



HOFFMANN EITLE

Symposium on  
Preliminary Preparation, Prosecution and Litigation in India, U.S. and EP  
with focus on  
Software, Electronics and Mechanical Patent Portfolio

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# A Comparison of Examination Standards in the UK vs EPO for Software/Electronics Patent Applications

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# Legal Provisions




## Patentability Requirement

## European Patent Convention

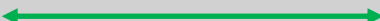
## The Patents Act 1977

- Eligible subject-matter

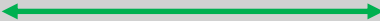
Article 52(2) & 3  Section 1(2)

Section 130(7)

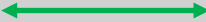
- Clarity

Article 84  Section 14(5)(b) & (c)

- Sufficiency of Disclosure

Article 83  Section 14(3)

- Novelty

Article 52(1) & 54  Section 1(1) & 2

- Inventive Step

Article 52(1) & 56  Section 1(1) & 3

Merrel Dow v. Norton (HL, 1995)

Added subject-matter

Article 123(2)  Section 76(2)



# Comparison of Examination Standards

➔ Examination standards are similar.

➔ The UK-IPO is more favourable to applicants in terms of:

- Added matter:                    Less stringent assessment than at the EPO
- Clarity:                            Less prescriptive of the form and content of claims  
More tolerant of multiple independent claims
- Fees:                                Much lower

➔ BUT generally less favourable for **software inventions**, as it takes a different approach to assessing their patentability than the EPO.



# UK vs EPO Approach - Common Origin

Both the European Patent Convention (EPC) and the UK Patents Act preclude the grant of a patent for the following categories of subject-matter:

- (a) discoveries, scientific theories and mathematical methods;
- (b) aesthetic creations;
- (c) schemes, rules and methods for performing mental acts, playing games or doing business, and programs for computers.

...but only if the invention relates to such subject matter “as such”.

EPO Boards of Appeal case T208/84 (“Vicom”): what matters when assessing if any of the above exclusions applies is whether claimed subject-matter provides a **technical contribution** to the art.



# The EPO Approach

## Overview

The EPO will grant a patent on a claim for a software invention provided that its subject-matter fulfills the following requirements (among others):

**(1) It must have a technical character as a whole**

- An absolute test (prior art not taken into account)
- Very easy requirement to fulfil – only one technical feature required!

**(2) It must define a new, non-obvious technical solution to a technical problem in terms of technical features. (T641/00 & T1784/06)**

- Claim features making no contribution to the technical character of the invention cannot contribute to inventive step.



# The EPO Approach

## Requirement (1): Technical character as a whole

Provided by there being at least one technical feature in the claim, for example:

- a reference to an item of hardware (e.g. a processor or memory)
- reference to a non-hardware technical items e.g. a protocol message or data format
- claiming as:
  - "A computer-implemented method of..."
  - "A computer-readable storage medium..."



# The EPO Approach

## Requirement (1): Technical character as a whole

Can be also provided by:

- a claimed application of the method to process data relating to some field of technology, for a technical purpose, e.g.
  - controlling a specific apparatus or process
  - digital audio, image or video enhancement/analysis
  - speech recognition
  - encoding data for reliable and/or efficient transmission or storage
  - encrypting/decrypting electronic communication
  - optimising load distribution in a computer system
  - medical diagnosis by processing physiological measurements
  - simulating the behaviour of technical items or a technical process





# The EPO Approach

## Requirement (1): Technical character as a whole

Can be also provided by:



- control of internal functioning of computer to achieve, e.g. processor load balancing or for memory allocation.
- a claimed adaptation of the the method to a specific computer architecture (e.g. adaptation of a polynomial reduction algorithm to exploit word-size shifts matched to the word size of the computer hardware).



# The EPO Approach

**Requirement (2): New, non-obvious technical solution to a technical problem**


Inventive step is assessed using the “problem-and-solution” approach:

- (1) Divide the claim into features which contribute to the technical character of the invention, and those which do not;
- (2) Identify the closest prior art, focussing on the technical features identified in step (1);
- (3) Identify any difference between the claimed features and the closest prior art, then:
  - If no difference,  **lack of novelty**
  - If there are differences but these provide no technical contribution,  
 **lack of inventive step**



# The EPO Approach

## Requirement (2): New, non-obvious technical solution to a technical problem

- If differences include features which do make a technical contribution, then:
  - (3-1) Identify the technical effect of these features;
  - (3-2) Objective technical problem is "how to adapt the closest prior art to provide the technical effect", whilst the remaining (non-technical) features are given to the skilled person as a constraint that has to be met ("requirements specification");
  - (3-3) If the claimed technical solution to the objective technical problem is obvious,  **lack of inventive step.**



# The EPO Approach

## An illustrative Example

### Claim 1:

A computer-implemented method for the numerical simulation of the performance of an electronic circuit subject to  $1/f$  noise, wherein:

- (a) the circuit is described by a model featuring input channels, noise input channels and output channels;
- (b) the performance of the input channels and the output channels is described by a system of stochastic differential equations;
- (c) an output vector is calculated for an input vector present on the input channels and for a noise vector  $y$  of  $1/f$ -distributed random numbers present on the noise input channels; and
- (d) the noise vector  $y$  is generated by the following steps:
  - (d1) setting the number  $n$  of random numbers to be generated;
  - (d2) generating a vector  $x$  of length  $n$  of Gaussian-distributed random numbers;
  - (d3) generating the vector  $y$  by multiplying the vector  $x$  with a matrix  $L$  defined according to equation E1.



# The UK Approach

## Overview

In contrast to the EPO approach, the UK-IPO and the UK courts use the following four-step test that was established by the UK Court of Appeal in the case of *Aerotel/Macrossan* to determine whether a software invention is unpatentable because it comprises excluded subject matter (for example, a program for a computer) “as such”:

- (1) Properly construe the claim.
- (2) Identify the actual contribution that the claimed invention makes.
- (3) Ask whether the contribution falls wholly within the excluded subject matter “as such”.
- (4) Check whether the contribution is actually technical in nature.



# The UK Approach

## (1) Properly construe the claim

- Claim interpretation is guided by the description and drawings

## (2) Identify the actual contribution that the claimed invention makes

- May be derived from the application (problem statement, description of how invention works, statements of advantage) or from a prior art search
- The substance, not form, of the claim is what matters
- Contribution must be formulated to include the results achieved by the novel features – Credit needs to be given to "the practical reality of what is achieved by the program" [Symbian Ltd. Vs Comptroller General (2008) EWCA Civ 1066]



# The UK Approach

(3) Ask whether the contribution falls wholly within the excluded subject matter “as such”.

How this is assessed depends on each exclusion being considered.



The contribution provided by a software invention would **not** be regarded as:

- a **mathematical method** as such if it relates to a practical application of a mathematical method e.g. modelling, simulation or prediction of a real-world system, by processing real-world data to achieve a useful result.

E.g. WesternGeco Ltd’s Application BL 0/135/07: mere abstract manipulation of real-world geophysical data not enough, but further processing of this data to determine parameters of relating to physical properties of the Earth’s interior for producing an improved seismic image was enough to avoid exclusion.



# The UK Approach

## (3) Ask whether the contribution falls wholly within the excluded subject matter “as such”.

The contribution provided by a software invention would **not** be regarded as:

- a **mental act** as such if the claim wording excludes the possibility of the claimed subject-matter being performed solely in the mind. Exclusion cannot bite if any step of the method is claimed to be performed by hardware.  
(Halliburton Energy Services Inc’s Applications [2012] RPC 129)
- a **computer program** as such if it satisfied any of the “AT&T signposts” from AT&T Knowledge Ventures/Cvon Innovations v Comptroller General of Patents [2009] EWHC 343 (Pat)





# The UK Approach

(3) Ask whether the contribution falls wholly within the excluded subject matter “as such”.

## The AT&T signposts

- (i) Whether the invention has a technical effect on a process which is carried on outside the computer.
- (ii) Whether the invention operates at the level of the architecture of the computer; that is to say whether the effect is produced irrespective of the data being processed or the applications being run.
- (iii) Whether the invention results in the computer being made to operate in a new way.
- (iv) Whether there is an increase in the speed or reliability of the computer.
- (v) Whether the perceived problem is overcome by the invention as opposed to merely being circumvented.



# UK-IPO or EPO?

The UK-IPO can provide a more cost-effective route to a UK patent than the EPO

BUT is currently less favourable for software inventions owing to

- the “actual contribution” in step (2) of the Aerotel test often being interpreted too narrowly by UK-IPO examiners, and
- the AT&T signposts being of limited applicability.

However, things may soon change...



# A Landmark case?

## Landmark Graphics Corporation BL 0/112/18

- 16 applications relating to geographical surveying all objected to (by different UK-IPO examiners) for claiming subject-matter excluded as a computer program or mathematical method as such.
- The Hearing Officer concluded that this objection should not have been raised in 15 of the cases because:
  - (1) the “actual contribution” has been construed **too narrowly** by the examiner
  - (2) the examiner had **not discharged his burden** to prove that the invention falls foul of a statutory exclusion.



# A Landmark case?

## Burden on the Examiner

Macrossan v Comptroller-General of Patents [2006] EWHC 705 (Ch):

*“...the onus lies on the person contesting patentability to prove that the invention falls foul of the statutory exclusions. Furthermore, at the patent office stage, **benefit of the doubt should be given to the applicant**. Refusal of the grant on the basis of a faulty appreciation of what is involved cannot thereafter be remedied”.*

*“The reference to the benefit of the doubt is probably intended to signify that **if there is substantial doubt then the burden has not been fulfilled**”*

## Burden on the Applicant

The applicant *“must do more than show that [the invention] merely arguably covers patentable subject matter.”*

*The question to be asked is “whether or not there is such substantial doubt regarding the alleged invention, such that where an applicant makes a reasonable case that their invention is patentable, then [the Hearing Officer] **is bound** to find in their favour.”*



# A Landmark case?

## How do you make a reasonable case?

- Demonstrate that the examiner has not applied the law correctly
- Demonstrate that the examiner has not taken into account all of the actual contribution made by the invention:

*“when assessing the actual contribution in a computer-implemented invention, **I shall take proper account of the task performed by the computer** and determine whether the task falls outside the excluded categories.... If the task is carried out within an excluded area, e.g. a computer program, then ... this is not necessarily the end of the matter because a program that solves a technical problem relating to the running of computers generally is not excluded by section 1(2)”.*

(Landmark Graphics Corporation BL 0/112/18)



# A Few Drafting Tips

To maximise chances of success, when drafting:

- Identify the technical field to which the invention relates
- Identify technical problem(s) being solved
- Highlight technical advantages, aligning these to AT&T signposts if possible
- Include a description of programmable hardware
- Downplay non-technical aspects





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