

The reform of the IPC—consequences for the users

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Abstract

The reform of the International Patent Classification, scheduled to be launched in January 2006, will bring along a number of changes for patent classifiers and searchers. However, the practical consequences of these changes for the user of patent information are often less radical than they appear at first glance. In this article, the main features of the IPC reform are reviewed and are put into the context of present and future practice of classification and search.

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1. Introduction

In earlier publications in this journal [1,2], the basic elements and features of the reform of the International Patent Classification (IPC) were explained. In this article, some practical consequences for classifiers and searchers using the IPC as a search tool are described.

2. Main features

The main features of the IPC reform are:

- Split into core and advanced level.
- Creation of a Master Classification Database (MCD).
- More frequent revision: every three months instead of every five years.
- Reclassification of the back file.

3. Terminology

In publications relating to the IPC reform, different expressions are used for the IPC after its reform:

- “Reformed IPC” relates to the concept of the IPC as a whole, after the measures of the reform are implemented, e.g. when talking about its revision procedure or about the two-level structure.
- “IPC-2006” is the official name of the first published version of the IPC (entering into force on 1 January 2006) that includes the features of the reform. Subsequent versions of the IPC core level will carry the titles “IPC-2009”, “IPC-2012” etc.
- “IPC 8” is a synonym of “IPC-2006”, used in continuation of the current edition numbering in order to indicate the transitional nature of this version. For subsequent versions, i.e. IPC-2009 and later, this type of numbering will no longer be used.
- It should be noted that advanced level groups will not carry a global version number but a “version date” indicating the year and month when they were introduced or last changed. For example, a new group introduced in April 2007 will have the version date

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“2007.04”. On the starting date 1 January 2006, all advanced level groups will carry the version date “2006.01”.

Since at any given moment there will only be one valid version of the advanced level (the latest one), global edition numbers for the whole classification scheme will not be necessary any more.

In this article the term “IPC-2006” is normally used, unless the context requires the use of a different expression.

4. Using the core level and the advanced level of the IPC in novelty searches

During the more than 30 years that the IPC is in use, it turned out that there was a need to simplify the use of the IPC for less specialized users, but to allow at the same time the large patent offices to further develop the IPC by adding more detailed subgroups [3].

In order to solve this problem, it was decided to define a subset of the IPC (the “core level”) as a simplified classification system that can be used as a stand-alone tool, however still being compatible with the full IPC (called the “advanced level”).

For an international search, i.e. a search aimed at retrieving prior art from all major industrial countries, the advanced level should be used. The PCT minimum documentation—and possibly more—will be classified in detail according to the latest version of the advanced level.

For a national search, i.e. a search directed at retrieving documents from a specific country, the core level will most of the time be sufficient. Some smaller patent offices will classify their documents only according to the core level, since its use requires much less specialist knowledge of the individual technical fields.

When the searcher is sure that the office in question classifies according to the advanced level, this level can of course also be used for a national search. However, when the number of documents is not very high, a core level search might still be appropriate because it will give more hits.

Documents classified in the advanced level also receive the corresponding core level classification by an automated procedure. Therefore, a search in the core level will give complete results, whereas a search in the advanced level, although more precise, will only find documents belonging to the PCT minimum collection and documents of offices using the advanced level. After performing an advanced level search, searchers should consider doing a second search in the core level, because documents of some countries will only be classified according to the core level.

On the other hand, when it is only needed to broadly limit a technical field by classification, e.g. when com-

5/00 Constructions of non-optical parts	
5/02	. Bridges; Browbars; Intermediate bars (nose-engaging surfaces 5/12)
5/04	. . with adjustable means
5/06	. . with resilient means
5/08	. . foldable
5/10	. . Intermediate bar or bars between bridge and side-members
5/12	. Nose-pads; Nose-engaging surfaces of bridges or rims
5/14 Side-members	
5/16	. . resilient or with resilient parts
5/18	. . reinforced
5/20	. . adjustable, e.g. telescopic
5/22 Hinges (pivotal connection in general F 16 C 11/00)	

Fig. 1. The advanced level IPC in a part of subclass G02C (spectacles). Groups in frames are also part of the core level.

5/00 Constructions of non-optical parts	
5/14	. Side-members
5/22	. Hinges (pivotal connection in general F 16 C 11/00)

Fig. 2. The core level IPC in the part of subclass G02C corresponding to Fig. 1.

binning classification and text search, it can be a good idea to use the core level even for searching in international document collections, because this will result in documents from all countries covered and since it is less sensitive to variations in classification philosophy.

In the example classification schemes shown in Figs. 1 and 2, documents classified in any of the advanced level groups G02C5/14 to G02C5/20 can also be retrieved in a search using the core level symbol G02C5/14. In this way, a comprehensive “superset” of documents can be identified, in which further detailed searches can be performed using other search means.

5. Selection of the document content to be classified

In the past, classifiers have focussed on the claims of a patent document. This was appropriate when most intellectual property offices published granted patents only. Nowadays, most offices publish patent applications before they are examined. This means that the content of the claims at the time of publication does not necessarily reflect the “real” invention or all the material that one would like to retrieve in a search.

In the rules for the reformed IPC, patent offices are recommended to classify not only the content of the claims, but also other important and possibly inventive aspects of the documents found in the description, examples or drawings. All such important features are

to be classified as “invention information”. Other content in a document, which whilst being of lesser importance, may still have some search value, can be classified as “additional information”, as in the current IPC.

The distinction between “invention information” and “additional information”—on the printed document separated by the “//” sign—was up till now only reflected in a few patent databases. In future it will be present in the MCD data sets produced by the EPO, enabling database providers to integrate this information into their systems more easily. This will enable the users of these databases to perform more accurate searches.

IPC Indexing was reduced to a minimum by converting most indexing schemes to classification. Instead of using indexing, in most cases the classifier can now simply give “additional information” classifications. The concept of linked indexing was completely abolished, because it was never completely and consistently applied and the benefits for searching never outweighed the classification effort.

6. More frequent updates

The advanced level of the IPC will be revised in three-month cycles. This means that every three months, groups can be added to or deleted from the IPC.

WIPO is going to publish the IPC changes 3 months in advance, giving the searcher enough time to prepare. The amount of changes per three-month interval is expected to be rather limited. In this way, only in a few technical fields will search strategies have to be adapted. However the searcher will have to monitor the changes and check the three-monthly publication of changes in order to determine if technical fields of interest are affected.

The core level will be revised in three-year cycles, however only if new entries are needed for emerging technology that otherwise cannot be correctly classified or when such revision is made necessary by changes in the advanced level.

In order to provide a complete searching environment for the user, changes in the IPC classification scheme are only introduced when all documents are reclassified by the patent offices.

7. A master database

The need to reclassify documents when the classification scheme changes, makes it necessary to store all documents classified according to the IPC in a single database serving as a reference for classification data worldwide. This database is called the Master Classification Database (MCD) and is hosted by the European Patent Office (EPO). It is implemented as an extension of the EPO’s DOCDB database. Its contents can be accessed via the esp@cenet[®] website and it will be made

available to commercial database providers for introduction in their search systems.

8. The back file: Documents published until December 2005

The goal of the IPC reform—enabling a complete search using a single classification edition for all documents, regardless of their publication date—can only be achieved when the documents that are already published also receive classification symbols of IPC-2006. For that purpose, classification data of several offices will be combined in the MCD. Basis for the IPC data in the MCD will be the EPO’s ECLA classification data. It has the broadest coverage since it is applied by the EPO not only to EP documents, but to a large part of the PCT minimum documentation. Data that the EPO cannot supply is complemented with classification data made available by the German Patent and Trademark Office, by the Japan Patent Office and by other national offices who reclassify at least parts of their documentation to IPC-2006. In this way, even documents published under different IPC editions will receive IPC classifications according to the latest version of the reformed IPC.

An example to illustrate this is document US4541008, published in 1985:

Current IPC classification:
H04N9/32 (abolished in IPC edition 4)

ECLA classifications:
H04N7/04, H04N11/04B

New IPC classifications after 2006:
H04N7/04, H04N11/04
(derived from ECLA)

Since EPO examiners classify non-EP documents in ECLA independently of the IPC allocated to the document [4], a consequence of this procedure is that “old” and “new” IPC of a document can be different. Due to the ECLA classification rules, which foresee more complete classification, many documents will have more “new” IPC symbols than “old” ones.

An example to illustrate this is document US5541674, published in 1996:

Current IPC classification:
G02C1/06 (still valid in IPC 2006)

ECLA classifications:
G02C5/12B, G02C5/12B4, G02C1/06, G02C5/00

New IPC classifications after 2006:
G02C5/12, G02C1/06, G02C5/00
(derived from ECLA)

Note that the two ECLA symbols G02C5/12B and G02C5/12B4 result in the same IPC classification G02C5/12.

For the back file, the MCD will make use of the “patent family” concept for assigning IPC-2006 symbols. When by the procedure described above an IPC is determined for a document, all members of its simple patent family (i.e. all documents having exactly the same priority data) will automatically be assigned the same IPC symbols. In this way, it will not be necessary to determine IPC-2006 classifications for all documents individually, but only for one document per simple patent family. The simple family concept was chosen because only when all priority data of two given documents are identical it can be assumed with a reasonable degree of certainty that also the technical content of the two documents is identical.

In this way, also documents of countries that do not actively reclassify will receive IPC-2006 classifications as long as there is a member of its simple patent family in one of the reclassified collections.

After performing all these procedures, there will still be a number of remaining documents, which could not be assigned an updated IPC classification, for example non-PCT-minimum documents that do not have family members. However, some of them will have IPC symbols of older editions that are still valid. These symbols will be transformed into IPC-2006 symbols and stored in the respective new database fields.

At a later stage, documents that could not be reclassified by any of the measures above are collected and sent to their respective publishing offices. Although many IP offices will certainly not have the necessary funds and capacity to reclassify these documents intellectually, it is expected that a certain number of documents could be reclassified in this way and, using family propagation, will further improve the coverage of the MCD.

After some time, the EPO will attempt to transform also the “old” IPC of documents that are still not reclassified, e.g. by reducing their (no longer valid) IPC 1–7 classifications to main group symbols and storing them, if valid in IPC-2006, as core level IPC in the Master Classification Database.

9. IPC symbols of editions 1–7

The “old” IPC classifications of editions 1–7 that are allocated to documents will be kept in a separate field in the MCD and probably in most other databases, which allows searching them independently of the “new” IPC symbols. In this way, reference can be made to the clas-

sification originally allocated for as long as deemed necessary.

10. Relation with other classification systems

The reform of the IPC tries to combine the advantages of existing classification systems in use in the Trilateral Offices JPO, USPTO and EPO:

- It builds on many years of experience with IPC editions 1–7, like ECLA and like the FI classification of the Japan Patent Office.
- It can be updated in shorter intervals, according to necessity, like ECLA, the FI classification and the US Patent Classification.
- It will have classification “Definitions” like the US Patent Classification [1].
- It will use a standardised sequence of groups like the US Patent Classification [1].

When all this is implemented, one may wonder if those regional and national classification systems will continue to exist or if they will be replaced by the reformed IPC.

From today’s perspective it is likely that in some technical fields the local classification systems will adapt to the IPC.

However, for the foreseeable future, the EPO will continue to use ECLA as an internal classification system. Although correspondence between IPC and ECLA will be improved with the reformed IPC, ECLA will remain an independent classification system in most technical fields. It will also, much more than in the past, serve as a test bed for IPC changes, where for example subdivisions can be tried out and optimized before implementing them in the IPC. In the Harmony project [2], the Trilateral Offices will develop their local classification schemes towards more similarity in a field-by-field approach and transform these modifications into IPC changes, when confirmed to be useful.

11. Conclusion

The reformed IPC will bring along some changes for classifying and for searching. For the experienced searcher this means more options to increase recall and precision of searches.

For the beginner, most of the changes are transparent and it will normally not be necessary to learn new strategies. On the other hand, the opportunity to search the whole documentation with a single version of the IPC

will also help this user group to avoid mistakes when performing classification-based searches.

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References

- [1] Makarov M. The process of reforming the International Patent Classification. *World Pat Inform* 2004;26:137–41.
- [2] Pauwels H. Pillars of the IPC reform. *World Pat Inform* 2004;26:205–8.
- [3] Calvert J, Makarov M. The reform of the IPC. *World Pat Inform* 2001;23:133–6.
- [4] Rampelmann J. Classification tools at the EPO. *World Pat Inform* 1996;18:149–53.



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