

scope and will stand or fall together. My decision outlined in the discussion below will consider claim 1 which reads as follows:

A method for management of a maintenance routine for an aircraft with a maintenance system comprising multiple mobile communication terminals located physically about the aircraft and in data communication with each other, the method comprising:

executing, by a controller of the maintenance system, a maintenance software program for the maintenance routine comprising maintenance tests corresponding to components of the aircraft;

defining, by the controller, an ultimate user, wherein the ultimate user utilises one of the multiple communication terminals;

determining where the multiple terminals are located; and

assigning, by the controller, independent, non-interactive maintenance tests to the multiple communication terminals, each maintenance test being assigned to the communication terminal located closest to the component corresponding to that maintenance test to define an associated terminal for controlling the execution of the maintenance test by displaying a maintenance test indication on the associated terminal;

wherein the communication terminal of the ultimate user is configured to selectively override the assignment of the maintenance tests, including allowing the ultimate user, via its communication terminal, to take control of a maintenance test being executed by a different user at a different communication terminal.

The law

- 5 The examiner raised an objection under Section 1(2) of the Act that the invention is not patentable because it relates to one or more categories of excluded matter. The relevant provisions of this section of the Act are shown with added emphasis below:

1(2) It is hereby declared that the following (among other things) are not inventions for the purposes of this Act, that is to say, anything which consists of

(a) -

(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 for a patent relates to that thing as such.

- 6 The assessment of patentability under Section 1(2) is governed by the judgment of the Court of Appeal in *Aerotel*¹, as further interpreted by the Court of Appeal in *Symbian*². In *Aerotel* the court reviewed the case law on the interpretation of Section 1(2) and set out a four-step test to decide whether a claimed invention is patentable:

(1) Properly construe the claim;

¹ *Aerotel Ltd v Telco Holdings Ltd & Ors* Rev 1 [2007] RPC 7

² *Symbian Ltd v Comptroller General of Patents* [2009] RPC 1

- (2) *identify the actual contribution;*
- (3) *ask whether it falls solely within the excluded subject matter;*
- (4) *check whether the actual or alleged contribution is actually technical in nature.*

- 7 The Court of Appeal in *Symbian* made it clear that the four-step test in *Aerotel* was not intended to be a new departure in domestic law; it was confirmed that the test is consistent with the previous requirement set out in case law that the invention must provide a “technical contribution”. Paragraph 46 of *Aerotel* states that applying the fourth step of the test may not be necessary because the third step should have covered the question of whether the contribution is technical in nature. It was further confirmed in *Symbian* that the question of whether the invention makes a technical contribution can take place at step 3 or 4.
- 8 Lewison J (as he then was) in *AT&T/CVON*³ set out five signposts that he considered to be helpful when considering whether a computer program makes a technical contribution. In *HTC/Apple*⁴ the signposts were reformulated slightly in light of the decision in *Gemstar*⁵. The signposts are:

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 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

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

Application of the *Aerotel* approach

Step (1): Properly construe the claim

- 9 The construction of claim 1 is reasonably straightforward. I provide here some comments on how I have construed some of the terms and phrases.
- 10 The description of the application explains that the *mobile communication terminals* of claim 1 may be internal or external to the aircraft and may be for example laptop computers. Claim 1 specifies that the terminals are in “*data communication with each other*”. It is clear from page 5 of the description of the application that the form

³ *AT&T Knowledge Ventures/CVON Innovations v Comptroller General of Patents* [2009] EWHC 343 (Pat)

⁴ *HTC v Apple* [2013] EWCA Civ 451

⁵ *Gemstar-TV Guide International Inc v Virgin Media Ltd* [2010] RPC 10

of communication is not crucial to the invention and may include either wired or wireless communication using known networks.

- 11 Claim 1 specifies “*determining where the multiple communication terminals are located*”. The description of the application does not provide any details on how this may be achieved apart from merely repeating this phrase on page 14. The skilled person would assume that the location of the terminals is determined via conventional means.
- 12 The applicant has submitted (see the attorney’s letter of 27 July 2018) that the term “*independent, non-interactive*” in relation to the maintenance tests would be understood by the skilled person to mean that each maintenance test is not reliant for its execution on interaction with, or the results of, any other of the maintenance tests. I agree with and accept this assessment.
- 13 Assigning a maintenance test to a communication terminal “*by displaying a maintenance test indication on the associated terminal*” may involve a test display that prompts a user to, for example, inspect a flap state. The method of claim 1 does not include carrying out the maintenance test itself.
- 14 Claim 1 specifies that the ultimate user can “*take control of a maintenance test being executed by a different user at a different communication terminal*”. For example, as explained on page 15, lines 12 - 22, of the description, if the ultimate user is a pilot and the pilot wishes to fly the aircraft without waiting for the completion of the maintenance routine the pilot may mark the maintenance task as complete, finish the maintenance task himself, or simply end the maintenance routine.

Step (2): Identify the actual contribution

- 15 Jacob LJ outlined the considerations to be applied when identifying the contribution in paragraph 43 of *Aerotel*:
- 16 “*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.*”
- 17 It is useful to consider some of these factors. I note firstly that the application has been searched. The examiner originally cited four documents that were used to support objections that the claims as filed were not novel or did not involve an inventive step. Following amendment, the examiner is satisfied that the current claims are now distinguished over these disclosures. I do not consider that an assessment of these documents would help the discussion here.
- 18 The problem said to be solved has not been stated explicitly in the description of the application. The applicant’s attorney in his most recent letter of 12 April 2019 suggests that claim 1 solves the problem for example of “*improving aircraft maintenance*”. It seems to me, however, from the application as a whole, that the

problem to be solved by the invention is the more specific one of how to allocate maintenance tests more efficiently amongst multiple users and terminals.

- 19 To summarise how the invention works, the invention is concerned with managing a maintenance routine for an aircraft. The aircraft has multiple mobile communication terminals such as laptops located about the aircraft, one of which may be in the cockpit. A controller is configured to execute a maintenance software program for the maintenance routine comprising maintenance tests corresponding to components of the aircraft, such as flaps and elevators. The terminals are in data communication with each other and each may provide access to the maintenance routine. The invention has two key features. In the first, each maintenance test is assigned to the terminal located closest to the component under test. In the second, an ultimate user, such as the pilot, is allowed via their terminal to take control of a maintenance test being executed by a user at a different terminal.
- 20 Some advantages of the invention are proposed on page 16, lines 5 - 21, of the description. The passage explains that the invention provides for management of the maintenance tasks between multiple users and/or multiple terminals. This, it suggests, allows maintenance routines to be completed more efficiently and minimises the time aircraft are grounded. The passage also asserts that the invention may also allow for a reduced maintenance force.
- 21 There is clearly agreement between the applicant and the examiner that the method of the invention is implemented by software run on a computer system comprising a number of terminals in communication with each other. It is also undisputed that the hardware components are conventional and are linked via known communication means.
- 22 The applicant's attorney in his letter of 12 April 2019 asserts that *"A contribution of the claimed method is that the physical locations of the mobile communication terminals about the aircraft, and these determined locations are used in the assignment of the maintenance tests such that each maintenance test is assigned to the communication terminal located closest to the aircraft component corresponding to that maintenance test. Thus, the execution of a maintenance test is controlled by the terminal closest to where that maintenance test is performed. This provides for improved control or direction of the maintenance test, thus facilitating in the performance of the maintenance test. Thus, improved efficiency and/or accuracy with which the maintenance test is executed tends to be provided."*
- 23 The examiner, in his pre-hearing report dated 7 May 2019, identifies the contribution as: *"In a computer implemented maintenance system for an aircraft, executing a maintenance program for a maintenance routine comprising maintenance tasks, allowing a controller to assign unrelated maintenance tasks associated with components of an aircraft to mobile communication terminals, defining an ultimate user who uses one of the mobile communication terminals, determining the location of the multiple communication terminals and assigning maintenance tasks to mobile communication terminals, the assignment of a task being based upon the proximity of the mobile communication terminal to the component of the aircraft corresponding to that test and displaying that test on the mobile communication terminal; where the terminal of the ultimate user is configured to override the assignment of maintenance tests by allowing the ultimate user to take control of a maintenance test being*

executed by a different user at a different terminal, providing the ultimate user the ability to manage the maintenance routine according to their wishes and potentially having an efficient initial allocation of maintenance tests to mobile communication terminals”.

- 24 There seems from these statements to be general agreement between the applicant and the examiner regarding the contribution. In a more concise form, I consider the contribution to be: A computer-implemented method for management of a maintenance routine for an aircraft with a maintenance system comprising multiple mobile communication terminals located about the aircraft and in data communication with each other; including assigning maintenance tests to terminals closest to a component under test, and allowing an ultimate user via its terminal to take control of a maintenance test being executed by a different user at a different terminal, thus allowing the maintenance routine to be managed more efficiently.

Steps (3) & (4): Does the contribution fall solely within the excluded subject matter; check if the contribution is actually technical.

- 25 The third and fourth steps of the *Aerotel* test involve considering whether the contribution falls solely within excluded categories, and then checking whether the contribution is technical in nature. It is appropriate to consider these two steps together because whether the contribution is technical in nature will have a direct impact on whether it falls solely within excluded matter.
- 26 The applicant’s attorney asserts that the contribution is technical in nature and does not fall solely within the excluded subject matter. In particular, in his most recent letter of 12 April 2019, he states that *“Presently amended claim 1 recites physical entities (e.g. an aircraft, multiple mobile communication terminals) that are configured to perform technical activities (e.g. determine physical locations and perform assignment based on determined physical locations) to achieve a technical effect (e.g. providing that maintenance tests are assigned to the communication terminal located closest to the aircraft component corresponding to that maintenance test) to solve a technical problem (e.g. improving aircraft maintenance). The subject-matter of claim 1 relates to technical devices and provides for improved aircraft maintenance based on technical parameters (e.g. physical locations of parameters of the mobile communication terminals relative to the components of the aircraft)”.*
- 27 In response to these arguments, I agree that claim 1 recites physical entities. However, the computer system including the mobile communication terminals is entirely conventional and by itself does not convey a technical effect. Moreover, as pointed out by the examiner, the decision in *Lantana*⁶ makes it clear (see paragraph 38 of *Lantana*) that computers communicating with each other in a conventional way does not provide a relevant technical contribution.
- 28 The invention is implemented with respect to an aircraft, clearly a physical entity. However, the maintenance routine of the invention is implemented via software within the computer system and does not affect the operation of the aircraft in any technical sense. A prompt is displayed on a particular terminal for a test to be carried out but the invention does not include carrying out the test itself. A test may be

⁶ *Lantana v Comptroller General of Patents [2014] EWCA Civ 1463*

directed to a terminal closest to the component under test, but is then implemented as normal.

- 29 The invention involves determining where the terminals are located. However, as discussed above, this process is entirely conventional. Moreover, determining the position of mobile devices was well established at the priority date of the invention and is unlikely on its own to convey a technical contribution. Assigning a task to a terminal according to location may well provide for a more efficient use of terminals and maintenance staff. However, this is an administrative issue and again does not convey a technical effect.
- 30 Improving aircraft maintenance can be a technical problem as the applicant's attorney suggests. However, in the invention there is no change to the physical tests being carried out. The tasks may simply be carried out by different personnel via a different terminal or be controlled, for example overridden, by an ultimate user. The maintenance of the aircraft is unchanged in any technical sense. The problem being addressed by the invention in my view is an administrative one of how to allocate maintenance tests more efficiently amongst multiple users and terminals. This has been solved using non-technical means.
- 31 The examiner has considered the *AT&T* signposts listed above. Arguments regarding the signposts have not been provided by the applicant. However, for completeness I will consider the signposts here.
- 32 Regarding signpost (i) and whether the claimed technical effect has a technical effect on a process which is carried on outside the computer, I note that the invention includes maintenance tests being assigned by the controller to multiple communication terminals. This may involve an instruction displayed on the terminal for the user to carry out a particular task, for example to inspect a flap. The invention does not include carrying out the tests themselves. Similarly assigning the maintenance test to the terminal closest to the component under test or allowing the ultimate user to take control of a maintenance test being executed at a different terminal are actions restricted within the computer system.
- 33 Although not addressing the signpost explicitly, I disagree with the applicant's attorney that the method involves "*technical activity in the real world*" as suggested in his letter of 12 December 2018. None of these actions occurs outside the computer system. They are all administrative actions occurring within the computer system itself.
- 34 Signposts (ii) – (iv) can be disregarded quite quickly as the claimed technical effect does not operate at the level of the architecture of the computer or result in the computer being made to operate in a new way. Similarly, the program of the invention does not make the computer a better computer by running more efficiently and effectively as a computer. In the invention, the maintenance software program is run on conventional components linked by conventional means. The computer system will operate as normal when implementing the invention.
- 35 Regarding signpost (v), and whether the perceived problem is overcome rather than merely being circumvented, I have already concluded that the problem being addressed by the invention is an administrative one of how to allocate maintenance

tests more efficiently amongst multiple users and terminals. This problem has been solved via non-technical means. The technical problem of improving aircraft maintenance has not been addressed.

- 36 Having carefully considered all aspects of the invention, I do not consider the contribution to be technical in nature. The invention is implemented by software running on an entirely conventional computing arrangement. I therefore consider the contribution to relate to a computer program as such.
- 37 The business method exclusion is a broad exclusion which embraces administrative, organisational and managerial activities. The invention here is directed to the management of a maintenance routine for an aircraft which involves various administrative tasks. These allow the maintenance routine to be completed more efficiently and may minimise the time aircraft are grounded. As discussed above I cannot identify a technical contribution. Therefore, I consider the contribution to relate also to a method for doing business as such.
- 38 The remaining independent claim, claim 8, is directed to similar subject matter having the same underlying inventive concept. I therefore consider this claim to relate to the same excluded categories for the same reasons. Moreover, none of the dependent claims provides the required technical contribution.

Decision

- 39 I find the invention claimed in GB1515481.8 to fall solely within matter excluded under Section 1(2) as a program for a computer and a method for doing business as such. I can find no amendment in the specification that will render the claims patentable. I therefore refuse the application under Section 18(3).

Appeal

- 40 Any appeal must be lodged within 28 days after the date of this decision.

P MASON

Deputy Director, acting for the Comptroller