



**PATENTS ACT 1977**

APPLICANT                      Kabushiki Kaisha Toshiba.

ISSUE                              Whether patent application number  
GB0616225.9 complies with section 1(2)

HEARING OFFICER              Mrs S E Chalmers

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**DECISION**

- 1      This decision concerns the issue of whether the invention claimed in patent application GB0616225.9 (published as GB2429806) is excluded under section 1(2) of the Act. The application was filed on 15<sup>th</sup> August 2006, claiming priority from a Japanese patent application filed on 15<sup>th</sup> August 2005.
- 2      The application was subject to a combined search and examination process, and during the examination phase of that process the examiner reported that the invention is excluded as a program for a computer and a method for performing a mental act. The examiner maintained this objection during four subsequent examination reports, adding in the fourth that he felt the invention to also fall into the category of mathematical methods, and hence excluded under section 1(2)(a).
- 3      The applicant has maintained that their invention does not fall into the excluded categories, and when it became clear that the examiner and applicant would not be able to resolve this issue, a hearing was arranged. Shortly before the hearing was scheduled to take place, the applicant informed the Office via its attorneys Haseltine Lake that they would not be attending the hearing and instead asked for the decision to be made on the papers.

**The application**

- 4      The invention is titled “Cable quantity totalizing device, cable quantity totalizing method and cable quantity totalizing program” and is concerned with calculating the optimum cable routing for cables used in installations such as chemical plants or power generation plants. As the specification explains, the determination of optimum wiring routes is a complex and laborious business, with some

installations requiring the running of many thousands of cables over a considerable distance. This can quickly occupy a considerable volume of space and comprise a significant amount of weight, meaning that savings through optimization are extremely desirable.

- 5 The invention attempts to address this issue by providing a cable quantity totalizing device which comprises a cable route search unit configured to search for potential cable routes with the shortest cable length taking account of three-dimensional data such as cable cross-section. The user can then display the search result as a 3-D model showing the optimum cable route together with the cable length calculation.

### **The claims**

- 6 The application as amended on 17<sup>th</sup> October 2007 comprises seven claims, including just one independent claim. Claim 1 reads:

*A cable quantity totalizing device comprising:*

*an input unit configured to perform an inputting operation of information;*

*a memory unit as a database configured to store:*

*arrangement information and part identification information related to a three dimensional model of a contact point part having a contact point with a cable;*

*arrangement information, part identification information and attribute information related to a three dimensional model of a cable container part for containing a cable when placed;*

*cable specification information on the cable comprising;*

*cable identification information;*

*sectional area information;*

*part identification information related to a three dimensional model of contact point part having a contact point with a cable functioning as a start point; and*

*part identification information related to a three dimensional model of contact point part having a contact point with a cable functioning as a goal point; and*

*occupying rate information on the respective cable container parts that denotes how much of the total volume of the respective cable container parts is occupied by cable;*

*a three dimensional model arrangement adjusting unit configured to arrange a three dimensional model in a three dimensional coordinate system obtained by simulating a space where a cable is actually placed;*

*a cable route search unit configured to read out the information on the cable container part stored in the database to search for a cable route with a shortest cable length;*

*a cable route calculation unit configured to calculate the cable length in the cable route searched by the optimum cable route search unit; and*

*a display unit configured to display the cable route search result and the cable length calculation result.*

## The law

- 7 Section 1 of the Act sets out the statutory requirements for patentability of inventions and, in relation to excluded matter, the relevant parts of section 1(2) read as follows (emphasis added);

It is hereby declared that the following (amongst other things) are not inventions for the purposes of the act, that is to say, anything which consists of

(a)...**a mathematical method**..

(b)...

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

(d)...

but the foregoing provision shall prevent anything from being treated as an invention for the purposes of this Act **only to the extent that a patent or application relates to that thing as such.**

- 8 The test for deciding whether an invention falls within the excluded matter categories was set out by the Court of Appeal in its judgment in *Aerotel/Macrossan*<sup>1</sup>. That test is as follows:

1) Properly construe the claim;

2) Identify the actual contribution;

3) Ask whether it falls solely within excluded subject matter

4) Check whether the actual contribution is technical in nature

- 9 The operation of the test is explained at paragraphs 40-48 of the judgment. Paragraph 43 confirms that identification of the contribution is essentially a matter of determining what it is the inventor has really added to human knowledge, and involves looking at substance, not form. Paragraph 46 explains that the fourth

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<sup>1</sup> *Aerotel Ltd v Telco Holdings Ltd and Macrossan's Application* [2006] EWCA Civ 1371, [2007] RPC 7

step may not be necessary because the third step should have covered the point. Paragraph 47 then goes on to add that a contribution which consists solely of excluded matter will not count as a technical contribution.

- 10 The interpretation of section 1(2) has recently been given further consideration by the Court of Appeal in *Symbian Ltd's Application* [2008] EWHC Civ 1066. *Symbian* arose under the computer program exclusion, but as with *Aerotel*, the Court gave guidance of a more general nature on section 1(2). Although the Court approached the question of excluded matter primarily on the basis of whether there was a technical contribution, it was quite clear (see paragraphs 8-15 of the decision) that the structured four-step approach to the question in *Aerotel* was never intended to be a new departure in domestic law; that it remained bound by its previous decisions which rested on whether the contribution was technical; and that any differences in the two approaches should affect neither the applicable principles nor the outcome in any particular case. Indeed the Court at paragraph 59 considered its conclusion in the light of the *Aerotel* approach. It therefore remains appropriate for me to apply the *Aerotel* test, but with due regard to the clarification that *Symbian* provides as to when a computer program makes a technical contribution.

### **Arguments and analysis**

#### *Construe the claims*

- 11 The first step of the *Aerotel* test requires me to construe the claims. Applying the *Aerotel* test and in the light of the description, the examiner took the view that the claimed device was a general purpose computer (comprising a number of hardware units) that was programmed to calculate and model optimum cable routes in three dimensions. The applicant disagreed and, although the arguments are brief, it appears he viewed the claim as being directed solely to a device and hence not excluded from patentability.
- 12 Following the well established principles of claims construction laid out in *Kirin-Amgen*<sup>2</sup> we must ask what the person skilled in the art would understand the claim to mean. Although the claim should stand on its own, where there is ambiguity it is settled law that the description may inform the interpretation of the claim. Page 11 of the application states that the cable quantity totalizing device (10) (namely, an input unit, a memory unit, a three dimensional model arrangement adjusting unit, a cable route search unit, a cable route calculation unit and a display unit) is

*“realized by a computer function as hardware and a program function (abbreviated as PG) is corporation (sic) with each other. To be more specific, the cable totalizing device 10 is realized in such a manner that a cable quantity totalizing PG 18 for searching for the optimum cable route and calculating the cable length in the searched optimum cable route is previously installed in the computer, and the computer then executes the cable quantity totalizing PG 18”*

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<sup>2</sup> *Kirin-Amgen Inc vs Hoescht Marion Roussel Ltd* [2005] RPC 9.

- 13 In light of the above, I agree with the examiner that the device of claim 1 amounts to more than just hardware and I construe the claim as a computer program for modeling and calculating cable routes in three dimensions installed and/or running on a computer.

*Identify the contribution*

- 14 The next step is to identify the contribution. At paragraph 43 of *Aerotel*, Jacob LJ states:

*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.*

- 15 I have not found it easy to identify what the applicant sees as the contribution. As far as I can determine, the contribution “includes using the cable specification information and occupying rate information to identify the most suitable route for a cable, as well as displaying the total cable length to the user”. In particular, the applicant stresses the use of 3-D models of cable container parts (including information that denotes how much of the total volume of each part is occupied by a cable) in order to determine a shortest cable length. He submits that this approach involves a contribution which achieves an accurate model, despite using reduced data input and without needing to perform a full 3-D modelling of the exact position of the cable and the cable trays. In support of this argument, the applicant draws the distinction between the disclosure in JP 09091319, which he says relates to a method of identifying the shortest routes for a cable to be laid between two points, by using three-dimensional CAD software but does not use cable sectional area information or 3-D models of cable container parts.
- 16 The examiner, on the other hand, has taken the view that the device of claim 1 relates to standard computer hardware. In his view, what the applicant has really added to the stock of human knowledge lies in the use of computer software to carry out the computing and modelling steps defined in the claim. He also contends that – in relation to the design and totalizing steps – the invention also relates to a method for performing a mental act in that the invention does nothing more than computerise the effort involved in carrying out the tedious calculations such as cable routing and/or totalizing that could be done manually by a design draftsman.
- 17 Finally, the examiner considers the invention is also excluded as a mathematical method. He makes a comparison between the present invention and the invention in *Gale’s Application*<sup>3</sup> where an algorithm for computing a square root was claimed which took fewer processing steps than existing methods. In that case, although the reduction in processing power requirements was similarly highlighted by the applicant, the Court felt that the reduction only occurred

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<sup>3</sup> *Gale’s Application* [1991] RPC 305

because the computer was being asked to compute fewer steps, and this did not amount to a patentable advance (indeed the invention was excluded as being solely a mathematical method). As the wiring diagram produced by the current invention is no more optimal than might be generated manually (albeit laboriously using CAD or manual drafting), the examiner argues the reduced processing load merely arises because the computer is being asked to compute a different set of calculations using less data to produce a model.

- 18 So what *in substance* has really been added to human knowledge? In this case, having carefully considered the description and the applicant's arguments, I do not accept the applicant's argument that the contribution is a new physical device. In addition, there is no interaction between the hardware and the software for it to be said there is a contribution made by the system as a whole. As far as I can see, the contribution lies in programming the computer to carry out the search for the shortest cable route and displaying the results of the calculation. I therefore agree with the examiner that that the contribution lies in a computer program. In so far as the invention embodies mental decision making processes and calculating methods in software, I also agree that the contribution amounts to a method for performing a mental act and a mathematical method.

*Ask whether the contribution falls solely within excluded subject matter*

- 19 So, does the contribution fall solely within the excluded subject matter? The applicant asserts this contribution goes beyond excluded matter as such and provides a "technical effect" by allowing an accurate model to be calculated based on a reduced set of data (as opposed to a fully featured three dimensional model as in the prior art). However, I note that the applicant does not suggest that the model obtained is any more accurate than those created in the prior art by existing means. I therefore do not think the contribution is really about a *technically* new or better way of data processing. Further, *Symbian* does not bite as the contribution does not solve any technical shortcoming in the computer itself: I can find nothing in the application to show any effect over and above that to be expected from the mere loading of a program into a computer. In short, I can find nothing to suggest that the outcome is anything other than what you would expect as a result of computerizing an otherwise laborious manual process. The reduced processing load merely arises because the computer is being asked to compute a different set of calculations using less data to produce a model.
- 20 In considering the nature of this contribution, I am mindful of paragraph 22 of *Aerotel/Macrossan*, which reminds me that just because a computer is used in an invention, it does not necessarily mean that the invention is excluded from patentability. On this occasion however, I am clear that the contribution made by the invention does not have a relevant technical effect. It thus consists solely of excluded subject matter and is no more than a combination of a program for a computer, a method for a mental act and a mathematical method as such. It therefore fails the third *Aerotel* step.

*Check whether the contribution is actually technical in nature*

- 21 As reasoned above, the contribution does not have a relevant technical effect.

Thus the application also fails the fourth *Aerotel* step.

### **Decision**

- 22 I have found that the contribution made by the invention falls solely within excluded subject matter. I have read the specification carefully and I can see nothing in any of the dependent claims or elsewhere in the specification that could reasonably be expected to form the basis of a valid claim. I therefore refuse the application under Section 18(3).

### **Appeal**

- 23 Under the Practice Direction to Part 52 of the Civil Procedure Rules, any appeal must be lodged within 28 days.

**Mrs S E Chalmers**

Deputy Director acting for the Comptroller