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Application of Cooperative Patent Classification (CPC) to search & routing of patent applications

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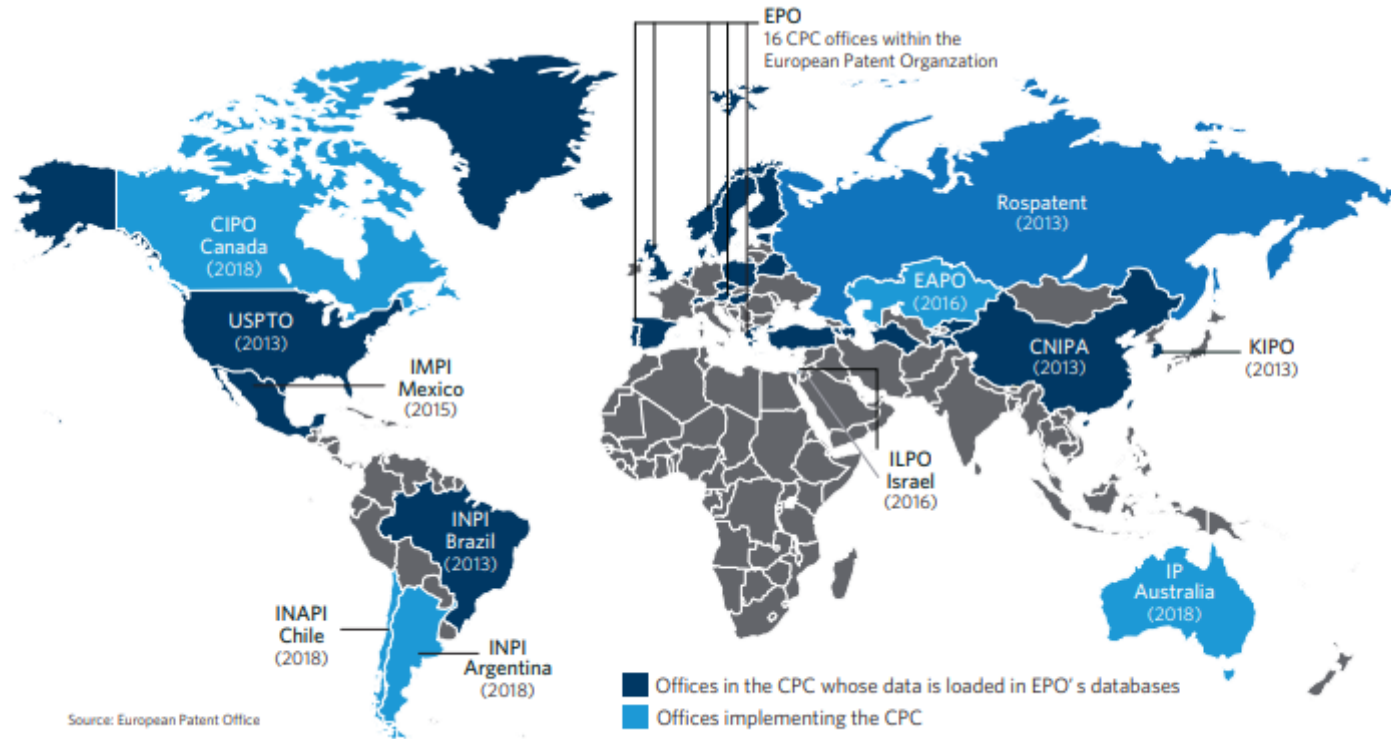
Outline

- Overview of CPC
- Overview of CPC scheme & classification principles
- CPC for search
- CPC for restriction
- CPC for routing applications
- Search and Classification Examiners (SCEs)

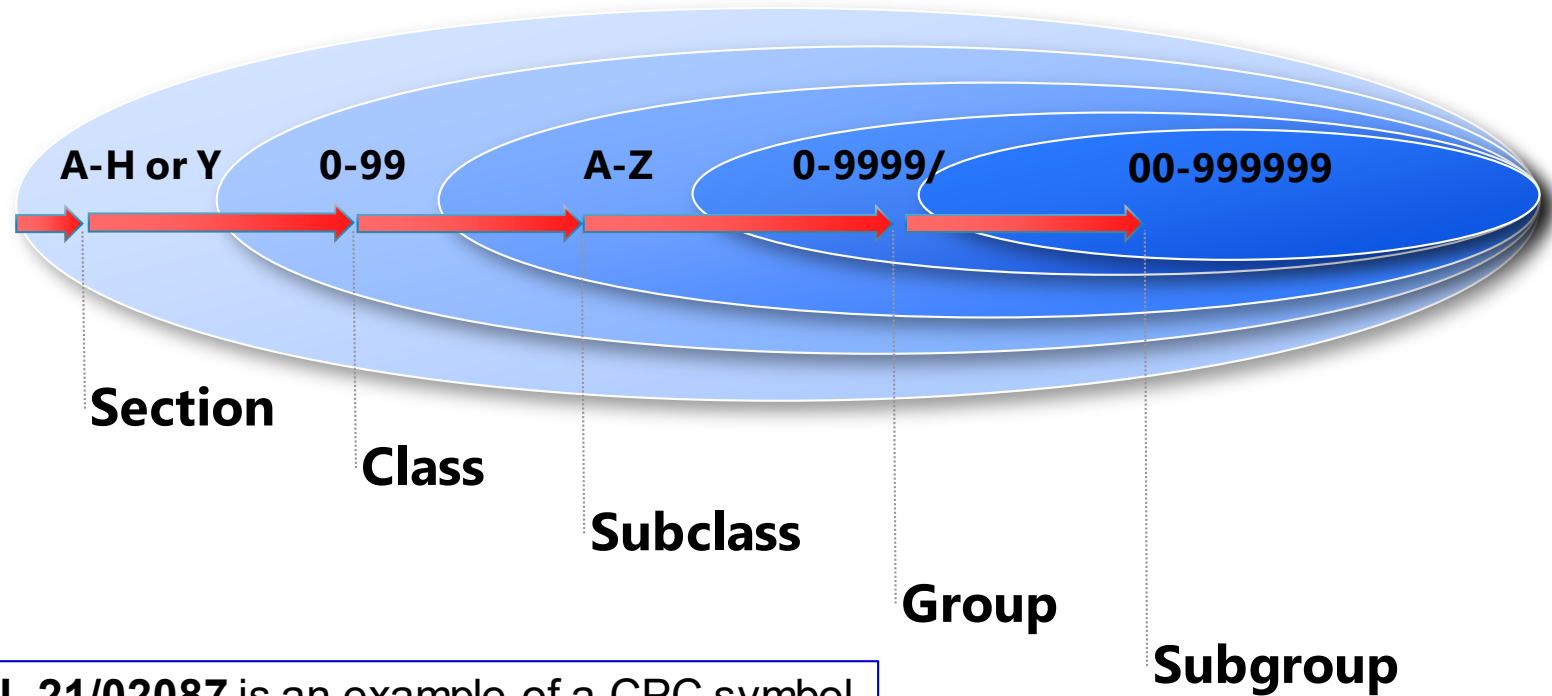
Overview of CPC

- CPC is jointly owned and maintained by the USPTO and the European Patent Office (EPO).
- CPC is aligned with WIPO's International Patent Classification (IPC) classification standards, though with a more detailed hierarchical structure.
- USPTO transitioned to CPC during 2013-2014 and the United States Patent Classification (USPC) became static in 2015.
- CPC is now used by more than 45 IP offices and by more than 32,000 examiners worldwide; and being adopted by additional Offices.
- CPC is continuously revised through USPTO and EPO collaboration.
 - Updates to the IPC scheme are incorporated in CPC.

CPC national offices



The CPC symbol



H01L 21/02087 is an example of a CPC symbol
H01L is the subclass identifier
H01 is the class
H is the section

CPC scheme

Sections	Subject Matter
A	Human necessity
B	Performing operation; transporting
C	Chemistry; metallurgy
D	Textiles; paper
E	Fixed constructions
F	Mechanical engineering; lighting; heating; weapons; blasting
G	Physics
H	Electricity
Y	General tagging of new technological developments

The CPC classification system arranges subject matter into hierarchical arrays. Technical areas involving biotechnology and organic chemistry can be found in the bold sections.



CPC classification principles

- Classification of patent documents is carried out at the family level.
 - All documents in the entire family (child, parent, related foreign documents) are classified using the same shared symbols.
- Classification in CPC is generally based on the whole disclosure (abstract, specification, drawings and claims).
- Classification rules are set forth in the definition for each class/subclass.
- MPEP 904.02(a): A proper field of search normally includes the classification locations in which the claimed subject matter of an application would be properly classified at the time of the application's classification or grant of a patent.
- MPEP 719.05: "...procedures for recording search data in the application file. Such a record is of importance to anyone evaluating the strength and validity of a patent, particularly if the patent is involved in litigation."



Classification search vs. text search

- Classification search:
 - Particularly useful when the invention:
 - Has to be searched via figures (e.g., mechanical features).
 - Cannot be easily phrased in a text query.
 - Has synonyms, terms, or concepts which vary widely, are not well established or are not familiar to the searcher.
 - The most relevant art is published in a foreign language.
 - The claimed subject matter has a broad scope and does not have clear limitations or applications.
- Text Search:
 - Particularly useful when the invention:
 - Has a well defined vocabulary or buzzwords to describe it, or particular materials, parameters, product names, etc.
 - Cannot be found using classification alone (e.g. emerging technologies).

Combination sets

- Combination sets (C-sets) are a special classification technique that provides a combination of symbols as a single classification.
- C-sets are a group of at least two ranked valid CPC symbols (main-trunk symbols or indexing codes); the ranking determines the order of the symbols.
- C-sets are governed by specific rules about the intended usage and syntax in the definition section “Special rules of classification”.
- C-sets are only authorized in a limited number of CPC subclasses.

Areas that utilize C-sets

- Combination sets commonly linked:
 - The reagent and product and/or method steps
 - Common in C07C (acyclic/carbocyclic compounds), C12N (DNA/RNA, vectors)
 - Polymer blends
 - Monomers within copolymers
 - Cement mixtures
 - Often contains a C-set between different classes (i.e.: compositions for dental impressions often contain a combination set between A61K 6/XX and C08L XX/XX)
 - Mixtures of pesticides (A01N)
 - Filtration techniques/processes
 - Mixtures of pharmaceutically active ingredients
 - C-sets are relatively generic (i.e.: A61K 31/XX, A61K 2300/00)

Classification search comparison

Without combination set:

- Active
 - L1: (4,983) C08L69/00.cpc.
 - L2: (2,724) C08L51/04.cpc.
 - L3: (702) 1 and 2

With combination set:

- Active
 - L1: (4,228) C08L69/00.cpcc.
 - L2: (1,920) C08L51/04.cpcc.
 - L3: (367) 1 and 2
 - L4: (109) 1 same 2
 - L5: (105) 1 near6 2
 - L6: (63) 1 near2 2
 - L7: (49) 1 adj2 2

Combining CPC & text search

A method of amplifying RNA comprising:

(a) contacting a pool of mRNA molecules with (i) an oligonucleotide containing a 5' end and a 3' end, said oligonucleotide comprising an oligo-dT sequence at said 3' end, a promoter sequence recognized by a T7 RNA polymerase at said 5' end, and a transcription initiation region located between the oligo-dT sequence and the promoter sequence, wherein the oligonucleotide is blocked at said 3' end such that extension therefrom is prohibited,

(ii) a reverse transcriptase enzyme,

(iii) an RNase H enzyme,

(iv) an RNA polymerase enzyme, and

(v) dNTPs and rNTPs, and

(b) incubating the reaction under conditions sufficient to form antisense RNA in the absence of cDNA intermediates.



Combining CPC & text search (cont.)

C12Q 1/6865 – method base class for promoter amplification

C12Q 2525/186 – blocking moiety

C12Q 2521/107 – reverse transcriptase

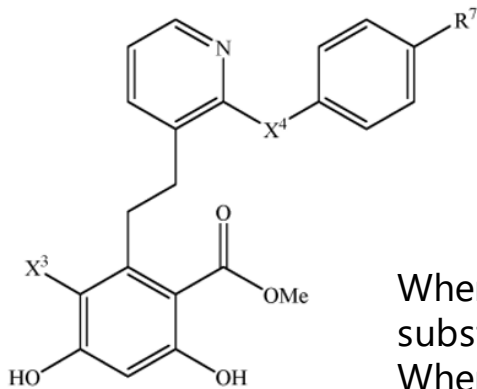
C12Q 2521/119 – RNA polymerase

C12Q 2521/327 – RNase H

- Active
- L1: (46,437) promoter near15 amplif\$7
- L2: (2,136,368) block\$4 near5 (moiety or group or end or nucleotide or base)
- L3: (212,657) reverse transcri\$7
- L4: (34,788) ribonuclease h or mase h or rnh
- L5: (126,202) rna polymerase or rmap or rmapol or rna pol
- L6: (1,425) L1 and L2 and L3 and L4 and L5
- L7: (2,956) C12Q1/6865.cpc.
- L8: (1,534) C12Q1/6865.cpc.
- L9: (79) C12Q1/6865.cpc. same C12Q2525/186.cpc.
- L10: (26) L9 and T7
- L11: (11) C12Q1/6865.cpc. same C12Q2525/186.cpc. same C12Q2521/107.cpc.
- L12: (36) C12Q1/6865.cpc. same C12Q2521/107.cpc. same C12Q2521/119.cpc.
- L13: (0) L12 and L2
- L14: (107) C12Q1/6865.cpc. same C12Q2521/107.cpc.
- L15: (9) L14 and L2



Combining chemical structure & CPC search



When X_4 is CH_2 , C07D 213/55 (pyridine with acid or ester substituent)

When X_4 is O (oxy), C07D 213/643 (phenoxy pyridines)

STN full structure search: 626 hits

Full sub-structure searches against broad structure: 19 hits

CPC allocations in HCAPlus: 942 & 723 hits respectively

Combined search of full structure and CPC allocations: 3 hits

Restriction

- CPC may be used to show distinctness between groups in a restriction requirement.
- Example: claims directed to a compound and composition; a method of treating a bacterial infection in a subject; a method of treating a viral infection in a subject.

Group I – compounds and composition (classified in CPC A61K XX/XX)

Group II – method of treating a bacterial infection (classified in CPC A61P31/04)

Group III- method of treating a viral infection (classified in CPC A61P31/12)

A61P 31/00	Antiinfectives, i.e. antibiotics, antiseptics, chemotherapeutics
A61P 31/02	• Local antiseptics
A61P 31/04	• Antibacterial agents
A61P 31/06	.. for tuberculosis
A61P 31/08	.. for leprosy
A61P 31/10	• Antimycotics
A61P 31/12	• Antivirals
A61P 31/14	.. for RNA viruses
A61P 31/16	... for influenza or rhinoviruses
A61P 31/18	... for HIV
A61P 31/20	.. for DNA viruses
A61P 31/22	... for herpes viruses
A61P 33/00	Antiparasitic agents



Routing of applications

- USPTO uses classification to:
 - Identify and group the technology captured in an incoming application.
 - Match the technology in an application to a patent examiner.
 - Assign examination time to an application.

Symbols on an application

	USPC	CPC
Number of symbols used for routing	One	One or more
Symbol(s) directed to	Most comprehensive claim	Entire disclosure

CPC and application routing:

- CPC is a more flexible and up-to-date classification system.
- Opportunity to address multi-disciplinary applications via more than one CPC symbol.
- Goal: finalize the transition to CPC by eliminating USPC dependencies on operational processes. Maximize the retention of expertise and institutional knowledge of examiners.

Routing applications based on CPC

- Applications are now routed to examiners based on an examiner's work history (portfolio).
- The classification picture on incoming applications is compared to all examiners' portfolios to find the best examiner to examine the application.
 - Application classification picture
 - One or more CPC symbols allocated to an application.
 - Examiners' portfolios
 - Representation of work experience in CPC.
 - Tally of the CPC symbols found on applications in which that examiner has completed at least one action.
 - Similarity between an examiner's portfolio and the classification picture on the application (percent qualification) matches the examiner to an application.

Example of examiner portfolio

- An examiner does a non-final rejection on a patent application with CPC symbols A01B1/01, A47C35/15, and F16H55/05.
- The examiner also issues an allowance on a different patent application with CPC symbols A47C35/15, F16H55/05, and B35J21/07.

Examiner Portfolio	
CPC SYMBOL	CPC TALLY
F16H55/05	2
A47C35/15	2
A01B1/01	1
B35J21/07	1

Claim indicators (C-star or C*)

- A C* is applied to an allocated symbol from the classification picture on an application when that symbol represents *at least one* concept that is claimed.
- C* designation is made at the application level and is used as a parameter in determining examination time and examiner portfolio match.
- Examiners may initiate requests to modify the classification for an application on their docket.
 - C* - modify the C* designation(s)
 - USPC - modify the USPC classification
- Requests to modify the classification symbols are decided by the examiner's SPE and/or Search and Classification Examiners (SCEs).

SCE functions

- SCEs are assigned to 140 Technical Fields representing the technologies covered by the ~260,000 symbols in the CPC scheme.
- SCEs are responsible for:
 - Providing search and classification assistance to examiners.
 - Creating and delivering search and classification training.
 - Ensuring classification consistency.
 - Troubleshooting and maintenance of the scheme (assisting with revision and reclassification projects).
 - Serving as liaisons between USPTO and EPO classification experts.
 - Evaluating quality of contractor applied symbols.
 - Evaluating examiner initiated C* symbol challenges.

Classification resources

- USPTO "[Classification Resources](#):" CPC Scheme
- [USPTO "Search for Patents:"](#) search US Patent documents
- [CPCinfo.org](#): USPTO and EPO joint CPC site (contains CPC scheme/definition; Training material; CPC revision; etc)
- [Espacenet](#): EPO classification search site

Questions?

