Patents Registry

Intellectual Property Department

Hong Kong SAR Government

Patents Examination Guidelines

Section 4: Exclusions from patentability

General principles

4.1. Section 9A(2) of the Ordinance expressly excludes the following subject-matter or activities from being inventions (collectively referred to as "**the excluded subject-matter**"):

(a) a discovery, scientific theory or mathematical method;

(b) an aesthetic creation;

(c) a scheme, rule or method for performing a mental act, playing a game or doing business, or a program for a computer; and

(d) a presentation of information.

4.2. The aforesaid exclusion is however subject to section 9A(3) of the Ordinance to the effect that the exclusion is only applicable to the extent to which a patent or patent application relates to the excluded subject-matter as such. In other words, a claim is unpatentable if it amounts to no more than any of the excluded subject-matter.

Example

A claim concerning the production of an aesthetic effect on an article is not unpatentable if it also involves a technical contribution by solving a technical problem in addition to its aesthetic value.

4.3. The subject-matter of a patent application may sometimes involve the interplay between at least two exclusions. In such case, where such subject-matter falls wholly within two or more of the excluded subject-matter rather than just falling wholly within one of the excluded subject-matter, such subject-matter will still be denied of

patentability (see *Raytheon Company v Comptroller General of Patents, Designs and Trade Marks* [2007] EWHC 1230 (Pat)).

4.4. Each case must be determined on its own fact as to whether a patent application solely involves any excluded subject-matter. In this connection, our examiners would generally adopt the following 4-step test as laid down by the English Court of Appeal in *Aerotel Ltd v Telco Holdings Ltd Macrossan's Patent Application* [2007] RPC 7 ("Aerotel/Macrossan"):

(a) properly construe the claim;

(b) identify the actual contribution;

(c) ask whether it falls solely within the excluded subject-matter; and

(d) check whether the actual or alleged contribution is actually technical in nature.

4.5. The ***first step*** of the Aerotel/Macrossan test requires proper construction of the claims having regard to the general principles such as those as established in *Kirin-Amgen Inc v Hoechst Marion Roussel Ltd* [2005] RPC 9 (see section 12.4 of these Guidelines).

4.6. The ***second step*** of the Aerotel/Macrossan test is essentially asking what the inventor has added to human knowledge. Jacob LJ outlined the following considerations to be applied when identifying the actual contribution made by the claims:

> *"The second step – identify the contribution - is said to be more problematical. How do you assess the contribution? Mr Birss submits the test is workable – it is an exercise in judgment probably involving the problem said to be solved, how the invention works, what its advantages are. What has the inventor really added to human knowledge perhaps best sums up the exercise. The formulation involves looking at substance not form – which is surely what the legislator intended."* (paragraph 43 of *Aerotel/Macrossan*)

4.7. Accordingly, knowledge of the prior art will play a role in assessing the contribution.

4.8. Considering the "substance not form" of the claim to see if it discloses any actual contribution means the actual contribution is not bound by the literal wording of the claim.

Example

Simply claiming a computer hardware programmed in a particular way in a patent application relating to a computer program do not necessarily mean the claim discloses as a matter of substance any technical contribution.

4.9. Having identified the contribution, the ***third step*** of the Aerotel/Macrossan test is to determine whether the contribution falls solely within the excluded subject-matter "as such".

4.10. The ***fourth step*** of the Aerotel/Macrossan test in checking whether the actual or alleged contribution is actually technical in nature may not be necessary in practice if the claim has been found to be excluded upon going through the third step of the Aerotel/Macrossan test because novel or inventive purely excluded subject-matter does not count as technical contribution.

Excluded subject-matter

Discovery and scientific theory

4.11. "Discovery" refers to new findings which ascertain existing facts of nature and such is not patentable.

Example

The discovery of the photosensitive property of silver halide is not patentable. If, however, that property is put to practical use, it may constitute a patentable invention. Therefore, a patent may be granted for the process to produce a photographic film (a practical application of the photosensitive property of silver halide) and the photographic film itself. Similarly, a substance extracted from nature which is found to have a therapeutic effect (such as antibiotic) may be patentable.

4.12. The distinction between an invention and a discovery was explained by Whitford J in *Genentech Inc's Patent* [1987] RPC 553 as follows:

> *"It is trite law that you cannot patent a discovery, but if on the basis of that discovery you can tell people how it can be usefully employed, then a patentable invention may result. This in my view would be the case, even though once you have made the discovery, the way in which it can be usefully employed is obvious enough. Let me take an example: you discover that a length of iron treated in a certain way will always point to the north. The way in which you can use this discovery to make a direction finding instrument may well be obvious art, based on your discovery you could get a patent for it."*

4.13. The approach in *Genentech Inc's Patent* was upheld by *Kirin-Amgen Inc v Hoechst Marion Roussel* [2005] RPC 9 where the then House of Lords considered that a DNA sequence of a gene was not an invention on its own (this was considered to provide information only) but the process of extraction and isolation of a gene and the material when obtained by this process could both be patentable.

4.14. Scientific theories are a more generalized form of discoveries, and the same principle as set out above for discovery applies, i.e. an application of a scientific theory may be patentable.

> *Example*
>
> *The theory of semiconductivity is not patentable, but semiconductor devices applying such theory and processes for manufacturing those devices are patentable subject-matter.*

Mathematical method

4.15. A useful guidance on the meaning of "mathematical method" is given by *T0208/84* in which the EPO Board of Appeal defined a mathematical method as one which "*is carried out on numbers and provides a result in numerical form.*"

4.16. A mathematical method *per se* is not a patentable subject-matter, but the practical application of such method which provides a

technical contribution may be patentable. In *T0208/84,* the EPO Board of Appeal held that a claim to a method of enhancing digital images by software processing that implemented a mathematical method was considered to provide a technical contribution, and hence patentable.

Aesthetic creation

4.17. Aesthetic creations are creations which by their shape or design influence the (aesthetic) perception of spaces, colours or sounds. If a claimed invention is limited to such an effect, it is considered not to be technical and therefore not patentable.

4.18. This exception to patentability applies if the features in the claim relate solely to the aesthetic or artistic effect. The claimed inventions can be patentable if the use of colours and other aesthetic means at least serves a technical purpose. The results achieved with the claimed invention are decisive.

Example

The pattern of a tyre tread may have both an asthetic aspect and a technical aspect in providing improved channeling of water. However, if a particular colour of the tyre serves an aesthetic purpose only, such purpose itself is not patentable, neither in a product nor in a process claim.

Scheme, rule or method for performing a mental act

4.19. Schemes, rules and methods for performing mental acts relate to instructions for the human mind. They do not have an immediate effect on nature but it is necessary that schemes, rules and methods are transformed by a human mind into something which has an effect on nature.

Examples

(a) rules for sorting data or documents

(b) methods of designing a product

4.20. It has been held in *Halliburton Energy Services Inc's Applications* [2012] RPC 12 that the mental act exclusion is to be interpreted narrowly and does not extend to those schemes, rules or methods which are merely capable of being performed mentally. In other words, the mental act exclusion only covers those schemes, rules or methods that are carried out by "purely mental means." It follows that, for example, a claim to a method that is capable of being carried out mentally but involves implementation by a computer is not excluded as a mental act, even though the claim may still fall within the computer program exclusion (see sections 4.28 – 4.33 of these Guidelines).

Scheme, rule or method for playing a game

4.21. The meaning of "game" was considered by Warren J in *IGT v The Comptroller General of Patents* [2007] EWHC 1341 (Ch):

> *"In the physical world, it is (usually) possible to describe a game in words and to set out its rules in writing. The rules of a game are not restricted to what a player may or may not do; some rules may set the physical constraints of a game. Thus the rules of most sports will set out the rules about physical location (e.g. size of pitch or court, size of ball or racket) as well as the rules of play (e.g. permitted interactions with a ball, offside rules, scoring and the like). There may be schemes or methods of play which do not form part of the rules (e.g. methods of card play designed to enhance the player's chances of success). In these cases, it is straightforward to identify the rules of the game, for the game is really defined by its rules. And, once the rules of the game have been set, players may be able to develop successful stratagems — methods of play — for playing the game better than others."*

4.22. The *IGT* case also considered games in the virtual world which may involve considerable overlap with the computer program exclusion.

> *"In the virtual world, things may be different. It is possible to emulate existing games and it is possible to invent new games. In the case of an emulated game, it might be possible to argue … that the rules of the game are the same as the rules of the real*

game and that the computer program, insofar as it reflects those rules but no further, falls within the excluded area."

4.23. The patentability of games should be assessed by using the general approach in line with other exclusions.

Example

It was held in the IGT case (which concerned four patent applications relating to gaming apparatus for playing gambling games) that the contribution identified was no more than a contribution to the existing art in an area that fell within the scheme, rule or method for playing a game and had not resulted in a new machine or tool for playing a game.

Scheme, rule or method for doing business

4.24. The business method exclusion is not limited to merely abstract matters or completed transaction but also covers administrative and managerial ideas. In *Aerotel/Macrossan*, double entry bookkeeping and the idea of having three trays- "in", "out" and "too difficult"- were cited as examples of business method.

4.25. The patentability of business methods should be assessed by using the general approach in line with other exclusions. Accordingly, our examiners will raise an objection to the patentability of a subject-matter which is distinguished solely by virtue of a set of business rules. On the other hand, if the actual or alleged contribution of a subject-matter is actually technical in nature, even though it is used in business, our examiners would not consider it as a method of doing business as such.

4.26. Pure business methods as such are not patentable and this exclusion quite often overlaps with that relating to computer programs. In *Halliburton Energy Services*, HHJ Birss QC noted the difficulties that can arise from the use of a computer to implement a business method which may involve a combination of the computer program and business method exclusions:

"The business method cases can be tricky to analyse by just asking whether the invention has a technical effect or makes a technical contribution. The reason is that computers are self evidently technical in nature. Thus when a business method is

implemented on a computer, the patentee has a rich vein of arguments to deploy in seeking to contend that his invention gives rise to a technical effect or makes a technical contribution. For example the computer is said to be a faster, more efficient computerized book keeper than before and surely, says the patentee, that is a technical effect or technical advance. And so it is, in a way, but the law has resolutely sought to hold the line at excluding such things from patents. That means that some apparently technical effects do not always count."

4.27. Therefore, the fact that a method of doing business may be an improvement on previous methods is irrelevant because the business method exclusion is generic, i.e. such qualitative consideration does not alter the nature of the excluded subject-matter and are thus not taken into account. The exclusion makes no distinction between the methods by which the mode of doing business is achieved.

Program for a computer

4.28. Section 9A of the Ordinance has the effect of excluding the patentability of computer programs "as such". Accordingly, a computer program that provides a technical contribution does not fall under the exclusion, as it is more than a computer program as such.

In *Halliburton Energy Services*, HHJ Birss QC summed up the position for the computer program exclusion:

"A computer programmed to perform a task which makes a contribution to the art which is technical in nature, is a patentable invention and may be claimed as such. … If the task the system performs itself falls within the excluded matter and there is no more to it, then the invention is not patentable."

4.29. Like other cases of excluded subject-matter, our examiners would adopt the test in *Aerotel/Macrossan* as the starting point when determining whether an alleged invention relates to a computer program "as such". In applying the test, our examiners may also, where appropriate, take into account the following principles as summarized by Lewinson J in *Autonomy Corp Ltd's Patent Application* [2008] RPC 16:

"(i) A computer program is not merely a set of instructions to a computer, but can include the medium (e.g. floppy disc or CD ROM) which causes the computer to execute the program (Aerotel) or a programmed computer (Cappellini[1]);

(ii) However what is excluded from patentability is not a computer program but a computer program "as such". Accordingly the mere fact that a claim relates to a computer program does not necessarily disqualify it from patentability (Astron Clinica[2]);

(iii) In order to decide whether a computer program is excluded from patentability because it is a computer program "as such" one must consider the substance of the claimed invention (Cappellini);

(iv) If the claimed contribution exists independently of whether it is implemented by a computer, in the sense of embodying a technical process lying outside the computer, the contribution will not be a computer program as such (Gale[3] ; Raytheon[4]);

(v) This will be the case even though the only practicable way of implementing the contribution is by means of a computer (Raytheon);

(vi) If the contribution requires new hardware or a new combination of hardware, or consists of a better computer or solves a technical problem in the functionality of a computer it is unlikely to be a computer program as such (Aerotel; Raytheon);

(vii) On the other hand, a mere new hardware test is not enough if the newness consists of a computer program on a known medium (Aerotel commenting on Gale);

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[1] *Cappellini's Application; Bloomberg LLP's Application* [2007] F.S.R. 26.

[2] *Astron Clinica Ltd v Comptroller-General of Patents, Trade Marks and Designs* [2008] R.P.C. 14.

[3] *Gale's Application* [1991] R.P.C. 305.

[4] *Raytheon Co's Application* [2008] R.P.C. 3.

(viii) The mere fact that a computer program reduces the load on the processor or makes economical use of the computer's memory or makes more efficient use of the computer's resources does not amount to making a better computer, and thus does not take it outside the category of computer program as such (Aerotel commenting on Gale ; Raytheon);

(ix) An effect caused merely by the running of the program will not take a program outside the exclusion (Aerotel);

(x) The manipulation of data stored on a computer (whether on the computer in use or on a remote computer) is unlikely to give rise to a contribution that exists independently of whether it is implemented by a computer (Bloomberg[5]);

(xi) Even if the claimed invention is not a computer program as such, it is still necessary to ask whether the contribution lies solely in some other field of excluded matter. If it does, the contribution will not be patentable (Oneida[6]);

(xii) In such a case, although the contribution may well be described as having a technical effect, it is not the right kind of technical effect, and so does not count (Shoppalotto[7]; Aerotel; Oneida)."

4.30. When determining whether the actual or alleged contribution of a computer program is in substance technical in nature, our examiners may consider the following signposts (guidelines) as laid down by Lewison LJ in *HTC v Apple* [2013] EWCA Civ 451:

"(i) whether the claimed technical effect has a technical effect on a process which is carried on outside the computer;

(ii) whether the claimed technical effect operates at the level of the architecture of the computer; that is to say whether

[5] *Cappellini's Application; Bloomberg LLP's Application* [2007] F.S.R. 26.

[6] *Oneida Indian Nation's Application* [2007] EWHC 954 (Pat).

[7] *Shoppalotto.com Ltd's Application* [2006] R.P.C. 7.

the effect is produced irrespective of the data being processed or the applications being run;

(iii) whether the claimed technical effect results in the computer being made to operate in a new way;

(iv) whether the program makes the computer a better computer in the sense of running more efficiently and effectively as a computer [reworded in HTC v Apple by adopting what was said by Mann J in Gemstar-TV Guide International Inc v Virgin Media Ltd [2009] EWHC 3068 (Ch)];

(v) whether the perceived problem is overcome by the claimed invention as opposed to being merely circumvented."

If a claimed invention involving a computer program fails all of the above signposts, this is a good indication that such claimed invention may be no more than a computer program as such.

4.31. Whether a claimed invention involving a computer program falls within one of the excluded subject-matter has to be determined on a case-by-case basis, taking the individual merits of each case into account. Our examiners will consider the substance of the invention rather than the strict literal meaning of the claims (see *Astron Clinica Ltd & Ors v The Comptroller General of Patents, Designs and Trade Marks* [2008] EWHC 85). The following examples of computer implemented inventions which were held to be patentable may serve as some guidance for reference:

(a) A method of accessing data in a dynamic link library (DLL) in a computer which leads to a more reliable and faster operation of the computer - *Symbian Ltd's Application* [2009] RPC 1

(b) A method that improves the design of roller cone drill bits for drilling oil wells by using a computer simulation of the interaction of the drill bit with the material being drilled - *Halliburton Energy Services Inc's Applications* [2012] RPC 12

(c) An electronic system that improves the monitoring of the contents of electronic communications by alerting parents by text or email when their children are exposed to inappropriate electronic communications – *Protecting Kids the World Over (PKTWO) Ltd's Patent Application* [2012] RPC 13

(d) A method of handling the recognition of single- and multi-touch events in a device which makes it easier to write programs for applications to be run on the device that contains it - *HTC v Apple* [2013] EWCA Civ 451

4.32. Reference may also be made to an example of a patentable computer implemented invention (software embedded in physical devices) under section 11 of the New Zealand Patents Act 2013 which similarly excludes the patentability of computer programs as such:

> *"A claim in an application provides for a better method of washing clothes when using an existing washing machine. That method is implemented through a computer program on a computer chip that is inserted into the washing machine. The computer program controls the operation of the washing machine. The washing machine is not materially altered in any way to perform the invention.*
>
> *The Commissioner [of the Intellectual Property Office of New Zealand] considers that the actual contribution is a new and improved way of operating a washing machine that gets clothes cleaner and uses less electricity.*
>
> *While the only thing that is different about the washing machine is the computer program, the actual contribution lies in the way in which the washing machine works (rather than in the computer program per se). The computer program is only the way in which that new method, with its resulting contribution, is implemented.*
>
> *The actual contribution does not lie solely in it being a computer program. Accordingly, the claim involves an invention that may be patented (namely, the washing machine when using the new method of washing clothes)."*

4.33. Conversely, in *Aerotel/Macrossan,* Macrossan's application which consisted of an automated method of acquiring the documents necessary to incorporate a company, and which involved a user sitting at a computer and communicating with a remote server, the subject-matter was found to be excluded from patentability because there was nothing technical about the contribution beyond the mere fact of the running of a computer program.

Presentation of information

4.34. Any invention that is defined solely by the content of the information is not patentable, regardless of how it is represented. This exclusion applies regardless of whether the invention is claimed as presentation of the information *per se* (e.g. by spoken words, visual displays, books defined by their subject) or whether a physical apparatus is involved in the presentation of the information.

4.35. The Court of First Instance of the Hong Kong SAR has affirmed that a claimed invention may fall outside the exclusion if it is not solely characterised as information *per se*, such as a claim of a colour television signal which inherently comprised the technical features of the television system in which it was being used (*Koninklijke Philips Electronics N.V. v Wealthful Technology Ltd*. [2002] HKEC 740).

4.36. Accordingly, if the presentation of information has new "technical features", it may not fall within the exclusion. This was confirmed by Mann J in the leading case of *Gemstar-TV Guide International Inc. v Virgin Media Limited* [2010] RPC 10:

> *"… if the presentation of information has some technical features over and above the information and its delivery, then it might be patentable. So the contrast is between the content or its mere delivery, on the one hand, and that material plus some additional technical aspect of its delivery, on the other. That approach is consistent with the law on computer programs … ."*

Other exclusions

Public order ("ordre public") or morality

4.37. Section 9A(5) of the Ordinance expressly excludes inventions the publication or working of which would be contrary to public order ("ordre public") or morality from being patentable. There is however a proviso under the provision to the effect that the working of an invention is not to be regarded as contrary to public order or morality only because it is prohibited by any law in force in

the Hong Kong SAR. This means that an invention may still be patentable, e.g. if it is only a product which cannot be lawfully used or marketed in the Hong Kong SAR but can be lawfully manufactured in the Hong Kong SAR for export to another place/country elsewhere in which its use/marketing is legal.

4.37A. The exclusion from patentability on the ground of public order ("ordre public") or morality, amongst others, would be taken into account by the Registrar in examining an application for a standard patent (O) under section 37U of the Ordinance.

4.38. In examining an application for a standard patent (R), ~~T~~the Registrar ~~of Patents~~ has power under section 37 of the Ordinance to refuse to record a designated patent application under section 20(1) of the Ordinance or to register a designated patent under section 27 of the Ordinance if the Registrar considers that the invention the subject of the application ~~for the standard patent (R)~~ is not a patentable invention by reason of section 9A(5) of the Ordinance.

4.39. Likewise, in examining an application for a short-term patent, the Registrar is empowered by section 124 of the Ordinance ~~empowers the Registrar~~ to refuse to grant ~~a short-term~~ the patent if the Registrar considers that the invention is not patentable by reason of section 9A(5) of the Ordinance.

4.40. Each case must be determined objectively on its own facts as to whether the publication or working of an invention is to be regarded as contrary to ordre public or morality. Our examiners need to take into account all the circumstances, including whether there is any law in force prohibiting the publication or working of the invention in question. One also needs to bear in mind that what is to be regarded as contrary to ~~public order ("ordre public") or~~ morality may change over time according to changes in social attitudes and behaviours.

4.40A. Examples of inventions against which an objection under section 9A(5) of the Ordinance may be raised include—

(a) an invention the publication or working of which is considered as contrary to the interests of national sovereignty, unity, territorial integrity, security or reputation (notably constituting an offence under *The Law of the People's Republic of China on Safeguarding National Security in the Hong Kong Special*

Administrative Region and/or the *Safeguarding National Security Ordinance* (Instrument A305));

(b) an invention consisting of technology designed to cause mass destruction or casualties (e.g. nuclear weapons or anti-personnel mines); and

(c) a biotechnological invention involving processes for the cloning of human beings, processes for modifying the germ line genetic identity of human beings, or use of human embryos for industrial or commercial purposes.

4.41. In *T 356/93*, the concept of public order ("ordre public") was accepted as covering the protection of public security and the physical integrity of individuals as part of society, and encompassed the protection of the environment.

4.42. In relation to contrary to morality, the dividing line will be drawn to distinguish between an offence which amounts only to distaste on the one hand (which will not be considered as contrary to morality) and an offence which would justifiably cause outrage, or would be the subject of justifiable censure as being likely to significantly undermine current religious, family or social values on the other (which will be considered as contrary to morality). In the latter, the outrage or censure must be within an identifiable section of the public to the extent that a higher degree of outrage or censure amongst a small section of the community is required for reaching the threshold but that a lesser outrage or censure amongst a more widespread section of the public is capable of doing so.

4.43. In making such determination, our examiners will generally apply the concept of a right-thinking member of the public. In this connection, a right-thinking member, even though not being outraged personally, is able to objectively assess whether or not the invention in question is calculated to cause "outrage" or "censure" amongst a relevant section of the public. In other words, it does not matter whether the examiner finds the invention personally acceptable or not.

4.44. [Deleted]~~Section 9A(5) of the Ordinance is qualified by the proviso that the working of an invention is not to be regarded as contrary to public order or morality only because it is prohibited by any law in force in the Hong Kong SAR.~~

~~*Example*~~

~~*A product which cannot be lawfully used in the Hong Kong SAR may be manufactured lawfully in the Hong Kong SAR for export to countries where its use is legal. However, the existence of a law or regulation prohibiting use/sale of such product in the Hong Kong SAR may be a material fact for our examiners to take into account in determining whether or not to refuse a patent application for a claimed invention relating to such product under section 9A(5) of the Ordinance.*~~

Plant or animal variety, and essentially biological process

4.45. An invention which is claimed as a plant or animal variety is not patentable under section 9A(6)(a) of the Ordinance. However, an invention with a claim that is not confined to a particular plant or animal variety may be allowed.

4.46. While plant varieties are not patentable, the Plant Varieties Protection Ordinance (Cap. 490) provides plant breeders (or the owners of the variety) the legal means to apply for proprietary rights over cultivated plant varieties they have bred or discovered and developed. Interested persons can obtain further information from the Office of the Registrar of Plant Variety Rights of the Agriculture, Fisheries and Conservation Department.

4.47. An essentially biological process for the production of plants or animals is also not patentable under section 9A(6)(b) of the Ordinance. However, if the claimed subject-matter is a microbiological process or the products of such a process, it will not be excluded from patentability under the proviso to section 9A(6)(b) of the Ordinance.