between large subject matter areas
No comment

References - Limiting or Informative
No comment

Glossary
No comment

Synonyms and Keywords
No comment

Emma Rendle

IPC/D 011/00
ORIGINAL: English/French
DATE: May 14, 2003

WORLD INTELLECTUAL PROPERTY ORGANIZATION
ORGANISATION MONDIALE DE LA PROPRIÉTÉ INTELLECTUELLE

GENEVA/GENÈVE

COMMITTEE OF EXPERTS OF THE IPC UNION
COMITÉ D'EXPERTS DE L'UNION DE L'IPC

IPC DEFINITION PROJECT FILE/DOSSIER DE PROJET DE DÉFINITION DE LA CIB

PROPOSAL BY: **DE** **PROPOSITION DE :**	**IPC AREA:** **DOMAINE DE LA CIB :** **H 01 L**

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13	Rapporteur proposal	/ Proposition du rapporteur	DE	04.02
14	Decision of the Working Group	/ Décision du groupe de travail	IB	08.02
15	Rapporteur report	/ Rapport du rapporteur	DE	09.02
16	Rapporteur proposal	/ Proposition du rapporteur	DE	09.02

RAPPORTEUR : DE **TECHNICAL FIELD/DOMAINE TECHNIQUE : E**

ANNEX/ ANNEXE	CONTENT/CONTENU		ORIGIN/ ORIGINE	DATE
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23	Comments	/ Observations	EP	05.03
24	Comments	/ Observations	GB	05.03

DEUTSCHES PATENT- UND MARKENAMT German Patent and Trade Mark Office	Class/Subcl.: **H01L** Date : 21.11.2002
IPC Definition Project D 011 **DE Rapporteur Report**	

Re: annex 18 (FR) and 19 (EP) to the project file

Rapporteur takes up the proposal to add examples to some references as proposed by FR.

The second part of the subclass title of H01L is "*solid state devices not otherwise provided for*". From this results that *all other IPC-entries for solid state devices* are limiting entries compared to H01L. Therefore in the opinion of the Rapporteur the references to H01C, H01F, H01G, H01P, H01R, H03H, H04R and H05B are correctly regarded as limiting references.

The use of semiconductor devices for measuring concerns the whole class G01. Therefore a more precise reference does not seem to be possible.

Rapporteur believes the new wording for the paragraph "relationships between ..." proposed by the EPO as an improvement. It is incorporated in the attached proposal.

Rainer Anders

ANNEX 21

DEUTSCHES PATENT- UND MARKENAMT German Patent and Trade Mark Office	Class/Subcl.: **H01L** Date : 21.11.2002
IPC Definition Project D 011 **DE Rapporteur Proposal**	

Title - H01L

Semiconductor devices;
Electric solid state devices not otherwise provided for

Definition statement

This subclass covers:

in general
- discrete and integrated semiconductor devices and
- other electric solid state devices (as far as not provided for in an other subclass)
- and details thereof;

this includes the following kind of devices:
- integrated circuit devices, *e.g. CMOS integrated devices, DRAM, EPROM, CCD*;
- semiconductor devices *(e.g. field-effect, bipolar)* adapted for rectifying, amplifying, oscillating or switching, *e.g. diodes, transistors, thyristors*;
- semiconductor devices sensitive to radiation, *e.g. photo diodes, photo transistors, solar cells*;
- incoherent light emitting diodes, *e.g. LED*;
- solid state devices using organic materials as the active part or using a combination of organic materials with other materials as the active part, *e.g. organic LED or polymer LED*;
- electric solid state devices using thermoelectric, superconductive, piezo-electric, electrostrictive, magnetostrictive, galvano-magnetic or bulk negative resistance effects, *e.g. thermo couples, Peltier elements, Josephson elements, piezo elements;*
- photo-resistors, magnetic field dependent resistors, field effect resistors;
- capacitors with potential-jump barrier, resistors with potential-jump barrier or surface barrier;
- thin-film or thick-film circuits;
- processes and apparatus adapted for the manufacture or treatment of such devices, except where such processes relate to single step processes for which provision exists elsewhere.

Relationship between large subject matter areas

Micro-structural devices or systems are classified in subclass B81B, and the processes and apparatus specially adapted for the manufacture or treatment thereof are classified in subclass B81C. So, by way of example, micro-electro-mechanical devices (MEMS), containing micro-

electronic and mechanical components, are classified in group B81B7/02, and their manufacture, treatment or assembling in the relevant groups of B81C.

However, micro-structural devices or systems working purely electrically or electronically are classified in H01L only.

Micro-structural devices or systems being of other than purely electric or electronic type, and apparatus or processes for the manufacture or treatment thereof, which are normally classified in the subclasses B81B and B81C, may be also classified in those groups of H01L providing for their electric or electronic features, whenever such features are of interest *per se*.

Nanostructures, which are normally classified in subclass B82B, may be also classified in those groups of H01L providing for their electric or electronic features, whenever such features are of interest *per se*.

Limiting references

This subclass does not cover:

Other electrical solid state devices which are not provided for in H01L:

resistors, e.g. non-adjustable resistors from semiconductor material	H01C H01C 7/00
magnets, inductors, transformers	H01F
capacitors	H01G
waveguides, resonators or lines of the waveguide type	H01P
electrically-conductive connections, current collectors	H01R
lasers, stimulated emission devices, e.g. semiconductor lasers	H01S H01S 5/00
electromechanical resonators	H03H
acoustic-electromechanical transducers	H04R
electric lighting not otherwise provided for	H05B
printed circuits, casings or constructional details of electric apparatus, manufacture of assemblages of electrical components, e.g. printed circuits and its manufacturing process	H05K H05K 1/00 H05K 3/00

Further limiting references may occur on maingroup or group level

Informative references

Attention is drawn to the following places, which may be of interest for search:

Use of semiconductor and other solid state devices:

containers merely intended for transport or storage of wafers except during manufacture or finishing devices thereon	B65D 85/30 and 85/86
conveying systems for semiconductor wafers except during manufacture or treatment of semiconductor or electric solid state devices or components thereon	B65G 49/07
use of semiconductor devices for measuring	G01
details of scanning-probe apparatus, in general	G12B 12/00
use of semiconductor devices in circuits having a particular application	particular subclass for the application

Further informative references may occur on maingroup or group level

Special rules of classification

In subclass H01L, both the process or apparatus for the manufacture or treatment of a device and the device itself are classified, whenever both of these are described sufficiently to be of interest.

Further special rules may occur on maingroup or group level, see relevant Notes on this level.

Glossary

In this subclass, the following terms or expressions are used with the meaning indicated:

Wafer: A "wafer" means a slice of semiconductor or crystalline substrate material, which can be modified by impurity diffusion (doping), ion implantation or epitaxy, and whose active surface can be processed into arrays of discrete devices or integrated circuits [8].

Solid State Body: The expression "solid state body" refers to the body of material within which, or at the surface of which, the physical effects characteristic of the device occur. In thermoelectric devices it includes all materials in the current path.

Electrodes: "Electrodes" are regions in or on the body of the device (other than the solid state body itself), which exert an influence on the solid state body electrically, whether or not an external electrical connection is made thereto. An electrode may include several portions and the term includes metallic regions which exert influence on the solid state body

through an insulating region, (e.g. capacitive coupling) and inductive coupling arrangements to the body. The dielectric region in a capacitive arrangement is regarded as part of the electrode. In arrangements including several portions only those portions which exert an influence on the solid state body by virtue of their shape, size or disposition or the material of which they are formed are considered to be part of the electrode. The other portions are considered to be "arrangements for conducting electric current to or from the solid state body" or "interconnections between solid state components formed in or on a common substrate", i.e. leads.

Device: The term "device" refers to an electric circuit element; where an electric circuit element is one of a plurality of elements formed in or on a common substrate it is referred to as a "component".

Component: A "component" is one electric circuit element of a plurality of elements formed in or on a common substrate

Complete Device: A "complete device" is a device in its fully assembled state which may or may not require further treatment, e.g. electro-forming, before it is ready for use but which does not require the addition of further structural units.

Parts: The term "parts" includes all structural units which are included in a complete "device".

Container: A "container" is an enclosure forming part of the complete device and is essentially a solid construction in which the body of the device is placed, or which is formed around the body without forming an intimate layer thereon.

Encapsulation: A "encapsulation" is an enclosure which consists of one or more layers formed on the body and in intimate contact therewith.

Integrated Circuit: A "integrated circuit" is a device where all components, e.g. diodes, resistors, are built up on a common substrate and form the device including interconnections between the components.

Assembly: The "assembly" of a device is the building up of the device from its component constructional units and includes the provision of fillings in containers.

Synonyms and Keywords

Package: The term "Package" is often used in the art as a synonym to both "container" and "encapsulation".

Rainer Anders

Japan Patent Office

April 16 , 2003

Project: D011 Subclass: H01L

JP Comments on Rapporteur Proposal Dated November 21, 2002

Regarding the sentence “However, micro-structural devices or systems working purely electrically or electronically are classified in H01L only” of the “Relationship between large subject matter areas” part, JP agrees with the proposal by Rapporteur, provided this sentence may be modified as mentioned below.

We concern that users might misinterpret this sentence that the subject matter cannot at all be classified in any other subclasses than H01L. In order to clarify that the subject matter “micro-structural devices or systems working purely electrically or electronically” is not always classified only in H01L or never classified in either B81B or B81C, we propose to modify the sentence as follows:

> However, micro-structural devices or systems working purely electrically or electronically, which are not classified in the subclass either B81B or B81C, are classified in H01L.

Other points in the Rapporteur proposal are acceptable for us.

ANNEX 23

	EUROPEAN PATENT OFFICE Principal Directorate Tools And Documentation	Comments 18 April 2003

Definition Project: **D011**
Subclass: **H01L**

Ref: **Annexes 21 and 22 of the project file**

EPO considers that the lately submitted comments from JP (Annex 22) would not improve the present situation.

EPO draws the attention to the existing Note (1) after the B81B title and the existing Note (1) after the B81C title, namely that:

- "(B81B) subclass does not cover purely electrically or electronically per se which are covered by section H, e.g. H01L"; and
- "(B81C) subclass does not cover processes or apparatus for the manufacture or treatment of purely electrical or electronic devices, which are covered by section H, e.g. group H01L 21/00"

EPO suggests to improve the existing wording under "Relationship …" of Annex 21 by correcting the place for purely electrically or electronically per se to H rather than H01L. This is our proposed text (between the tags <begin … end>):

<begin

Micro-structural devices or systems are classified in subclass B81B, and the processes and apparatus specially adapted for the manufacture or treatment thereof are classified in subclass B81C. So, by way of example, micro-electro-mechanical devices (MEMS), containing micro-electronic and mechanical components, are classified in group B81B7/02, and their manufacture, treatment or assembling in the relevant groups of B81C.

Micro-structural devices or systems working purely electrically or electronically, or related processes or apparatus for the manufacture or treatment thereof are however not covered by B81B or B81C and are classified in section H, for example in the groups of the current subclass H01L.

Micro-structural devices or systems being of other than purely electrical or electronically type, and apparatus or processes for the manufacture or treatment thereof, which are normally classified in the subclasses B81B and B81C, may be also classified in those groups of H01L providing for their structural or functional features, whenever such features are of interest *per se*.

Nanostructures, which are normally classified in subclass B82B, may be also classified in those groups of H01L providing for their structural or functional features, whenever such features are of interest *per se*.

end>

Roberto Iasevoli

UK Patent Office **Date: 7 May 2003**

Comments on Project D011 , Subclass H01L

GB Comments on Rapporteur Proposal Dated 21st November 2002

Definition Statement
No comment

Relationship between large subject matter areas
The text proposed by the EPO in Annex 23 appears clearer than that of the Rapporteur proposal and should therefore be used. Otherwise, the proposal appears acceptable.

References - Limiting or Informative
No comment

Glossary
No comment

Synonyms and Keywords
No comment

Emma Rendle

Note: I will be attending the ninth session of the IPC Working Group under may married name, Emma Porter.

IPC/D 045/02
ORIGINAL: English/French
DATE: May 21, 2003

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IPC DEFINITION PROJECT FILE/DOSSIER DE PROJET DE DÉFINITION DE LA CIB

PROPOSAL BY: **DE** **PROPOSITION DE :**	**IPC AREA:** **G01V** **DOMAINE DE LA CIB :**

ANNEX/ ANNEXE	CONTENT/CONTENU		ORIGIN/ ORIGINE	DATE
1	Rapporteur proposal	/ Proposition du rapporteur	DE	09.02
2	Comments	/ Observations	SE	10.02
3	Comments	/ Observations	FR	10.02
4	Rapporteur report	/ Rapport du rapporteur	DE	11.02
5	Rapporteur proposal	/ Proposition du rapporteur	DE	11.02
6	Comments	/ Observations	GB	05.03
7	Rapporteur proposal	/ Proposition du rapporteur	DE	05.03

RAPPORTEUR : DE **TECHNICAL FIELD/DOMAINE TECHNIQUE : E**

ANNEX 4

DEUTSCHES PATENT- UND MARKENAMT German Patent and Trade Mark Office	Class/Subcl.: **G01V** Date : 18.11.02
Rapporteur Report — D045	

Two comments from FR and SE have been received.

According to FR's remark with respect to "tags" being some kind of "etiquettes electronique" R has included an entry for tags in section Synonyms.

FR proposes references to G09F 3/00, G06K 7/10, and G06K 18/00 to be added to section Informative References. R has not included these references; they apply to main group 15/00 only and should be included in the future definition of that main group.

FR further proposes a reference to G08B13/24 to be added to section Informative References. R has included that reference and an additional reference to G08B 13/18 in section Limiting References as the respective subject matter of these two references belongs to the general subject matter detecting and would be covered by G01V otherwise.

SE proposes the last two references listed in section Limiting References to be transferred to section Informative References.
Reference to G01R has been moved.
Reference to G01S has not been moved. The borderlines between G01S and G01V are vague as has been discussed in project D010 and this limiting reference has deliberately been derived from the note after the subclass title of G01S. This note clearly refers all detecting "not involving reflection and reradiation of waves" to G01V; vice versa it is concluded that all detecting involving reflection and reradiation of waves should be classified in G01S.

All changes have been underscored in order to highlight them.

Lutz Mailänder

ANNEX 5

DEUTSCHES PATENT- UND MARKENAMT German Patent and Trade Mark Office	Class/Subcl.: **G01V**
	Date : 18.11.02
DE - Proposal — D045	

Title – G01V

GEOPHYSICS;

GRAVITATIONAL MEASUREMENTS;

DETECTING MASSES OR OBJECTS;

TAGS

Definition statement

This subclass covers:

Methods and apparatus for geophysical purposes such as

- seismic measurements, including the generation of seismic energy, the detection of seismic signals and their processing,
- measuring the magnetic or electric field of the earth or its modification by geological structures,
- measuring the gravitational field of the earth or its modification by geological structures;

Prospecting or detecting of masses or objects in general, e.g. by seismic, electric, magnetic, gravimetric, or optical means, or by the use of nuclear radiation;

Measuring gravitational fields or waves in general, e.g. gravitational forces between two bodies, or gravitational waves of cosmic origin;

Manufacturing, calibrating, cleaning, or repairing such apparatus;

Tags attached to, or associated with, an object, in order to enable detection of the object.

In this subclass, the geophysical methods apply both to the earth and to other celestial objects, e.g. planets.

Relationship between large subject matter areas

The general subject matters locating or detecting of masses or objects are covered by several subclasses besides G01V: G01S, G01C.

This subclass covers radar, sonar, lidar or analogous systems specifically designed for geophysical use. Radar, sonar, lidar or analogous systems, or details of such systems, if of general interest, are also classified in subclass G01S.

Limiting references

This subclass does not cover:

Detecting or locating foreign bodies for diagnostic, surgical or person-identification purposes	A61B
Means for indicating the location of accidentally buried, e.g. snow-buried, persons	A63B 29/02
Locating or presence-detecting by the use of radio, acoustic or other waves involving reflection and reradiation of waves	G01S
Burglar, theft, or intruder alarms actuated by interference with electromagnetic radiation or fields.	G08B 13/18 G08B 13/24

Informative references

Attention is drawn to the following places, which may be of interest for search:

Survey of boreholes or wells	E21B47/00
Investigating or analysing earth materials by determining their chemical or physical properties	G01N
Measuring electric or magnetic variables in general, other than direction or magnitude of the earth's field	G01R
Magnetic resonance arrangements in general	G01R 33/20

Glossary

In this subclass, the following terms or expressions are used with the meaning indicated:

tags means arrangements cooperating with a detecting field, e.g. near field, and designed to produce a specific detectable effect; "tags" also means active markers or labels capable of generating a detectable field; tags are not to be confused with transponders (cf Glossary of G01S).

Synonyms and Keywords

tags in the present context are also referred to as electronic labels or electronic markers

UK Patent Office **Date: 13 February 2003**

Comments on Project D045 , Subclass G01V

GB Comments on Rapporteur Proposal Dated 18 November 2002

Definition Statement
No comment

Relationship between large subject matter areas
No comment

References - Limiting or Informative
[Note: Although I understand the difference between limiting and informative references in theory, I did not follow the discussion on their application to actual subclasses carried out in the November 2002 meeting. Therefore I have not attempted to categorise the following references, which I think may aid the IPC user]

Blasting in general	F42
Nuclear explosives	G21J
Measuring magnetic field characteristics of the earth for navigation or surveying	G01C

Each of the above subject matter areas would appear to fall within the current subclass definition statement. The first two are means of generating seismic energy and the third involves the measuring of the magnetic or electric field of the earth.

Glossary
No comment

Synonyms and Keywords
No comment

Emma Rendle

DEUTSCHES PATENT- UND MARKENAMT German Patent and Trade Mark Office	Class/Subcl.: **G01V**
	Date : 8.4.02
DE - Rapporteur Proposal — D045	

One comment from GB has been received.

GB proposes references to F42, G21J and G01C to be added to the section References. R has not included these references; they apply to single main groups (1/00 respectively 3/00) only and should be included in the future definition of these groups.

Therefore we believe, that the proposal should be maintained without changes .

Christian Kallinger

IPC/D 047/02
ORIGINAL: English/French
DATE: May 22, 2003

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COMITÉ D'EXPERTS DE L'UNION DE L'IPC

IPC DEFINITION PROJECT FILE/DOSSIER DE PROJET DE DÉFINITION DE LA CIB

PROPOSAL BY: **GB** **PROPOSITION DE :**	**IPC AREA:** **H01P** **DOMAINE DE LA CIB :**

ANNEX/ ANNEXE	CONTENT/CONTENU		ORIGIN/ ORIGINE	DATE
1	Rapporteur proposal	/ Proposition du rapporteur	GB	11.02
2	Comments	/ Observations	JP	11.02
3	Comments	/ Observations	DE	01.03
4	Rapporteur proposal	/ Proposition du rapporteur	GB	05.03

RAPPORTEUR : GB **TECHNICAL FIELD/DOMAINE TECHNIQUE : E**

Japan Patent Office

November 5, 2002

Project:D047 Subclass:H01P

JP Comments on Rapporteur Proposal Dated October 30, 2002

JP supports the Rapporteur Proposal of the ANNEX 1.

ANNEX 3

DEUTSCHES PATENT- UND MARKENAMT German Patent and Trade Mark Office	Class/Subcl.: **H01P** Date : 14.01.2003
DE - Comments — Definition Project D 047	

Re:

We agree.

Böhm-Wirt

ANNEX 4

Title – H01P

Waveguides;
Resonators, lines, or other devices of the waveguide type.

Definition statement

This subclass covers:

This subclass covers passive devices which have electrical dimensions comparable with the working wavelength, and operate at frequencies up to but not including optical frequencies, e.g. microwave, and their manufacture.

Auxiliary devices of waveguide type such as filters, phase shifters, non-reciprocal devices, polarisation rotators.

Tubular waveguides and transmission lines such as strip lines, microstrips, coaxial lines, dielectric waveguides.

Devices for coupling between waveguides, transmission lines or waveguide type devices.

Resonators of the waveguide type.

Delay lines of the waveguide type.

Apparatus or processes specially adapted for manufacturing waveguides, transmission lines, or waveguide type devices.

Relationship between large subject matter areas (e.g. special rules of classification between subclasses)

Waveguides and waveguide type devices are commonly associated with antennas and aerials, these are classified in H01Q.

H01P is concerned with individual circuit components, or basic combinations of them. More complicated networks with lumped impedance elements are classified in H03H.

References relevant to classification in this subclass

This subclass does not cover:

Devices operating at optical frequencies	G02B

Informative references

Attention is drawn to the following places, which may be of interest for search:

Networks comprising lumped impedance elements	H03H
Coaxial cables	H01B11/18
Line connectors	H01R
Cable fittings	H02G15/00
Quasi-optical devices	H01Q15/00
Aerials	H01Q
Transit-time tubes	H01J23/00

Special rules of classification within this subclass

Not applicable.

Glossary of terms

In this subclass, the following terms or expressions are used with the meaning indicated:

Auxiliary devices	devices which perform an operation other than the mere simple transmission of energy
Waveguide type	as applied to transmission lines includes only high-frequency coaxial cables or Lecher lines, and as applied to resonators, delay lines, or other devices includes all devices having distributed inductance and capacitance

Synonyms and Keywords

Non-reciprocal devices	components such as circulators or isolators, using the propagation properties of ferrites