

EUROPEAN PATENT OFFICE  
U.S. PATENT AND TRADEMARK OFFICE

CPC NOTICE OF CHANGES 900

DATE: JANUARY 1, 2021

PROJECT MP0500

**The following classification changes will be effected by this Notice of Changes:**

<u>Action</u>	<u>Subclass</u>	<u>Group(s)</u>
<b>SCHEME:</b>		
Titles Changed:	H05K	7/14
<b>DEFINITIONS:</b>		
Definitions New:	H05K	10/00
Definitions Modified:	H05K	subclass
	H05K	1/00, 1/05, 1/14
	H05K	3/00, 3/18
	H05K	5/00
	H05K	7/00, 7/14, 7/20
	H05K	9/00
	H05K	13/00, 13/04, 13/08

**No other subclasses/groups are impacted by this Notice of Changes.**

**This Notice of Changes includes the following [Check the ones included]:**

1. CLASSIFICATION SCHEME CHANGES

- A. New, Modified or Deleted Group(s)
- B. New, Modified or Deleted Warning(s)
- C. New, Modified or Deleted Note(s)
- D. New, Modified or Deleted Guidance Heading(s)

2. DEFINITIONS

- A. New or Modified Definitions (Full definition template)
- B. Modified or Deleted Definitions (Definitions Quick Fix)

3.  REVISION CONCORDANCE LIST (RCL)

4.  CHANGES TO THE CPC-TO-IPC CONCORDANCE LIST (CICL)

5.  CHANGES TO THE CROSS-REFERENCE LIST (CRL)

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1. CLASSIFICATION SCHEME CHANGES

A. New, Modified or Deleted Group(s)

**SUBCLASS H05K - PRINTED CIRCUITS; CASINGS OR CONSTRUCTIONAL DETAILS OF ELECTRIC APPARATUS; MANUFACTURE OF ASSEMBLAGES OF ELECTRICAL COMPONENTS**

<u>Type*</u>	<u>Symbol</u>	<u>Indent Level</u> <u>Number of dots (e.g. 0, 1, 2)</u>	<u>Title</u> <u>“CPC only” text should normally be enclosed in {curly brackets}**</u>	<u>Transferred to#</u>
M	H05K 7/14	1	Mounting supporting structure in casing or on frame or rack	

\*N = new entries where reclassification into entries is involved; C = entries with modified file scope where reclassification of documents from the entries is involved; Q = new entries which are firstly populated with documents via administrative transfers from deleted (D) entries. Afterwards, the transferred documents into the Q entry will either stay or be moved to more appropriate entries, as determined by intellectual reclassification; T= existing entries with enlarged file scope, which receive documents from C or D entries, e.g. when a limiting reference is removed from the entry title; M = entries with no change to the file scope (no reclassification); D = deleted entries; F = frozen entries will be deleted once reclassification of documents from the entries is completed; U = entries that are unchanged.

NOTES:

- \*\*No {curly brackets} are used for titles in CPC only subclasses, e.g. C12Y, A23Y; 2000 series symbol titles of groups found at the end of schemes (orthogonal codes); or the Y section titles. The {curly brackets} are used for 2000 series symbol titles found interspersed throughout the main trunk schemes (breakdown codes).
- U groups: it is obligatory to display the required “anchor” symbol (U group), i.e. the entry immediately preceding a new group or an array of new groups to be created (in case new groups are not clearly subgroups of C-type groups). Always include the symbol, indent level and title of the U group in the table above.
- All entry types should be included in the scheme changes table above for better understanding of the overall scheme change picture. Symbol, indent level, and title are required for all types.
- “Transferred to” column must be completed for all C, D, F, and Q type entries. F groups will be deleted once reclassification is completed.
- When multiple symbols are included in the “Transferred to” column, avoid using ranges of symbols in order to be as precise as possible.
- For administrative transfer of documents, the following text should be used: “< administrative transfer to XX>”, “<administrative transfer to XX and YY simultaneously>”, or “<administrative transfer to XX, YY ...and ZZ simultaneously>” when administrative transfer of the same documents is to more than one place.
- Administrative transfer to main trunk groups is assumed to be the source allocation type, unless otherwise indicated.
- Administrative transfer to 2000/Y series groups is assumed to be “additional information”.
- If needed, instructions for allocation type should be indicated within the angle brackets using the abbreviations “ADD” or “INV”: <administrative transfer to XX ADD> , <administrative transfer to XX INV>, or < administrative transfer to XX ADD, YY INV, ... and ZZ ADD simultaneously>.
- In certain situations, the “D” entries of 2000-series or Y-series groups may not require a destination (“Transferred to”) symbol, however it is required to specify “<no transfer>” in the “Transferred to” column for such cases.
- For finalisation projects, the deleted “F” symbols should have <no transfer> in the “Transferred to” column.
- For more details about the types of scheme change, see CPC Guide.

## 2. A. DEFINITIONS (new)

Insert the following new definition.

### H05K10/00

#### References

##### Application-oriented references

*Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:*

Electric redundant control systems	<a href="#">G05B 9/03</a>
Error detection or correction of data by redundancy in digital computer hardware	<a href="#">G06F 11/16</a>
Security signalling or alarm systems	<a href="#">G08B 29/16</a>
Redundant emergency protective circuit arrangements	<a href="#">H02H 3/05</a>
Arrangements for parallel feeding of a single network	<a href="#">H02J 3/38</a>
Circuit arrangements with stand-by power supply	<a href="#">H02J 9/04</a>
Modifications for increasing the reliability of logic circuits or inverting circuits	<a href="#">H03K 19/003</a>
Fail-safe logic circuits or inverting circuits	<a href="#">H03K 19/007</a>
Redundant clock signal generation in generators of electronic oscillations or pulses	<a href="#">H03L 7/07</a>
Transmission systems using redundant channels or apparatus	<a href="#">H04B 1/74</a>
Redundant apparatus for increasing reliability of arrangements used for the transmission of digital information	<a href="#">H04L 1/22</a>

## 2. A. DEFINITIONS (modified)

Modify the following definitions.

### H05K

#### Definition statement

Replace: The existing text in the “Definition statement” section with the following text.

- Details of electronic circuit boards such as their materials or their interconnections
- Printed circuit boards
- Casings, cabinets or drawers for electric apparatus
- Constructional details common to different types of electric apparatus such as modifications to facilitate cooling, ventilating or heating, e.g. cooling arrangement for casings / cabinets
- Constructional details of screening for electric apparatus or components against electric or magnetic fields, e.g. EMI shielding arrangements for casings / cabinets
- Manufacture of assemblages of electrical components
- Machines for mounting electronic components on circuit boards

#### Glossary of terms

Replace: The existing text in the “Glossary of terms” table with the following updated text.

Printed circuit	The term covers all kinds of mechanical arrangements of circuits that consist of an insulating base or substrate, having at least one conductive layer permanently formed on the base. The base often extends in a two-dimensional plane. Other conductive layers may be formed in a layer structure within the base. The base may support components on its surface or between its layers. Each conductive layer is formed as separate patterns or tracks to connect the components as
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	required. The term is also applied adjectivally to processes or apparatus for manufacturing such circuits, e.g. by mechanical or chemical treatment of conductive foil, paste, or film that has been applied to an insulating base, support, or substrate.
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## H05K1/00

### Definition statement

Replace: The existing text in the Definition statement section with the following updated text.

- Details of printed circuit boards [PCBs], e.g. structural aspects or use of materials for PCBs
- Printed elements for electrical connection to or between printed circuits
- Printed electric components in PCBs, e.g. resistors, capacitors or inductors formed by printing materials onto the board, or within its layer structure
- Structural association of two or more PCBs
- Structural association of PCBs and non-printed electric components, e.g. within internal layers

### Relationships with other classification places

Replace: The existing text in the first paragraph of the “Relationships with other classification places” section with the following updated text.

There is no clear boundary between the field of printed circuit boards and other more specific fields, e.g. inductors (H01F), antennas (H01Q), waveguides (H01P), chip cards (G06K 19/07), thin film and thick film circuits (H01L 27/00), other packaging levels (semiconductor packages H01L 21/48, H01L 23/00, H01L 25/00), connectors (H01R) and various electronic components. The materials and methods (deposition, patterning, connection, etc.) used for manufacture of printed circuit boards have their general fields.

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Insert: The following new “Application oriented references” section.

**Application oriented references**

*Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:*

Record carriers with integrated circuit chips, e.g. chip cards	G06K 19/07
Thin film inductors	H01F
Passive thin-film or thick-film elements formed on a common insulating substrate	H01L 27/01
Semiconductor assemblies	H01L 25/00
Waveguides	H01P
Antennas	H01Q
Connectors	H01R

Replace: The existing “Informative references” table with the following updated table.

Backplanes	H05K 7/14
Screening against electric or magnetic fields	H05K 9/00
Electrostatic discharge protection for electric apparatus in general	H05K 9/0067, H05K 9/0079
Handling / Transporting	H05K 13/0061, B65G, H01L 21/68
Cleaning	B08B
Casting of metals	B22D
Metal powder processing	B22F
Mechanical drilling	B23B
Mechanical milling, e.g. metal milling	B23C
Slotting, etc.	B23D

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Erosion by electric discharge	B23H
Soldering or welding	B23K
Laser ablation, e.g. patterning by laser ablation	B23K 26/00
Details of machining apparatus	B23Q
Grinding, polishing	B24B
Abrasive working	B24C
Cutting, Punching	B26D, B26F
Laminating	B32B 37/00
Printing forms, e.g. masks	B41C, B41N
Printing apparatus	B41F
Inkjet printing	B41J 2/00
Printing processes	B41M
Selective transfer processes	B41M 5/00
Handling flexible substrates	B65G
Etching polymeric substrates	C08J 7/00
Coating by dipping in molten metal	C23C 2/00
Coating by spraying with molten metal	C23C 4/00
Coating by physical vapour deposition or sputtering or ion implantation	C23C 14/00
Coating by chemical deposition	C23C 16/00
Coating by decomposition of compounds	C23C 18/00, C23C 20/00
Coating by electroless plating	C23C 18/16
Conversion coating of metals	C23C 22/00
Coating by powder methods	C23C 24/00
Other coating methods	C23C 26/00
Coating metal with enamel (glass)	C23D
Corrosion protection of metal	C23F

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Cleaning or degreasing of metal	C23G
Electroplating of metal	C25D
Electroforming of metal	C25D 1/00
Anodizing of metal	C25D 11/00
Electrophoretic coating of metal	C25D 13/00
Electrolytic etching of metal	C25F
Lighting devices	F21K, F21S, F21V, H05B
Drying	F26B
Testing, inspection of material	G01N
Electrical testing	G01R 31/00
Electro-optical devices comprising optical waveguides, e.g. modules / PCBs having optical waveguides	G02B 6/00
Coupling light guides with opto-electronic components	G02B 6/42
Liquid crystal displays [LCD]	G02F 1/13
Photolithography masks	G03F 1/00
Lithography, e.g. photoresists	G03F 7/00
Photolithography registration	G03F 9/00
Electrography	G03G
Computers	G06F
Touch screens	G06F 3/00
Security details of computer components	G06F 21/70
Designing of the conductive pattern	G06F 30/00
Circuits for displays	G09F 9/00
Disk drive suspensions	G11B 5/00
Memory modules	G11C 5/00
Cables	H01B



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Flat cables	H01B 7/00, H01B 13/00
Resistors, e.g. printed resistors	H01C
Capacitors, e.g. printed capacitors	H01G
Switches, fuses	H01H
Plasma displays	H01J 17/49
Semiconductor devices	H01L
Semiconductor packages	H01L 21/48, H01L 23/00
Treatment apparatus for semiconductor components	H01L 21/68
Impedance arrangements, e.g. impedance matching, reduction of parasitic impedance for semiconductor devices	H01L 23/66
Devices consisting of a plurality of solid state components formed in or on a common substrate, e.g. integrated circuits, thin-film or thick-film circuits	H01L 27/00
Solar cells, Photovoltaic devices	H01L 31/00
LEDs	H01L 33/00
Thermoelectric devices	H01L 35/00
Piezoelectric devices	H01L 41/00
Polymeric semiconductor devices	H01L 51/00
Batteries, Cells	H01M
Laser devices	H01S
Spark gaps, Overvoltage arresters	H01T
Emergency protective circuits	H02H
Power conversion	H02M
Receivers / Transceivers (modules)	H04B 1/00
Telephones	H04M

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Optical modules	H04N, H01L 27/00, G03B
Electromechanical transducers	H04R

## H05K1/05

### Definition statement

Replace: The existing text in the “Definition statement” section with the following updated text.

Insulated electrically conductive substrates, e.g. insulated metal substrates, specially adapted for PCBs.

## H05K1/14

### Limiting references

Replace: All references in the Limiting references table with the following updated reference.

Providing electric connections to or between printed circuits	H05K 1/11, H01R 12/00
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Insert: The following new “Informative references” section.

### Informative references

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

Connectors for printed circuits	H01R 9/00
Two-part coupling devices for connection to or between printed circuits	H01R 24/68

## H05K3/00

### Definition statement

Replace: Only the text in the first paragraph of the “Definition statement” section with the following updated text.

General processing of printed circuit boards [PCBs]:

- Processing of insulating substrates or layers for PCBs or processing of conductive layers for PCBs.
- Forming printed elements for providing electric connection to or between printed circuits.
- Manufacturing multilayer printed circuits.
- Manufacturing metal core printed circuits.
- Secondary treatment of PCBs.
- Mounting or printing electric components on PCBs.
- Assembling PCBs with other PCBs.

### Relationships with other classification places

Replace: The existing text in the “Relationships with other classification places” section with the following updated text.

There is no clear boundary between the field of printed circuit boards and other more specific fields, e.g. inductors (H01F), antennas (H01Q), waveguides (H01P), chip cards (G06K 19/07), thin film and thick film circuits (H01L 27/00), other packaging levels (semiconductor packages H01L 21/48, H01L 23/00, H01L 25/00), connectors (H01R) and various electronic components. The materials and methods e.g. deposition, patterning or connection, used for manufacture of printed circuit boards have their general fields.

Documents often contain information relevant to several technical fields and have to be circulated for classification in these fields, in particular to H01L (semiconductors) but also the other parts of H05K, or H01R (connectors).

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**Informative references**

Delete: The following two existing references from the “Informative references” table.

Apparatus specially adapted for manufacturing assemblages of electric components, e.g. printed circuit boards	H05K 13/00
Mounting of components	H05K 13/04

Insert: The following new reference in the “Informative references” table.

Apparatus specially adapted for manufacturing assemblages of electric components, e.g. for mounting electronic components on circuit boards	H05K 13/00, H05K 13/04
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**H05K3/18****Definition statement**

Replace: The existing text in the “Definition statement” section with the following updated text.

Apparatus or process for manufacturing printed circuits, in which conductive material is applied to the insulating support in such a manner as to form the desired conductive pattern using precipitation techniques to apply the conductive material, e.g. electroless plating or electroplating.

**H05K5/00****Definition statement**

Replace: The existing text in the “Definition statement” section with the following updated text.

Constructional features of electronic housings that are not characterised by their inner electronic arrangement, such as:

- means for assembling the housing parts
- means for associating or coupling several housings
- venting means
- sealing means

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- interlocking means
- mounting and fixing means
- handling means

**Application-oriented references**

Replace: The existing “Application-oriented references” table with the following updated table.

Electronic boxes of vehicles, e.g. electric distribution centers	B60R 16/00
LCD display panels	G02F 1/13
Projectors	G03B 21/00
Desktop and laptop computer housings	G06F 1/16
Casings and housings of instrument	G12B 9/00
Plasma display panels	H01J 29/00
Receptacles for batteries	H01M 50/00
Constructional details, e.g. cabinets, of receivers	H04B 1/08
Mobile phone housings	H04M 1/02
Constructional details of receivers, e.g. cabinets or dust covers	H04N 5/64

**Informative references**

Replace: The existing “Informative references” table with the following updated table.

Furniture/cabinets	A47B 87/00
Handles and grip in general	B65D
Locks and Latches in general	E05B, E05C
Hinges in general	E05D
Sealing in general	F16J 15/00
Stands and supports for apparatus in general	F16M 11/00

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Constructional details of record carriers in general	G06K 7/00
Connectors in general	H01R
Details for decorative purposes in mobiles phones	H04M 1/0283
CRT Television housings	H04N 5/00

## H05K7/00

### Definition statement

Replace: The existing text in the “Definition statement” section with the following updated text.

- Constructional features of electronic housings common to different types of electric apparatus;
- Constructional features of standardized electronic cabinets and racks for receiving Printed Circuit Boards (PCB) such as guides, retainers, drawers, plug-in modules;
- Constructional features of Servers, Data Center Rooms, 19-inch computer racks such as mounting means of blades within cabinets, cable management, power distribution, mobile data centers arranged in shipping containers;
- Constructional features of industrial controllers such as PLCs;
- Cooling features of electronic housings,
- Cooling features of standardized electronic cabinets and racks for receiving Printed Circuit Boards (PCB);
- Cooling features of Servers, Data Center Rooms, 19-inch computer racks;
- Cooling features of power electronics, such as inverters;
- Cooling features of vehicle control units;
- Cooling features of display panels;
- Cooling features of outdoor telecommunication equipments, such as base stations.

Insert: The following new “Application oriented references” section.

**Application oriented references**

*Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:*

Constructional details of optoelectronic equipment	G02B 6/42
Cooling arrangements of desktop and laptop computers	G06F 1/20
Constructional details of Hard disk drives	G11B 33/00
Arrangements for cooling of semiconductor or other solid state devices	H01L 23/34
Cooling of batteries	H01M 10/60

**Informative references**

Replace: The existing “Informative references” table with the following updated table.

Blowers and fans in general	F04D 29/00
Cooling tubular elements with fins for cooling	F28F 1/10
Cooling element with means for increasing heat exchange area	F28F 3/02
Program control systems PLC without constructional details	G05B 19/00
Inner arrangements of desktop and laptop computers	G06F 1/18
Bus systems and interfaces of computers	G06F 13/409
Constructional details of record carriers	G06K 7/00
Stacked arrangements of semiconductor devices	H01L 25/065
Telecommunication distribution frames and equipment	H04Q 1/00

## H05K7/14

### Limiting references

Delete: The entire existing “Limiting references” section.

### Informative references

Insert: The following new row in the existing Informative references section.

Construction of racks or frames	H05K 7/18
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## H05K7/20

### Informative references

Delete: The entire existing “Informative references” section.

Insert: The following new “Application oriented references” section.

### ***Application oriented references***

*Examples of places where the subject matter of this place is covered when specially adapted, used for a particular purpose, or incorporated in a larger system:*

Cooling or ventilating of personal computers	G06F 1/20
Cooling, ventilating, or heating of resistors	H01C
Cooling, ventilating, or heating of capacitors	H01G
Cooling or ventilating of individual semiconductor components	H01L 23/34
Cooling or ventilating of solar cells	H01L 31/052
Cooling or ventilating of LEDs	H01L 33/64
Cooling or ventilating of photovoltaic modules	H02S 40/42
Cooling, ventilating, or heating of printed circuits	H05K 1/02



## H05K9/00

### Definition statement

Replace: The text in the existing “Definition statement” section with the following updated text.

- Screening of electronic equipment against magnetic or electromagnetic fields, or electrostatic discharges;
- Shielding features applied to rooms or buildings for protecting against external electromagnetic interference;
- Shielded electronic casings achieving electromagnetic compatibility;
- Shielding features of electronic equipment having standardized dimensions, such as 19-inch racks;
- Shielding materials therefor.

### Application-oriented references

Replace: The existing “Application oriented references” table with the following updated table.

Grounding and RFI shielding of Desktop and laptop computers	<a href="#">G06F 1/182</a>
Magnetic shielding of transformers	<a href="#">H01F 27/36</a>
Screening of semiconductor devices	<a href="#">H01L 23/552</a> , <a href="#">H01L 24/00</a>
Protection against electrostatic charges or discharges of semiconductor devices, e.g. Faraday shields	<a href="#">H01L 23/60</a>
Screening of dynamo-electric machines	<a href="#">H02K 11/00</a>

**Informative references**

Insert: The following three new references in the “Informative references” table.

Screening of human body against electromagnetic influences	<a href="#">A61N 1/16</a>
Anechoic chambers	<a href="#">G01R 29/0821</a>
Shielding of Nuclear magnetic Resonance devices	<a href="#">G01R 33/42</a>

**H05K13/00****Definition statement**

Replace: All of the text in the existing “Definition statement” section with the following updated text.

Apparatus and methods for placing components, e.g. onto the printed circuit boards. This group only relates to bare printed circuit boards and not circuit boards already fitted in an apparatus (thus no displays or hard disks, etc.).

**H05K13/04****Definition statement**

Replace: All of the text in the existing “Definition statement” section with the following updated text.

Mounting of components such as:

- mounting machines for components on printed circuit boards;
- attaching containers to mounting machines for components delivery.

**H05K13/08**

Replace: All of the text in the existing “Definition statement” section with the following updated text.

- Control or planning of manufacturing processes of assemblages, e.g. of processes for mounting components on printed circuit boards
- Control of apparatus therefor

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- Planning of production facilities and apparatus layout
- Visual inspection after placing of components

**Informative references**

Replace: The existing row in the “Informative references” table with the following updated row.

Electrical testing of finished printed circuit boards	<a href="#">G01R 31/00</a>
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