

[2008] EWHC No. 1180 (Pat)

IN THE HIGH COURT OF JUSTICE
CHANCERY DIVISION
PATENTS COURT

HC 06 C 00280

Before: His Honour Judge Fysh QC
(Sitting as a judge of the High Court)

B E T W E E N:-

AEROTEL LTD Claimant

and

- 1) WAVECREST GROUP ENTERPRISES LIMITED
- 2) FIRST NATIONAL TELECOM SERVICES LIMITED
- 3) FNT HOLDINGS LIMITED
- (4) WAVECREST ENTERPRISES PLC Defendants
- 4) WAVECREST (UK) LIMITED
- 5) WAVECREST COMMUNICATIONS LIMITED

JUDGMENT

Dates of hearing: 23, 26-30 November 2007, 10-11 January, 17 March 2008

Henry Carr QC and *Andrew Lykiardopoulos* instructed by Powell Gilbert LLP
appeared on behalf of the Claimant

Iain Purvis QC and *Kathryn Pickard* instructed by Mayer Brown appeared on behalf of
the Defendants.

This judgment is in final form and was handed down on 14 May 2008. I direct that pursuant to CPR PD 39A, para. 6.1 no official shorthand note shall be taken of this judgment and that copies of this version as handed down may be treated as authentic.

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JUDGMENT

*Introduction*¹

1. This is the judgment in a patent infringement action with a counterclaim for the revocation of the patent in suit. The patent, which has expired, is №.2 171 877 ('the Patent') and is entitled "Telephone System". When in force, it stood in the name of the claimant, Aerotel Ltd ('Aerotel') for whom Mr Henry Carr QC and Mr Andrew Lykiardopoulos appeared. Aerotel is an Israeli company whose main activity as far as I am aware, has been in licencing (and litigating) the Patent and its equivalents in other jurisdictions. Aerotel does not supply telephone systems or services. The Patent relates basically to a method of making pre-paid telephone calls which is available for use from any telephone – and to hardware for doing so. The method is described in conceptual rather than in detailed electrical or electronic terms and is illustrated by diagrams which show a network of 'boxes' which are linked, labelled and numbered. A particular group of such boxes is collectively referred to as a 'special exchange' (hereafter 'Special Exchange') and a good deal of the case turns on what this term means – and of course, what function it performs within the system which Aerotel claims.
2. The earliest (and unchallenged) priority date of the Patent is 13 January 1985. The evidence shows that 1984-85 were years when the first effects of radical *structural* change within the telephone industry (both here and in the USA) was being felt. It also coincides with a time when the effects of major *technical* change was being felt within in the industry. The appearance of the Patent was evidently well-timed to take advantage of both events.

Aerotel Ltd v Telco Holdings Ltd (CA)

3. This is not in fact the first time the Patent has been litigated in this jurisdiction. In *Aerotel Ltd v Telco Holdings Ltd* [2007] RPC 7², the Court of Appeal was concerned with an appeal from an application for *summary judgment* to revoke the Patent on the ground that the invention was merely a method of doing business and was thus excluded from patentability under the Patents Act 1977 ('PA '77'), s. 1(2)³. At first instance⁴, Lewison J held that the Patent claimed a method of doing business⁵. He accordingly revoked the Patent. An appeal from his judgment was allowed, and the Patent was restored. The essential *ratio* of the decision of the Court of Appeal⁶ was that the claimed invention amounted to a new combination or arrangement of hardware. The Court of Appeal were in fact comparing the 'conventional' way of making telephone calls (which went straight through

1 References to the court bundles, dividers and pages thus: 5/4/23. References to the transcript pages thus: T4/23

2 On appeal from the judgment of Lewison J [2006] EWHC 997 (Pat). The Court of Appeal considered another appeal, *Macrossan's Patent Application* at the same time.

3 Or EPC Art 52

4 3 May 2006 [2006] EWHC 997 (Pat)

5 § 21

6 Judgment §53.

to the called party via an automated network) with that taught in the Patent. As will be seen, according to the teaching of the Patent, calls go through the Special Exchange⁷

4. Mr Iain Purvis QC (who appeared with Ms Kathryn Pickard for the defendants) pointed out that the courts in the *Telco* case (unlike this court) had to accept any disputed facts in Aerotel's favour. Moreover, they were not made aware of alternative ways of making a call which were part of the state of the art at the priority date and which also differed from the 'conventional' way of making a call referred to by the Court of Appeal. Had the Court of Appeal he submitted, been aware of the alternatives to 'conventional' calling at the priority date, it would not have reached the conclusion it did.
5. I shall of course be examining the PA '77 s 1(2)/EPC Art 52 issue (which was referred to as 'the **Excluded Matter**' objection) later in this judgment, since the same ground of attack against the Patent has been raised in this case.

The Defendants

6. There are six defendants in the title to the action, all of them being part of the same group and all being referred to at trial as 'WaveCrest'. The first and the fourth defendants are no longer parties. The second and the fifth defendants have agreed to be responsible for the acts complained of and the third and the sixth defendants have agreed to be bound by the outcome of the action and any subsequent appeal. It was also agreed that the issue of common design⁸ would arise only if the second and fifth defendants were unable to satisfy any debt owed and thus the issue of common design was not addressed at trial.

The alleged infringements.

7. WaveCrest supplies telephone services to the public through a number of systems all of which are alleged to infringe.
 - (i) First, they offer what was termed 'The Calling Card System'. This involves the use of individual pre-payment cards for making calls which are sold at sundry retail outlets.
 - (ii) Telephone calling services known as 'GoTalk' and 'Talkback', and
 - (iii) A modification of Go-Talk called Go-Talk Carrier Pre-Select.

All these services are routed through the WaveCrest computerised national transit switch, which is an exchange located in Docklands, London. The telephone calls are then routed via the national transit switch through a further separate switch (also located in Docklands) known as the 'Digitalk Platform'. Full details of the WaveCrest national transit switch and of its Digitalk Platform (and of their services) are set out in the amended Process Description: 2/10.

⁷ See the conceptual diagram in §51 of the Court of Appeal judgment.

⁸ See 2/2/12. The alleged manner of infringement and common design are complicated and need not be set out in this judgment.

Validity

8. A number of attacks on the validity of the Patent have been made in addition to the excluded matter objection, mentioned above. I can in fact say that by far the greater part of the case concerned the counterclaim for revocation.
9. First, an attack on the basis of lack of novelty and/or obviousness was made in relation to the following citations of prior art
 - (i) Japanese Patent Application №. 56020371 A ('Matsuda'),
 - (ii) The ATS III/65 Long Distance Telephone Management System. Under this citation, reliance was placed both on prior user of the system in the USA and on the distribution of a users' guide ('Version 2.0') relating to the same,
 - (iii) The BT Charge to Own Account System,.
 - (iv) The BT Account Call System, and
 - (v) Common General Knowledge.(including what is known as WATS resale systems and PBXs).
10. I should further elaborate on item 9(ii) above. The ATS III/65 system was alleged to have been used by National Applied Computer Technologies (NACT) of Utah and by its customers before the priority date. Prior to this action, Aerotel sued NACT in the US. By counterclaim, NACT produced the version of the users' guide (Version 2.0) now in issue as a prior publication - and also alleged prior user of the system itself. In response, Aerotel alleged that the Version 2.0 of the users' guide was a document which had been dishonestly doctored – a forgery in fact. It also cast serious doubt on the use of the Version 2.0 system before the priority date. Thereafter, NACT no longer supported the authenticity of Version 2.0 of its users' guide - and the action settled before trial.
11. WaveCrest called no witness from NACT to establish the prior use or prior publication upon which they relied but instead relied on CEA notices. Forensic document analysts were however called by both sides to attest to the probable date of printing of the Version 2.0 users' guide: a Mr Erich Speckin for Aerotel and a Dr Audrey Giles for WaveCrest. This issue in fact developed into a trial within a trial.
12. A further ground of objection was that of insufficiency. I shall go into this below but the main contention was that the Patent did not provide the skilled reader with an 'enabling disclosure' in that it failed to provide the *technical* information necessary to put its *conceptual* description into effect. However, by the end of the trial, it emerged that WaveCrest's main purpose in pursuing this attack was to 'squeeze' Aerotel in relation to its response to the obviousness attack rather than to be a self-standing attack on validity.
13. Aerotel denied the allegations of invalidity and in relation to the excluded matter objection, asserted that in fact nothing had changed since the decision of the Court of Appeal - and of course, that I was bound by it.
14. As an antidote to the obviousness objection, by their amended defence to counterclaim, Aerotel relied on the *commercial success* of the invention

subject of the Patent. They put forward two matters in support: details of the licencing of the Patent and its foreign equivalents⁹ and the substantial revenues said to have been generated by WaveCrest (and by Telco, the earlier defendant) as a result of their allegedly infringing activities. To support this part of their case they called a Mr Mitchell Knisbacher who had been Aerotel's Director of Licencing from 1994-2001.

15. For the purposes of both infringement and validity, following the experts, I have been concerned almost exclusively with two claims, claims 1 and 9, these claims being alternative expressions or facets of the same underlying invention. Claim 1 relates to 'A *method* of making a telephone call from any available telephone' whereas claim 9, a product claim in effect, is directed to 'A telephone *system* for facilitating a telephone call from any available telephone station'. At the heart of both claims is the requirement of pre-payment for the call, the availability of the proposal for use with 'any' telephone and the notion of the Special Exchange to do the needful.
16. An important point should be made at this juncture. Although the use of computer-driven switches is invoked for carrying out a number of important functions in the Special Exchange, the Patent does not concern itself with details of either the hardware or the software for use therewith.
17. I have mentioned that the issue of infringement was not the most contentious part of the case and that being so, I shall deal with it towards the end of this judgment. Since the case was said to differ from the *Telco* case in that validity in the light of the prior art was now in issue, I shall consider the excluded matter objection after considering the lack of novelty/obviousness attack-but before infringement.
18. As the result of enquiry by the Court, a further short hearing took place on 17 March 2008 which was attended by junior counsel only. This covered two topics. The first was the use of 'regular' credit cards (AMEX, Visa etc) to pay for telephone calls both before the priority date¹⁰ and in the light of the teaching of the Patent relating to the use of credit cards. Following this, some general questions relating to the provision of goods and services against credit were also canvassed.

Introductory facts about telephone services and paying for them

19. In order to understand what the Patent is about, I must first say something about the telephones and telephone systems which were in use at the priority date of the Patent. Then I shall briefly describe how telephone calls were billed and paid for at the time. Though it is a topic to which I shall return later, all these matters formed part of the *common general knowledge* of the field in question, that is, the general field of telephone business and telecommunications technology. Many of these topics were uncontroversial

⁹ In a confidential exhibit.

¹⁰ For example, the written evidence showed that before the priority date, BT had been trialling a number of service products including a credit card service called BT CreditCall concerning which there had been little or no cross-examination.

though the parties understandably tended to concentrate more on different aspects of the subject. I shall identify the *skilled addressee* and consider further the common general knowledge after going into the Patent in the next major section.

20. One threshold matter became evident from the start of the trial: that though there were differences between the US/Canadian telephone markets and that in the UK at the priority date, workers in these countries were generally aware of what was afoot elsewhere. To take a well-known example of a difference, in the US/Canada, local calls are free whereas they are not in this country – a fact which incidentally forms the basis of one of the insufficiency objections. That said, the Patent was evidently written with the US/Canadian telephone market in mind¹¹.
21. On the commercial side, by the priority date, important changes in the industry were underway - both here and in the USA. In the US, the near monopoly enjoyed by AT&T had been broken up in 1984 into a number of smaller entities such as Sprint and MCI. By 1984 in the UK, the process of denationalising the monolithic BT and of deregulating and liberating the telecommunications industry as a whole, was beginning¹². Nonetheless at the period of interest in this case, the evidence was that BT was still the giant it had always been as regards both business and technology. For example, its monopoly on telephone services had been broken at that time only by Mercury – and then, only in London. In this country therefore, workers in the industry¹³ would, I think, still look first to see what BT were doing for enlightenment.
22. By the priority date, thinking within the industry was therefore undergoing an unprecedented overhaul; after a time of relative inactivity, commercial and technical innovation were in focus as never before. There was awareness of such change both within and without the industry and some at least of its practical implications must I think, have been present in the mind of the notional skilled addressee by the beginning of 1985¹⁴. Nonetheless, in this industry, trying today to put oneself back to that time, is not at all easy; so much has happened in the last 20 years in the telephone industry. As Mr Carr pointed out, the court's approach must have about it neither detached nor worse, engaged prejudice regarding the teaching of the Patent. Relevant issues in 1985 cannot be judged in the era of the ubiquitous mobile telephone and the galaxy of services offered by the MNOs¹⁵, without constant caution. Fortunately, the quality of the expert evidence in this case was high and the court was thereby much assisted in maintaining a proper perspective.

11 See for example the reference to 'collect calls' and to 'toll calls', Patent, p2. See also the use of a 'special code, say, 999' to terminate a call (p 15).

12 This started in about October 1981 as a result of the British Telecommunications Act 1981. For example, BT's approval was no longer required as to what could and could not be connected to the national network.

13 And thus (see below) the skilled reader.

14 Two of the pleaded prior art citations, BT's Account Call and its Charge to Own Account systems, are good examples of what was happening at the time. So too was BT's CreditCall mentioned above – which was not pleaded.

15 Mobile Network Operstors.

Some items of hardware

23. At the priority date, telephone systems comprised *telephones* each separately connected to a *local exchange*. The local exchanges were connected to each other via intermediate '*transit*' or '*tandem*' switches and long distance lines, called in the UK (and some other countries), '*trunks*'. Nearby local exchanges could also be connected directly, so that local calls could be connected without using trunk lines. There were thus a number of basic elements in a telephone system ('the architecture'): the telephones themselves, the local exchanges, transit switches, the group switching centre, trunk lines and local lines and the international exchanges.
24. **Telephones.** Which telephones were in use at the priority date was a topic of importance to the validity case, both to that of obviousness and insufficiency.
25. At the priority date, local Strowger exchanges (see below) were being replaced by automatic electronic exchanges. Transmission means were also changing. Subscriber's telephones were at the time largely connected to the local exchange (and they in turn, to group switching centres (GSCs- see below)) by means of copper wires. By the mid-1980s however, the copper wires were being replaced with coaxial cable, optic fibre, microwave links and possibly other low-loss transmission means.
26. The telephones themselves were also changing. Telephones were principally of two types: the older pulse-dial (or loop disconnect) telephones¹⁶ and the modern DTMF¹⁷ (or push button) telephones which used *tone dialling*¹⁸. An advantage of the latter was that they were readily compatible with the new generation of automatic, electronic and computer assisted telephone operations which were being introduced at that time to replace operator serviced systems. It seems that tone dialling was developed many years before the priority date in fact, but took time to become widely used.
27. Whilst DTMF telephones were gradually being installed in the UK, they were still greatly outnumbered by the pulse dialling machines. In fact, by 1985 rather few telephones in this country¹⁹ actually had DTMF capability but the policy was (as was well known) that their numbers should rapidly increase and that in due course, pulse-dial telephones should disappear entirely.
28. **Auxiliary tone-generating devices (Tone diallers).** These were hand-held tone generating devices which were readily available (though they were rather expensive) both in the US and in this country²⁰. These devices enabled a pulse-dial telephone temporarily to become available for tone dialling²¹. The device was applied to the telephone microphone and the

16 Wherein each number 0-9 puts breaks in the electrical current which travel between the dialling telephone and the local exchange (only).

17 'Dual-tone multifrequency'.

18 Wherein each number 0-9 (and * and #) was associated with a twin pair of associated frequencies within the audio range: T5/583-584.

19 As opposed to the US where their use had become widespread by the priority date.

20 See RAC 14, 5/25

21 See Mr Chandler's First Report: 4/1/11

numbers manually entered on the keyboard of the device. I was shown a sample of a pocket tone dialler at trial and understand that at the priority date, they cost about £ 45 to buy.

29. **The Local Exchange.** At the priority date there were four principal types of local exchange:

- (i) The so-called ‘Strowger’²² exchange (which worked only with pulse dial telephones), used a flexibly positioned moving uniselector,
- (ii) The electronic exchanges which were being introduced at the time, They were regarded as being more efficient than Strowger exchanges,
- (iii) Crossbar exchanges, and
- (iv) Early digital exchanges.

By the priority date it is clear that Strowger switches were being displaced by electronic exchanges. Both types of exchanges generated data which was directly used to compute the customer’s telephone bills.

30. **Transit switches and the Group Switching Centre (GSC).** These interconnected with all the local exchanges in a local call area. Connections between GSC’s are the ‘trunk’ lines. The GSC had the inbuilt capacity to ‘route’ calls nationally so as to make use of the most efficient route - or in case of line fault, to find an alternative route. The GSCs also routed international calls via the international exchange.

31. **Prompts.** Prompts to the caller came from the local exchange. These were heard by say, a change of dial tone or by the use of *viva voce* or pre-recorded announcements. Prompts of various kinds were in common use at the priority date.

32. **PBXs** The use of private branch exchanges (PBXs) was widespread at the priority date. On one side of the PBX was the local exchange and on the other, a private network of lines (usually within a building) which could be called up on any telephone via the local exchange. The PBX was in fact described by Mr Chandler, Aerotel’s general expert witness, as an ‘on-premises telephone switching system’ some PBX’s ‘being identical with local exchanges’²³. The set up is shown diagrammatically in Appendix 5 to WaveCrest’s opening skeleton argument²⁴. In addition, Mr Chandler’s evidence was that stored-program-controlled PBXs had been available since the 1970s²⁵.

Paying for telephone calls in general

33. Not surprisingly, there was a good deal of evidence on this topic. Risking a glimpse of the obvious, the gist of it was basically this: telephone billing

22 Named after Alman B Strowger, a mortician from Kansas City, who lost so much business to a competitor because the competitor’s wife operated the local manual exchange, that in the 1880s he patented this automatic switching system : T3/361

23 T2/295

24 This drawing was put to Mr Chandler via an amendment to the drawing forming Appendix 2 of the opening skeleton. Mr Chandler did not challenge its accuracy.

25 4/1/29

rests on credit. Save in exceptional circumstances²⁶, neither the caller nor the service provider will know how much a call which is about to be made, will actually cost. The main variables are duration, distance and the time of day. By giving credit to the caller, the telephone company took a degree of risk in being sure of being paid. At one end were those customers who were deemed to be creditworthy before they made the call and at the other were those who had actually paid for future calls before they made them. The first method of payment is called *post-payment* whereas the latter is called *pre-payment*. This case is concerned mainly with the latter.

34. Indeed there were (and still are) *only* these two ways of paying for a telephone call, both being well established at the priority date. The first and most commonly used method was for the telephone company to rely on its customer's financial standing (or that of say, a credit card provider) and to charge by some form of post-payment billing. Alternatively, a caller's means could instantly be drawn upon by some form of pre-payment. Within these two basic ways of paying for telephone calls, the evidence showed that there were numerous permutations as to how calls are actually made and paid for, the means being augmented by advancing technology and business conditions. Looking ahead, Mr Purvis frequently characterised the basic proposal of the Patent (viz using a pre-payment system from any telephone) as being merely another of these permutations.
35. I shall next look at these two methods of payment in rather more detail. Unhelpfully, these services have been given similar marketing names

Post-payment billing.

36. At the priority date, this took a number of forms.
37. **The periodic statement** The most common method of payment for the use of home and office telephones was (and still is) by some form of *historical* billing which is sent to the customer on a monthly or quarterly basis after the calls are made. At the priority date, local calls in the UK were computed on the number of units and the time of making the call. Long-distance calls were billed on the basis of the duration, time of day and the distance involved. In both cases, recording of usage was normally undertaken at the local exchange mainly through the Strowger switches – though increasingly, by use of electronic charging means. Sometimes a deposit was required of the subscriber at the time of 'signing on'.
38. That is the simplest case. There were however, post-payment means which could be used away from home (or the office) - and *on any working telephone*. These had a number of the practical benefits to the caller which, looking ahead, are extolled in the preamble to the Patent as being benefits derived from its use. The following cases illustrate such usage, their availability (as I understand it) roughly keeping pace with an advancing technology.

39. The **BT Telephone Credit Card**²⁷ is a good example of such post-payment

²⁶ Such as calling directory enquiries.

²⁷ See Docherty I 6/1/34. In the US a similar system called '**Calling Card**' was in operation by 1982

and was well established by 1985. This was a plastic card which bore numeric information which was issued to customers on request. Originally these cards worked via the operator, but as we shall see, prior to the priority date, BT were trialling a fully automatic version of this service. The manner of operation was originally as follows:

- (i) The customer dialled the operator who on being requested to arrange a 'Credit Call', asked for the card number and thereafter checked the validity of the card.
- (ii) If the card number was valid, the operator would ask for the number required and the call would be set up. The operator would monitor the call and advise the customer every three minutes, asking whether he wished to remain on the call.
- (iii) At the end of the call, the operator would record its details for billing and add the result to the customer's regular bill for payment. As noted, this BT card was cashless and could be used with any working telephone.

40. A variant on BT's Credit Card was **BT's CreditCall** which I have mentioned. This was being trialled some months before the priority date at Heathrow Airport and at Waterloo Station. BT CreditCall made use of an 'ordinary' credit card (such as AMEX, Visa etc) which the caller ran through a swipe reader in a payphone. The personal details of the caller and the validity of the card were checked electronically. If the card was valid, the caller was able (on prompt) to dial the party with whom he wished to speak. The user of this service was billed for the call via his *credit card account*. Aerotel wished it to be made clear however that this service was neither pleaded nor was it said to form part of the common general knowledge of the art. Unchallenged evidence about its availability was however given from a BT witness (see below), a Mr Murrey.

41. By the priority date, the evidence was that the installation of appropriately programmed computers to replace operator-provided services generally, seems to have been well underway in the UK as well as in the US.

42. There was also of course, the cashless **reverse charge call**, well known I suspect, to most parents at all relevant times. It was likewise available from any telephone and entailed a small extra fee. This was a post-payment system which also established a *pre-call credit* and which, when used, was actually paid for later in the usual way.

Pre-payment methods

43. The classic pre-payment method of paying for telephone calls was via the **coin (or jeton) operated telephones** which had been universally in use for years before the priority date. These telephones, which were specially adapted for the purpose, were to be found not only in public places but were also rented within private property - pubs, flats, schools etc.

44. Then, in 1981, BT introduced a variant on traditional pre-payment: the **BT**

using push button telephones and not involving the operator:11/8

Phonecard²⁸. This involved the purchase of a prepaid plastic card which was sold by post offices and various retail outlets. Embedded in a section of these cards was holographically recorded information corresponding to the value of the card in units from 40 (£2) to 200 (£10) or more units. In use, the card was inserted into the slot of a BT 'payphone' which thereupon displayed in an LCD window how much credit remained on the card. The call was then made initially via the operator. If there was still credit on the card, the parties would be able to converse. As the call progressed, the units of credit on the BT Phonecard were monitored and in accordance with the cost of the call, progressively burned off.

45. In either case, when the cash or prepaid call units on the Phonecard were used up, the monitoring means caused the call to be terminated automatically²⁹. As one would expect from a prepay system, there is no forward credit beyond what has already been paid for. Mr Carr stressed that the BT Phonecard could *only* be used in a payphone.
46. Whatever pre-payment method was used, the system had to have inbuilt means initially to recognise available credit (or lack of it), to monitor its balance whilst the call was in progress and to terminate the call once the credit had expired. At the priority date this could be done either through the operator or automatically.
47. In my judgment, save for the BT CreditCall, all this was part of the common general knowledge at the priority date. I shall return to the topic of common general knowledge below.

*Billing: 'A method of doing business?'*³⁰

48. At the priority date of the Patent, the two methods of paying for calls which I have described were regarded by those in the telecommunications industry as no more than alternative ways of payment. In both cases, immediately before the call, credit in one form or another was made available by the telephone company to the caller; in the first case this was in the form of an understanding that its bill would in due course be paid by the caller (or by a credit card company) whereas in the latter, the caller had actually paid for an amount of call time but not yet used it. In the first case the telephone user benefited from temporary credit, whereas in the latter, the credit for calls was 'up front'. The only difference I can see between the two is commercial: that security for the payment of future calls is a matter of degree to be chosen by the telephone company for particular transactions.
49. Looking ahead, in the light of the foregoing, the manner by which a telephone company is paid by its customers for the calls they make, is undoubtedly part of its way of doing business. Whichever method of payment is chosen, it is in my view, 'a method of doing business'.

28 This method of payment was not mentioned in the preamble to the Patent.

29 11/1/2 and 11/17/4. Also see RAC-1 in 5/1/2 and T4/540-541. The Phonecard was not pleaded as such, as an item of prior art. See also Empringham, witness statement, 6/3/§6

30 Cf the Excluded Matter objection: PA '77, s. 1(2) and Art 52, EPC

The Patent

50. Though the Patent is entitled ‘*Telephone System*’, the title is a misnomer; it does not propose a telephone system. Rather, the invention is intended to be put into effect *within* an existing telephone system. The Patent has been drafted in essentially conceptual, non-technical language, its diagrams for example, being an assembly of interconnected and numbered boxes (called ‘blocks’). The use of computers is proposed but these are described without qualification - other than by the function they are to perform³¹. The same goes for the other items of telecommunications equipment which are described, there being no description of the actual hardware necessary to implement the invention.. Such items were all (one assumes) in use in the telecommunications industry at the priority date – save, it is said, for one item which the language of the claims treats as a composite unit: this is the Special Exchange. When opened up however, the Special Exchange itself comprises a number of interactive ‘blocks’ having processing functions. The functions of these will fall to be examined later – but again, neither hardware nor software is elaborated upon.

51. The proposal of the Patent may be divided into two parts:

- (i) a physical combination of hardware which enable calls to be made via the Special Exchange, and
- (ii) a method of charging for such calls by pre-payment by making use of appropriately programmed computers at the Special Exchange

52. It has become common in patent cases to refer for various purposes to a patent or claim being drafted at ‘particular level of generality’. In this case, I would characterise the level of generality in which the Patent has been cast as that of the general business or strategic level. This is not therefore a typically technical document in the sense that the word ‘technical’ is normally used in patent cases, nor is it what Mr Purvis characterised as a mere ‘wish list’. It has been drafted at a fairly high level of generality and this is a fact which I have had to bear in mind in what follows.

53. Having read the Patent a number of times, I am of the view that Mr Richard Chandler, Aerotel’s expert, is right when he says³²:

“In my opinion the inventive concept claimed in the Patent is a system and method for making prepaid telephone calls conveniently and inexpensively from any available telephone...The system includes a special exchange which sits behind the local exchange and thus obviates the installation of specialised telephones or equipment on each telephone line.”

54. Furthermore, the gist of the Patent is, I think, also epitomised in its

31 Cf ‘local and routine computers’ p 14 line 11. See further below: ‘The Skilled Addressee’.

32 Witness Statement 1, 4/1/52

penultimate paragraph (p16):

“Accordingly, a method of using any telephone for prepaid telephone calls is provided. A system is thus provided that benefits travellers and others having a need for the availability of telephone service from any telephone.”

55. The first two and a half pages of the Patent recount a number of ‘significant detriments’ allegedly facing telephone users in paying for calls in 1985, this (so it is said) giving rise to a long-felt want for better. However, in the light of what has been discussed in the preceding section, like Lewison J³³, I am inclined to read this catalogue of difficulty and inconvenience with a pinch of salt in the light of what was already on offer to callers at the time. The narrative states on p 1:

“Further, toll or long distance telephone calls are used more and more as people travel more and conduct business on a less localized basis. Presently long distance calls can be made by charging the call to a local telephone such as for example to a telephone in a hotel room. The long distance call can be made by instant payment such as for example when using a public payphone. The long distance call can be made by charging the call to the calling party's home or business telephone or by using a telephone company credit card number. The long distance call can also be made as a 'collect call' where the called party has to accept the call and is then billed the time and charges for the call.

Each of these present day methods for making and paying for toll calls has significant detriments. For example when a call is charged to hotel room telephones the hotel adds its charges to the call thereby disproportionately increasing the cost of the call.

It is extremely difficult to make long distance calls from public payphones since it requires large amounts of the coins – not ordinarily carried about – especially when touring or on a business trip.

The use of credit card calls often results in mistaken charges billed to the telephone credit card number. Further, to obtain a telephone credit requires credit checks and the establishment of credit, often almost impossible to acquire.

Salesmen similarly should be able to call their home offices from a customer's telephone without having the call charged to the customer's telephone which is inconvenient or to their home office phone with the previously mentioned difficulties and the added cost.

Thus there is a long felt need for a system which enables making telephone calls including local or toll calls conveniently, inexpensively and from any telephone. Thus, if a party wants to make a call, be it a local call or a long distance national or international call, he should be able to accomplish the call from the nearest available telephone.”

56. The patent identifies a number of known means by which a telephone call can be made without being charged to the number being used by the caller. It can, says the patent, be made by charging the call to the calling party's

³³ Judgment , §6

home number or the calling party's business telephone or by using a regular credit card. In addition, the patent refers to making a "collect call". The Patent, therefore acknowledges that there are at least four methods by which a telephone call can be made without charging the call to the telephone number from which the caller is actually calling.

57. The Patent goes on to describe (p 3) the method which it proposes to solve the problems identified in para 55 above³⁴.

"According to a broad aspect of the invention, a telephone system for facilitating a telephone call from any available telephone station, comprising: means for coupling a calling party station to a special exchange; memory means in the special exchange for storing customer special codes and prepayment information individual to each customer; means for verifying the calling party responsive to a code transmitted from the calling party station to the special exchange so as to verify that the code matches the special customer code in the memory means and the calling party has unused credit; and means for connecting said calling party station to a called station responsive to the verification."

58. The Patent then describes an option³⁵:

"Means may be provided in the special central station for further increasing the cost effectiveness of the system by selectively routing the call over the least expensive available lines."

59. When it comes to describe the system (and after identifying its four schematic diagrams), the Patent reads as follows (p6):

"The customer, such as a regular telephone user or a traveler, acquires a special code, a credit amount and the telephone number of the special central offices by either a cash or credit card payment. The code, the credit amount and telephone numbers may be acquired, for example through the regular credit card companies and charged to the acquirer's credit card. Alternatively, the credit amount, the telephone numbers and identifying code can be purchased at sales points such as in airports, hotels, rent-a-car stations and the like. The amount paid is credited to the acquirer for use against future telephone calls. The credited amount is stored in a memory at the special central office along with the special code."

60. The narrative continues (p7) by reference to the flow chart given in Fig 1³⁶:

"Subsequently thereto, the acquiring party wishes to make a telephone call which may be a local call or a toll call. He uses the nearest available telephone, removes the handset and dials a special central office as indicated at blocks 13 and 14. The telephone in this example is a private station. When he is connected to the special central office (traveler phone serves office)³⁷ [f]or example 14, a special dial tone is sent from the special exchange to a calling station. When the calling party hears the special dial tone indicating that the computer at the exchange is ready for him he dials the identifying code and the called number he wants as indicated at block 17. The computer

34 An approximation in fact, to claim 9

35 An approximation to claim 10

36 Not reproduced in this judgment.

37 *Sic*

at the special exchange checks the code and registers the desired called number.

If the code number is a genuine code with credit ie valid as indicated at block 18 and 19, a regular dial tone is sent to the calling party station as he is connected to the regular telephone system. The computer at the special exchange routes the call on the most economical available lines, according to prior arrangements with long distance line suppliers, if it is a toll call.

The calling party's pre-dialed numbers are transmitted as indicated at block 21. Of course the system can be arranged so that the calling party dials the called party responsive to receipt of regular dial tone."

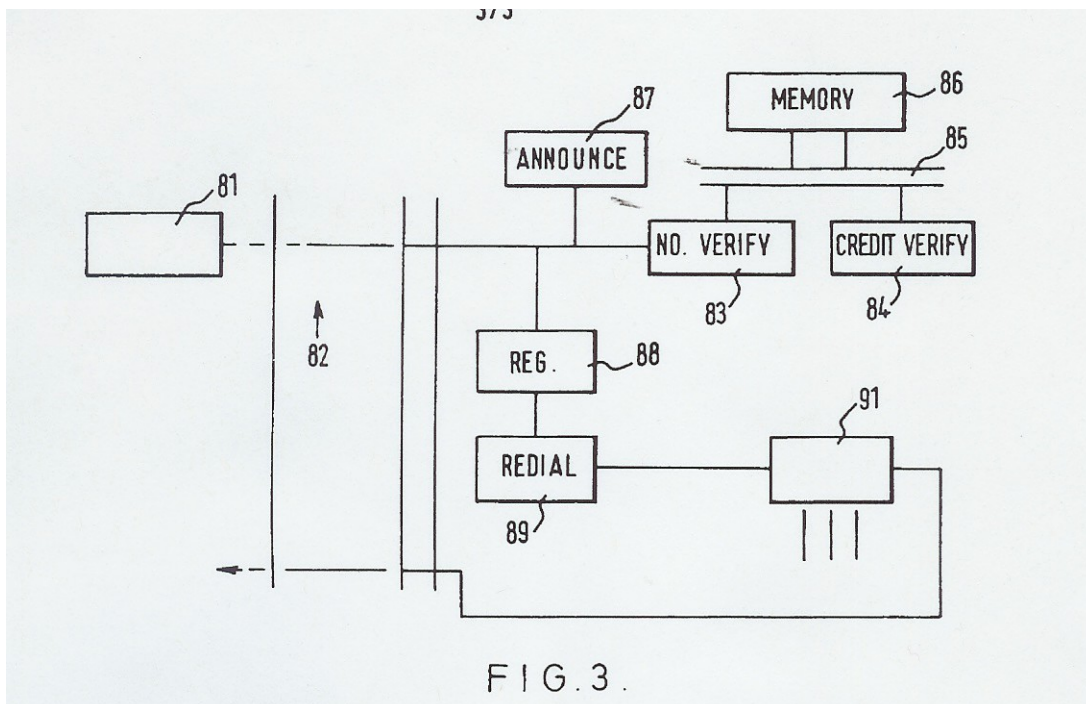
61. The call is monitored by equipment at the local exchange recording the amount of time spent on the telephone (p9):

“ At this time as indicated by block 28, the normal time and distance computer circuit, shown as a peg counter, is put into service to provide information for timing the call against the available credit. The information from the peg counter is sent to a comparator 29 to continuously determine whether the calling party's credit is sufficient to pay for the call. When the credit equals the used time rate the call is automatically ended by the computer as indicated by the block 31.

Block 31 opens the connection between the calling and the called party, the connection to the computer however remains and an announcement is made to notify the customer to insert another code number.”

62. The use of announcements, oral or visual, to prompt the user is described (p 13 and blocks marked 'RA'³⁸).
63. Fig 3 is 'a block diagram' describing the basic operation of the claimed system. It is reproduced below and is described thus (p 13):

38 'Recorded announcement'



“The calling phone is indicated at 81. The telephone 81 is connected to a regular telephone system indicated at 82. The calling party dials the special charge number and by a code number verifier 83. The code number verifier looks into a section of the memory as indicated by the code, to verify that the code is valid. When a valid code is confirmed, the credit for that code is checked in the memory to determine how much credit is left. The credit verification is shown at 84 and the memory at 86. The announcing system for the purposes indicated in the flow diagram is shown at 87.

When the number and credit are verified the calling party is then connected through a register indicated at 88, to a re-dialer 89. The register stores the called number received from the calling party and directs the re-dialer to dial the number. After verification, the dialed number or dial tones are directed through the router 91 to the regular telephone system. The router selects the best possible route cost-wise for the particular call if the call is a toll call.”

64. Claim 1 was broken down by counsel at trial as follows

(a) *A method of making a telephone call from any available telephone, comprising:*

(b) *obtaining a special code by making a prepayment;*

(c) *inserting the prepayment in a memory in a special exchange and being allocated to the special code in the memory for use in verifying a calling party call;*

(d) *dialing the special exchange when a telephone call connection is desired;*

(e) *inputting the special code for verification;*

- (f) inputting the number of called party;*
- (g) verifying at the special exchange by checking the special code and comparing the prepayment less any deductions for previous calls in the memory with the minimum cost of a call to the called party station;*
- (h) connecting the called and calling parties' stations in response to said verification;*
- (i) monitoring the remaining prepayment less deductions for the running cost of the call; and*
- (j) disconnecting the call when the remaining prepayment has been spent by the running cost of the call."*

65. Claim 2 reads:

"A method as claimed in claim 1 wherein the connecting step includes special routing"

66. Claim 9, a product claim, is for a telephone 'system'. It is important to note however that this is actually a claim "to a physical device consisting of various components"³⁹. Both in the Court of Appeal (in the *Telco* case) and at trial, claim 9 was unusually considered before claim 1, perhaps because it is more succinct. Moreover it differs in certain respects from the method claim of claim 1. It was broken down by counsel as follows:

(a) A telephone system for facilitating a telephone call from any suitable telephone station comprising

(b) means for coupling a calling party station to a special exchange

(c) memory means in the special exchange for storing customer

(i) special codes and

(ii) prepayment information individual to each customer

(d) means for verifying the calling party responsive to a code transmitted from the calling party station to the special exchange so as to verify

(i) that the code matches the special customer code in the memory means and

(ii) the calling party has unused credit, and

(e) means for connecting said calling party station to a called station responsive to the verification.

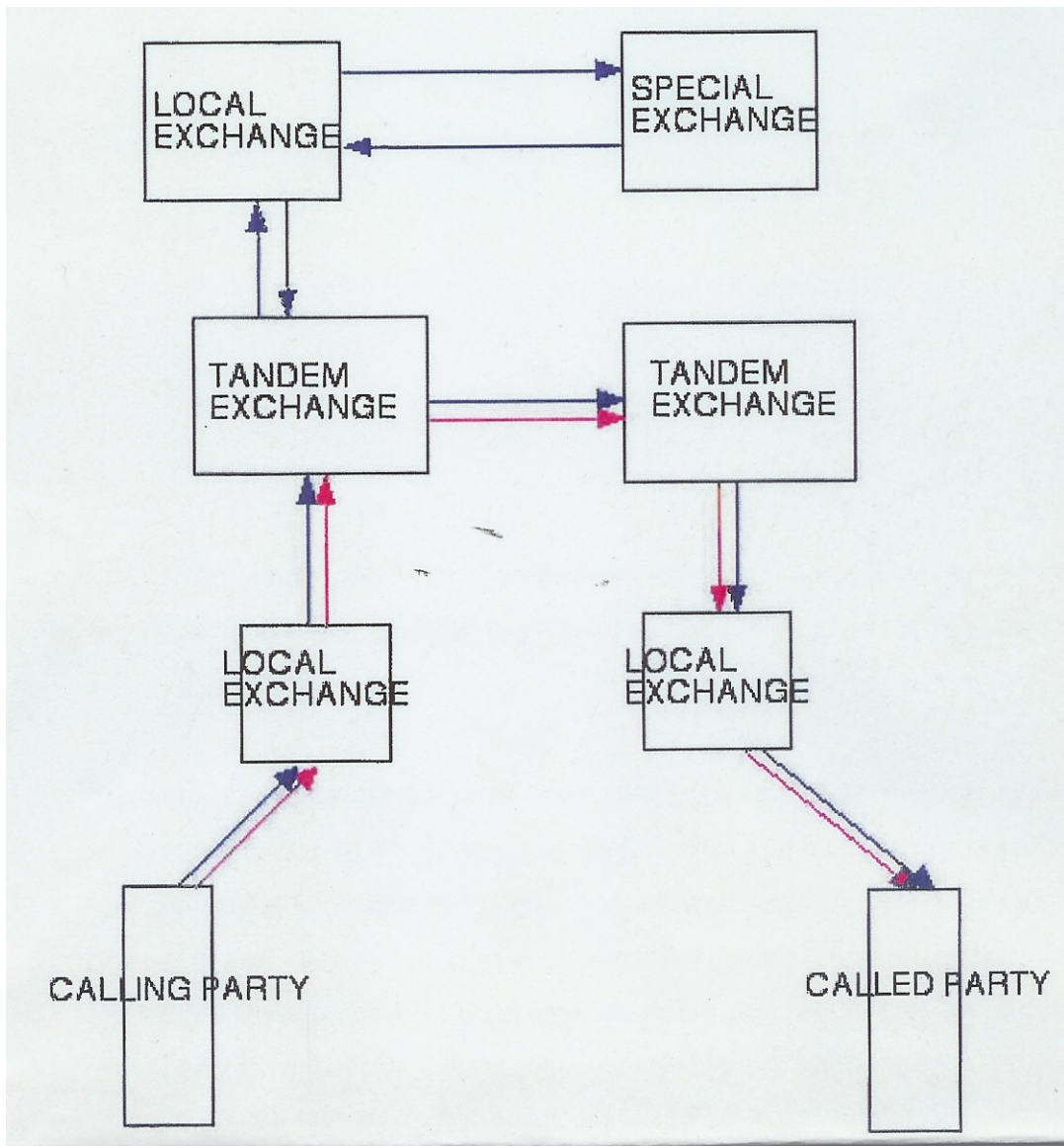
...

67. Claim 10 again reflects the possibility of particular routing and, since this played some part in what was argued at trial, I should record it. It is narrower in scope than claim 2 however:

³⁹ Per Jacob LJ in *Telco* (supra) at § 51

“A system as claimed in claim 9 wherein the means for connecting includes least cost routing means.”

68. During the course of the trial, it became necessary to refer to several block schematic diagrams of various operational schemes for telephone systems. In his reply evidence (6/5/26-27), Mr Brian Docherty, WaveCrest’s technical expert, prepared such a schematic drawing of how the system proposed in the Patent works. It was referred to at trial (and not cross-examined to) and I consider it to be a fair and useful synoptic lay out. I reproduce it below, the ‘inner’ path being that of the conventional telephone call. Note the position of the Special Exchange.



The Expert Witnesses

69. There were four expert witnesses in all, two to give evidence in relation to the technical aspects of the case (principally in relation to common general knowledge, obviousness and insufficiency) and two forensic document examiners to deal with the ATS III/65 Users' Guide (Version 2.0), which it was said by Aerotel, had been false or to have been doctored.
70. I found all the experts to have been of great assistance to the court and to have given frank, independent evidence with clarity. Some criticism was made by counsel concerning intermittent lapses of objectivity on the part of the technical expert witnesses. If this is indeed so, I have not found it to be a matter meriting specific comment. Though coming from different backgrounds, the technical experts were thoroughly familiar with the relevant technology. As far as I am concerned, 'they came as teachers'.
71. That said, I must also record that neither of the technical experts professed to have any particular expertise in the business or marketing aspects of the telephone industry, in particular in the ways of charging for telephone calls. In fact, if such experts do exist, I doubt whether they could usefully have contributed much to what I have to decide.
72. Two witnesses of fact from BT were called by WaveCrest (see below). They too were sound witnesses and in so far as they touched upon the business aspects of BT (in which they had been involved) I have no reason to question the utility of their evidence.

The technical experts

73. **For Aerotel:** Mr Richard Chandler. Mr Chandler is a consultant to the telecommunications industry. He is from Denver, CO and acted for Aerotel in the litigation in the USA to which I have referred in §10 above. His background is essentially that of an electrical and electronic engineer in which field he holds a number of academic qualifications. Mr Chandler joined Bell Laboratories as a member of its technical staff in 1977 where he was involved in a number of development projects in telephony. In 1982 he moved to AT&T and later he worked for companies in the USA involved in satellite, wireless and landline communications. He has also been involved in teaching at the University of Colorado and since 2005 has been self-employed as an independent consultant to the telecommunications industry.
74. **For WaveCrest** Mr Brian Docherty. Mr Docherty is the founder and manager of Small Planet Technology Ltd, a company that develops and supplies innovative telecommunications equipment. After graduating from Birmingham University in 1978 with a degree in electronic and electrical engineering, Mr Docherty joined BT where he was responsible inter alia for the introduction of push-button telephones to replace dial telephones. In 1983 he became head of group and later head of section at BT Enterprises. In these positions he was responsible for the 'conception, development manufacture and rollout' of a number of new telephones and telephony

projects to major UK customers. In 1987 he joined Tetrel Ltd (which designed and made private payphones) where he remained until in 2001, he set up his present company.

The forensic document experts

75. **For Aerotel:** Mr Erich Speckin. Mr Speckin works in the USA as a forensic chemist. He has a degree in chemistry from Michigan State University and has worked as a forensic scientist in both the field of handwriting and inks since 1993. He has authored a number of technical papers in his subject and has given evidence in court relating to his field on a number of occasions.
76. **For WaveCrest:** Dr Audrey Giles. Dr Giles has a distinguished academic record and was formerly head of the Questioned Documents Section at Scotland Yard. She has had over thirty years experience in all areas relating to the scientific examination of documents and handwriting. She now leads the scientific work of the Giles Document Laboratory, an independent laboratory for forensic document examination.

The skilled addressee

77. The Patent is deemed to be read and understood by the *skilled addressee*. The skilled addressee is a forensic construct who possesses the *common general knowledge* of the art. The concrete attributes of this notional and important person in patent infringement cases have frequently been commented upon and I have no need to repeat them here. In the end, I do not believe that there was much between counsel as to who was to be regarded as the appropriate skilled addressee in this case.
78. The skilled addressee would I believe be a team having both modest business and technological skills and experience. The employer of the team would be a manufacturer of telecommunications equipment having a research and development department. The team would thus include persons having a primary electrical engineering (or similar) qualification but working more at the 'business' end. The team would possess the ability to obtain the services of others with complementary 'high tech' skills as needed – in particular, with persons having appropriate computer skills. Whilst the team would be well familiar with current technical developments (e.g in switching system architectures) its orientation would certainly be more commercial than technical. It would thus be aware of what was happening in the market in response to technological change.
79. In the UK, the principal customer of the team's employer would have been BT⁴⁰. Indeed, till about 1988, BT was the only entity in the UK which would have been capable of exploiting the teaching of the Patent⁴¹. Thus the skilled addressee team would in my view have made it its first business to be well aware of what BT was doing on both the technological and commercial/business fronts.

40 Docherty II,6/5/3

41 Docherty II, 6/5/4

80. But one should not be confined I think, to what was happening in the UK alone since the US was not only the largest telecommunications market in the world⁴² but was also in the vanguard of commercially exploiting market change. The skilled addressee would thus be particularly interested in technologies and equipment which were beginning to take advantage of ambient market deregulation in the US and Canada.

The common general knowledge

81. The common general knowledge possessed by the skilled addressee played a most important part in this case. In the second section of this judgment ‘Some introductory facts about telephone services’, I have already recorded much of what I believe was common general knowledge at the priority date. There are however some further matters to consider, one of them being specifically pleaded under obviousness. It is called WATS reselling. First however, I will record some evidence which Mr Chandler gave in his first report which was responsive to WaveCrest’s broad insufficiency allegation that the skilled addressee would be unable to implement various features of the claimed invention at the priority date. This is an example of what Mr Purvis later called the ‘insufficiency squeeze’.

USA/Canada and the UK

82. As noted, telecommunications technology throughout the world had much in common and knowledge would not therefore be subject to significant national insulation⁴³. As Mr Chandler said⁴⁴:

“...I believe that the skilled person in the UK would be well aware of the deregulatory efforts and the emergence of competition in the US and elsewhere. Competition was really sweeping the telecommunications industry worldwide at that time and was certainly headed down that path, and the skilled person would have known that.”

83. There were however some differences in practice (and terminology) between relevant systems in the UK and the US. I have mentioned for example that, unlike the position in the UK, the *use* of DTMF telephones was widespread in the US at the priority date. Furthermore, in this country, virtually anything, in which BT were publicly involved, soon became part of the common general knowledge. As I have said, in spite of denationalisation, BT was still the dominant force in the telecommunications industry in this country. Such differences in practice and terminology were well known and did not strike me as being material⁴⁵.

Insufficiency evidence: computers and PBXs

84. In his first report, Mr Chandler was strongly hostile to any suggestion that the skilled addressee would have been unable to carry out the teaching of

42 Docherty II, 6/5/34

43 Mr Chandler T2/183 and 196-198.

44 T2/197

45 T2/183

the Patent at the priority date: see 4/1/§§ 86-91. In particular said Mr Chandler, computers capable of the verification and monitoring process (which was required as a result of the choice of pre-payment) were ‘widely available well before the priority date’. And he gave examples of commercially available models of computers.

85. Regarding PBXs and minicomputers to be used in the Special Exchange, he said this:

“Stored-programme PBXs had been available since the 1970s in the UK and elsewhere. Such PBXs had enough flexibility to permit the skilled person to build a special exchange according to the teaching of the Patent. The modifications would have included the addition of various hardware and software, including for example, a separate minicomputer-based system for storing and maintaining the special codes and prepayment data as well as the hardware and software interfaces between the PBX and the database minicomputer.”

He went on actually to identify a commercially available PBX and minicomputer which could be so used.

86. I accept this evidence. The consequence of it is that these too were matters falling within the common general knowledge at the priority date.

*WATS resale systems*⁴⁶.

87. This topic has been described as ‘the resell of long distance’ by telephone companies and at all material times has been a US phenomenon. What happened was this: in 1981 it became possible for ‘resale carriers’ to buy any number of WATS (or ENFIA⁴⁷) lines and resell capacity on those lines to subscribers so as to allow them to make cheaper long-distance calls. By the priority date of the Patent, hundreds of businesses in the US were using WATS lines. Such widespread usage was not in dispute and neither was the way such lines worked. In other words, WATS lines had thus become part of the common general knowledge⁴⁸. There was considerable cross-examination of the experts on this topic.

88. WaveCrest say that the prior use of WATS lines is one of the matters which, had it been before the Court of Appeal in the *Telco* case, would have led to a different conclusion. As this issue became the most important part of the validity attack based on common general knowledge alone, I must now say more about how the system works. I have reviewed the relevant evidence and consider that there was nothing of substance between the experts on this point⁴⁹.

89. An article from *Telephone Engineer & Management*⁵⁰ entitled ‘*Resale-An overview*’ provides an uncontroversial description of how the system works.

46 ‘Wide Area Telephone Service’.

47 ‘Exchange Network Facilities for Interstate Access’.

48 For the history of WATS lines, see generally 11/7-9, which all date from the early 1980s.

49 Compare Mr Docherty II 6/5/33 with Mr Chandler’s evidence atX4 and T2/216-221.

50 May 1982

A WATS 'switch' is connected to the local exchange at its incoming side and to an equal number of ports on its WATS/ENFIA side.

' The switch should be able to accept and validate a customer identification code; perform automatic route selection and least cost routing; and provide detailed traffic usage on demand and/or on a scheduled basis.'

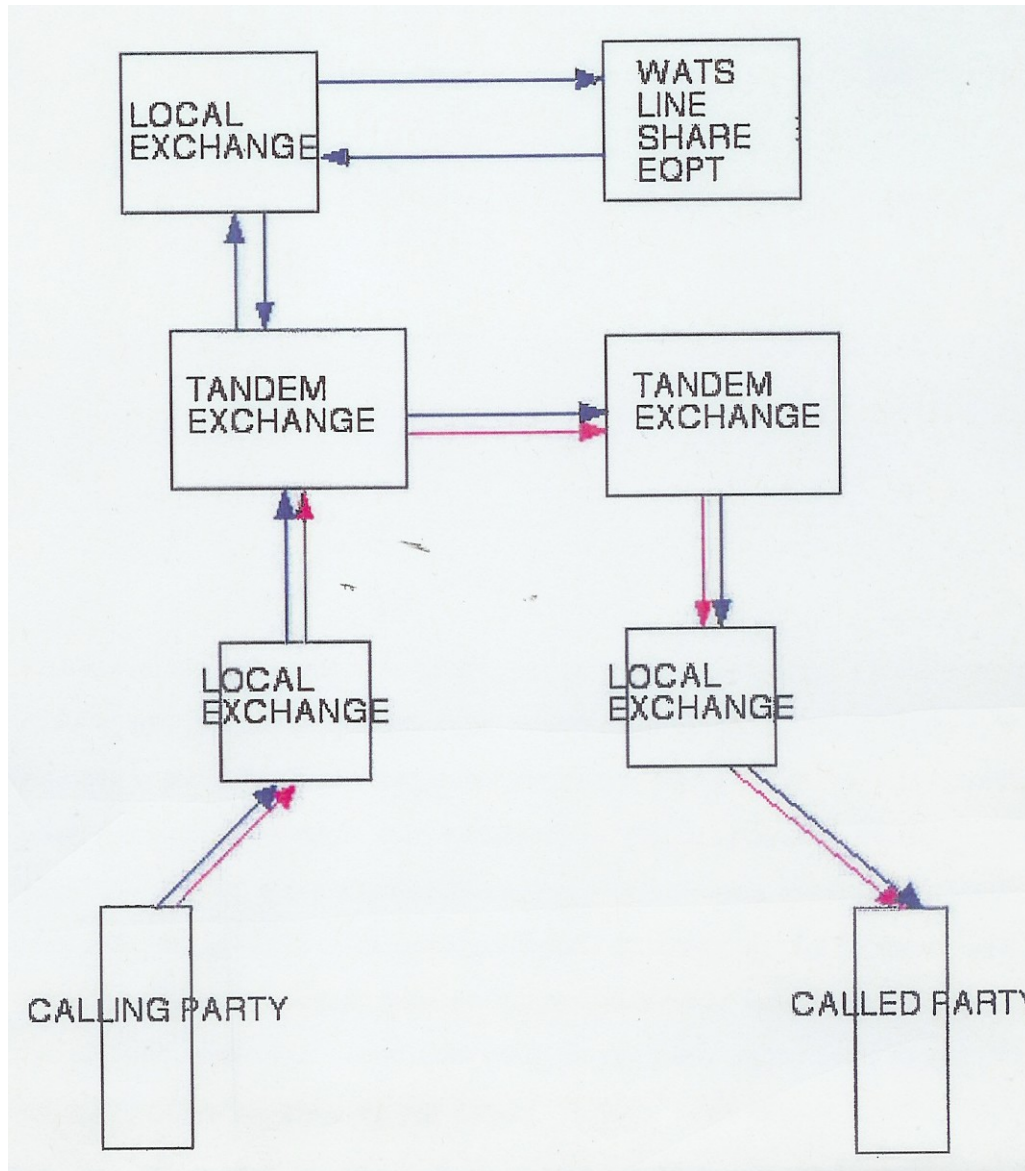
90. The documentation produced by the parties indicates that the subscriber must use a push button (or DTMF) telephone to access WATS lines. The caller could however also use any telephone for access by using a tone dialler: see §28 above.
91. The following is a précis of the evidence given on this topic by Mr Chandler⁵¹. A discrete exchange in the form of a special switch (often referred to as a 'WATS line switch' or a 'Harris switch') was connected to the subscriber line of a local telephone exchange. The switch was controlled by a computer processor which performed a number of functions and always included a memory.
92. The subscriber first dials the number of the reseller's WATS switch within the local exchange and through that local exchange he will reach the WATS line switch. That done (he hears a fresh dial tone), he then inputs his security/PIN number together with the number he wishes to call - and waits. A host computer in the WATS switch now processes this information against account holders and their security codes stored in its memory⁵² so as to verify and hopefully, validate the callers' code number. If the call is validated, either a second dial tone is heard enabling him to dial the number he requires or the number to be called is dialled automatically. This is also done at the switch by a line that goes back out to the local exchange and thence through another local exchange to the called party. The duration and value of the call is monitored for subsequent billing.
93. In practice the WATS line switch has a number of incoming and outgoing ports. Furthermore it executes other functions such as performing automatic route selection and 'least cost routing' for the dialled call. It also provides detailed traffic usage on demand or on a scheduled basis: 11/6. At the end of the call, the WATS switch forwards the call and other information back to the host computer for storage till (say) the end of the month for billing. The information received by the subscriber includes the date, the call duration and of course, the charge. As Mr Carr was quick to point out, this was undoubtedly a post-payment billing system.
94. There was no material difference between the experts regarding the way WATS reselling worked. Both experts drew conceptual diagrams illustrating the progress of a typical call through a WATS resale exchange and I reproduce below that made by Mr Docherty⁵³, the inner lines indicating the course of a conventional call: Comparison of this diagram with his

51 T2/217-229,242, 253-256.

52 T2/255

53 Docherty II, 6/33 This is simplified to illustrate the course of a call through a single port. Mr Chandler's diagram is at X4

schematic drawing of the progress of a call according to the teaching of the Patent (see §68 above) shows the only material difference to be that the box labelled 'WATS line-share Eqpt' is labelled 'Special Exchange' in the former case. What then *is* the Special Exchange'?



Construction: General principles

95. There was no discernable dispute between counsel as to the correct approach to construction: I must read the relevant documents in the case as if I were the skilled addressee. I need therefore only record that I was referred to *Terrell* (16th Edn) §6-101-107 and to *Kirin-Amgen Inc v Hoechst Marion Roussel Ltd* [2005] RPC 169. The fundamental question is: What would the skilled person have understood the language, particularly the

language of the claims, to mean?

“Construction whether of a patent or any other document is not directly concerned with what the author meant to say. There is no window into the mind of the patentee...Construction is objective in the sense that it is concerned with what a reasonable person to whom the utterance was addressed would have understood the author to be using the words to mean. Notice however that it is not, as is sometimes said “the meaning of the words the author used” but rather what the notional addressee would have understood the *author* to mean by using those words....What the author would have been understood to mean by using those words is not simply a matter of rules. It is highly sensitive to the context of and background to the particular utterance. It depends not only upon the words...but also upon the identity of the audience he is taken to have been addressing and the knowledge and assumptions which one attributes to that audience.”⁵⁴.

Construction issues from the Patent

96. **Two general points.** It was common ground that the Patent would universally be understood as requiring the use of a tone dialling/DTMF telephone and further, that DTMF telephones could not be used where the local exchange was still a Strowger exchange.
97. Furthermore, the claims are not limited to the making of calls via the public telephone network nor do they require the system to be able to place ‘calls to any party anywhere’. Private trunk lines could be used for example within the teaching of the Patent. The claims therefore cover a combination of hardware in which a computerised PBX is connected on the one side to the public network and to the parties called via a private network.
98. **A problem/solution patent.** The Patent has been drafted in traditional ‘problem/solution’ form. The so-called ‘significant detriments’ facing the maker of a telephone call at the priority date are set out on page 3 and are followed by the assertion (page 3, line 3) that there is therefore a ‘long felt need’ for better. These ‘detriments’ are all of a practical kind, are non-technical in nature and relate merely to matters of inconvenience. In the *Telco* case, Lewison J, said this about this part of the narrative:

“Despite what one might think to be a considerable degree of hyperbole in the description of the difficulties facing a telephone user, it is accepted for the purposes of this application that I must treat what is said in the Patent as true.”

99. Having heard the action, I not only concur with Lewison J’s misgivings about the seriousness of the suggested ‘detriments’ but in the absence of relevant evidence, I was left with an abiding impression of their being at best minor inconveniences. This is not an irrelevant observation since Aerotel pleaded and led evidence in support of the commercial success as an antidote to the attack based on obviousness. Commercial success is of course, the necessary obverse of long felt want and I shall return to this topic below.

⁵⁴ *Kirin-Amgen* (supra) at § 32.

100. **Computers and processors.** Since the experts were in minor dispute over whether enhanced or more sophisticated computer processing capability might (or might not) be required to adapt certain prior art proposals to a pre-pay or even a dual pay mode, I should again mention that as a matter of construction, the Patent is in fact *quite unconcerned* with any technical detail regarding the computers which are used. They are proposed as mere structural ‘blocks’ in the system which are required to perform certain functions as Mr Chandler said ⁵⁵. The computer ‘whizz’ in the team would understand this and is assumed to be able (for example) to achieve correct functional programming as required without undue effort. That, I think, is how this aspect of the patent would be understood by the skilled reader.
101. ‘**Any available telephone**’ This requirement is of course one of the salient features of the invention and in spite of the apparently straightforward nature of the phrase, it gave rise to dispute. One has I think, to have a practical approach to understanding the scope of this integer.
102. ‘Available’ is synonymous with ‘available for use’ in the sense that the telephone is ready to be used to make a call; in other words, it works. However, ‘any available telephone’ would not I think, mean ‘every working telephone in the jurisdiction without qualification’; neither would it cover a single apparatus since the Patent addresses a system. The skilled worker would be aware for example that at the priority date there were two types of apparatus in use: the old pulse dial telephones and the DTMF telephones which were being introduced (see above). If the proposal worked with the latter but not the former, that would still include ‘any telephone’. Moreover, the phrase is also not to be understood as implicitly carrying a compulsory, universal national availability. One has only to test a non-infringement argument based on the mere regional (as opposed to national) availability of the system subject of the claims, to reject any other construction.
103. ‘**Special Exchange**’ The meaning of this term (which is used both in the narrative and in the claims), is I believe, of fundamental importance to the resolution of all the important issues in this case. It is common ground that ‘Special Exchange’ is not a term of art. Surprisingly therefore, the term is not defined as such in the Patent. So one must look to context in the specification itself and at the drawings, particularly I think, at Figure 3 (reproduced above). I would add that the use of this term seems to be synonymous with two other undefined terms also used in the narrative: ‘special central station’ and ‘special central office’⁵⁶.
104. Before examining this topic I should just mention that in their admissions, WaveCrest seem to have had no difficulty in ascribing a meaning to the term since they admitted that their allegedly infringing system operates using a Special Exchange: 2/9/1(iii) and 3 (v)-(viii).
105. In spite of this, the lack of a definition in the Patent has led the experts to disagree about what the skilled reader would understand this term to mean, particularly in relation to whether the prior art citations possess a ‘Special

55 See §§ 84-86 above.

56 Pages 3 and 7 respectively.

Exchange’. But even then I detected some inconsistency in their evidence; and in the hands of the experts the phrase from time to time developed an elastic quality. Having listened to a good deal of argument about what this phrase means, I suspect that it may be a portmanteau phrase which is intended to introduce some ‘flexibility’ into the scope of the claims. How then would the skilled addressee have understood it?

106. In my view, the key is to be found in the adjective ‘special’ which was used by the draftsman both in this and other respects, in contrast to ‘regular’⁵⁷. It must therefore be an exchange which works apart from and in a different way to the ‘local’ exchange – which (see above) *is* a term of art well known to the skilled addressee and, I would guess, to the public as well. It is an item of functional hardware comprising computers and switches which was not to be found within in a ‘regular’ telephone network at the priority date and which is capable of certain functions which a local exchange would not have been capable to cope with at the priority date⁵⁸.

107. A Special Exchange is evidently hardware not otherwise found in a conventional telephone network; it functions as an independent exchange introduced into a telephone network. Both Mr Chandler and Mr Docherty have in my view rightly approached the matter of construction by seeking to determine the *function* of the Special Exchange. Mr Chandler says this⁵⁹:

“ The discussions of the special exchange at pages 11 to 21 of the Patent describe a system comprising a telephone call *router* (which may be a switch), computers and memory. The special exchange is capable of being dialled by customers, prompting for PIN numbers and desired destination numbers, *and routing approved calls into a telephone network for connection to the ultimate destination.*” [Emphasis added]

108. Mr Docherty says this⁶⁰:

“ ...the description ‘special exchange’ refers simply to the fact that the system described by the Patent requires an exchange with special functions to work. These special functions include the validation of special codes, storage of account information, monitoring the cost of call and automatic termination of calls on expiry of credit”

Routing

109. The experts’ principal difference in defining this term thus concerned the need for a *router* within the Special Exchange after a call is approved. Mr Chandler said that routing was essential; Mr Docherty did not subscribe to this. In this connection, reference was made to Fig 3 of the Patent (reproduced above) which it was said by Mr Chandler, illustrated the Special Exchange and within it, the router.

110. Looking at Fig 3 (read with the descriptive passage bridging pages 13-14), Mr Carr submitted that everything to the right of item 82 (‘regular telephone

57 Or in English usage, ‘local’.

58 See T4/627, for example

59 Witness statement 4/1/46

60 6/1/54

system’) was indeed the Special Exchange. Mr Carr pointed out that this included the router (or switch) 91 which has a routing function, being able to selectively connect incoming and outgoing lines. Claim 9 he said cannot be construed so as to exclude Fig 3. He further submitted that in practice, some routing function must always be present in any exchange since exchanges have to cater for long distance and international calls. In this connection he referred to the ‘*Dictionary of Telecommunications*’⁶¹ entry for ‘exchange’ :and ‘exchange hierarchy’

‘An exchange is the element in a telecommunications system which controls the traffic to and from destinations. It allows any user to communicate with any other within a large distributed population of users.

There are many possible routes for a particular call and the combination of trunks and exchanges to make a call is known as routing’.

111. Therefore, said Mr Carr, claims 1 and 9 require there to be a routing function within the Special Exchange *as an essential feature*. However, the claims are not for the Special Exchange *per se*. They are directed to a method of making a prepaid call and to a telephone system for making such a call, both making use of the Special Exchange as a part thereof. The claims are not concerned with how users of the system are connected⁶².

112. The only purpose of the router which is mentioned in the Patent is to save cost, and then, only in relation to *long distance calls*⁶³:

‘Means may be provided in the special central station for further increasing the cost effectiveness of the system by selectively routing the call over the least expensive available lines.

.....

The computer at the special exchange routes the call on the most economical available lines, according to prior arrangements with long distance line suppliers, *if it is a toll call*.....

The router selects the best possible route cost-wise for the particular call *if it is a toll call.*’ [Emphasis added]

113. I have said that this Patent was obviously written with a US/Canadian readership in mind and when I first read the above passages, I was at once reminded that in the US/Canada (unlike in the UK), local calls are free. On the other hand, the Patent does not require that the called party be any particular distance from the Special Exchange and the making of both local and long-distance calls are within the claims. This ties in with the claim structure where only claims 2 and 10 add ‘special’ routing and ‘least cost routing means’ respectively, as the features which distinguish them from claims 1 and 9. Thus, I then thought that claims 1 and 9 covered a Special Exchange wherein a router could be present – or not. I am still of that view and in spite of counsel’s argument, that is still how I think the item would be understood by the skilled addressee.

61 New York, 1983 [X13]

62 Though perhaps merely by way of explanation, I noticed that both experts from time to time illustrated how the system in the Patent worked by reference to ‘one line in, one line out’ without even mentioning routing.

63 Pages 4, 8 and 14 respectively.

114. This is an important issue however and I should, perhaps, venture a little further. Mr Purvis submitted that no routing function is required to enable the invention to work since the Special Exchange is on the line side of the local exchange and he pointed to Mr Chandler's drawing X6 to illustrate the point. In such an arrangement, it is in fact the local exchange (and not the Special Exchange) which will do the routing.
115. Furthermore, though 'block' 91 is indeed drawn within Fig 3, it is optional – just as certain other items drawn in Fig 3 are optional, such as the 're-dialler' 89 and the 'announce' 87.
116. I am therefore of the view that properly construed, claims 1 and 9 do not require a router to be an essential feature of the 'Special Exchange, whereas claims 2 and 10 do.
117. **'Making a pre-payment' and 'Pre-payment information'**. The use of pre-payment to pay for telephone calls wove its way in and out of many of the arguments in this case, the argument being at times mercantile in character whilst at other times it seemed to assume a metaphysical quality. In truth, the debate always came down to credit before a call, however the call is to be paid for. Credit and payment, as every shopkeeper knows, are not the same thing
118. Mr Carr's first and basic riposte to *all* the prior art citations, was: "But that is a post- payment method". In view of this, though the exercise might be seen as being curiously semantic to the ordinary telephone user, I must examine the teaching of the Patent on pre-payment a little more closely.
119. 'Credit' is defined thus in the New Oxford Dictionary:

'The ability of a customer to obtain goods or services before payment, based on the trust that payment will be made in the future.'

Credit comes in many forms. People frequently deposit an amount of money against possible future purchases of goods or services. One can think of many examples - hotel bookings, builders' services etc. In the telecommunications field, the BT's pre-paid Phonecard is a fair example of available (and portable) credit. I must return to the issue of pre-payment and credit when I come to obviousness.

120. What the user of the system proposed by the Patent buys with say, cash is 'a special code': see claim 1, integer (b) *'obtaining a special code by making a pre-payment'*. This is neither the incorporeal entity 'talk time' as Mr Lykiardopoulos called it nor of course is it the cost of an actual telephone call. It is simply another form of verifiable credit with which to make future telephone calls held under a PIN. The claims are not concerned with *how* the prepayment is made - though the narrative (page 6) suggests as alternatives, cash or a regular credit card. Neither is it even concerned with how the credit is 'stored'. A cash payment could for example be used to

purchase some form of pre-payment card from a post office or tobacconist, just as one did with the BT Phonocard. The use of a company credit card (AMEX, Visa etc) means that the telephone company will in due course get paid and in turn, the caller will pay for the call in his quarterly credit card bill later still. The substance of pre-payment for a telephone call is not the *pre-payment* itself but rather a form of *credit*, a record of which is held in the memory of a computer within the Special Exchange.

121. **‘Monitoring the remaining prepayment’** Mr Chandler called this integer ‘a fundamental feature of the patent’. He was taken up on this and the cross-examination which followed shows I think, an initial misunderstanding on his part of the function of the integer: T2/285-287. The issue is ‘monitoring the remaining prepayment’ and not monitoring the call itself – which would be a much more complicated task as I understand it. Call monitoring is not claimed. Moreover (in view of a subsequent debate about items known as auxiliary processors), the Patent is not at all concerned about how this is to be carried out.

122. The point is simple: that the telephone company must be paid and will give no credit when the recorded ‘kitty’ runs out. Though Mr Lykiardopoulos seemed hesitant to agree with me on the point, what is in issue is precisely the same event which occurs in the two instances of pre-payment for calls which were part of the common general knowledge (see above), though effected no doubt, in a more up-to-date manner.

Validity

123. Under the counterclaim for revocation I have the following three topics to consider: (i) Obviousness (ii) ‘excluded matter’ and (iii) insufficiency. I need not consider lack of novelty – though it was pleaded. This is because the prior art citations are concerned with post-payment billing.

Obviousness

The Law

124. There was no issue between the parties as to the applicable law. The correct structured approach to obviousness is that set out in *Windsurfing v Tabur Marine* as ‘arranged’ by Jacob LJ in *Pozzoli v BDMO* [2007] EWCA Civ 588 at [23], namely:

- “(1) (a) Identify the notional “person skilled in the art”
- (b) Identify the relevant common general knowledge of that

- person;
- (2) Identify the inventive concept of the claim in question or if that cannot readily be done, construe it;
 - (3) Identify what, if any, differences exist between the matter cited as forming part of the “state of the art” and the inventive concept of the claim or the claim as construed;
 - (4) Viewed without any knowledge of the alleged invention as claimed, do those differences constitute steps which would have been obvious to the person skilled in the art or do they require any degree of invention?”

125. **The *Windsurfing* enquiry as modified** Before examining the pleaded citations under this head, there are a few preliminary matters of a general kind which I should attend to. These have application to all the citations and may conveniently be considered at this point.

The inventive concept

126. I have already dealt with the first of Oliver LJ’s four stages of enquiry. As for the ‘inventive concept’, this was conveniently epitomised by Mr Chandler and is worth re-stating:⁶⁴

“The inventive concept claimed in the Patent is a system and method for making prepaid telephone calls conveniently and inexpensively from any available telephone...The system includes a special exchange which sits behind the local exchange and thus obviates the installation of specialised telephones or equipment on each telephone line .”

Differences between the prior art and the inventive concept

127. “*But that is a post-payment method*”⁶⁵ was Aerotel’s response to every item of prior art and in my view, this is by far the most significant issue to be considered in each case under the third step of the *Windsurfing* enquiry. Referring to Counsels’ breakdown of the claims, under claim 1 (§65 above), the ‘missing’ integers are (c), (g) (i) and (j) and in relation to claim 9 (§67 above), integers (c) and (d). Mr Purvis called these the ‘pre-payment’ features of the claims.

128. Pre-payment, said Mr Carr, (echoing no doubt, Mr Chandler’s view of the inventive step) was what made the invention of the Patent so very different from what had been done before. By use of computer memory to control switches to exploit this new perception, Aerotel had made a significant and

64 4/1/52

65 Cf § 118, supra.

patentable advance in the provision of telephone services to the public. Mr Purvis accepted that all the citations were indeed directed to post-payment proposals. There were he said, commercial reasons for this. But having opted for pre-payment, the other features of the claim inevitably followed - and by the use moreover, of a combination of well known hardware.

Pre-payment

129. As to prepayment, the following two questions must I think be addressed, the first being of a general kind, the second relating specifically to claims 1 and 9 of the Patent.

- (i) At the priority date, would it have been obvious to provide a telephone service on a pre-payment basis? and
- (ii) If so, would it have been obvious to do so in the manner provided for in the pre-payment features of the claims of the Patent?

Question 1

130. This itself has two aspects. First, is this question germane to an obviousness enquiry at all, since it involves only a non-technical issue viz a business decision in choosing between the two known methods of charging for telephone calls? Such a choice, said Mr Purvis, was not the business of patents; it is not a technical problem and moreover is something upon which the experts were not qualified to give evidence in any event. He drew my attention to authority regarding what was 'technically obvious' (i.e. a solution to a concrete technical problem) as opposed to what may be 'commercially practicable'; that is, a solution to a commercial or business problem. Thus, in *Windsurfing* itself Oliver LJ said⁶⁶:

"What has to be determined is whether what is now claimed as an invention would have been obvious, not whether it would have appeared commercially worthwhile to exploit it."

And again in *Hallen Co v Brabantia* (UK) Ltd [1989] RPC 307 at 327, Aldous LJ said:

"The prize for a good commercial decision or idea is a headstart on the competition and not a monopoly for twenty years."

131. Even if it is proper to pose the first question in this context, the answer must I think, be this: the general idea of *either* post or pre-payment charging for telephone calls would unhesitatingly have been present in the mind of a skilled worker at the priority date⁶⁷. These were the alternatives. A telephone company must of course be paid and both methods of payment were not just well known but were the norm. Which one to choose would depend only on commercial, practical, policy and marketing considerations. As I have said, the choice was an element of the way such companies do business.

132. Thus, assuming it to be a relevant consideration, the *idea* of requiring payment in advance for telephone calls is in my judgment, completely

⁶⁶ At p 72

⁶⁷ Confirmed (if evidence be needed) by Mr Docherty T4/539.

obvious. And it is my further view that the first question set out in §129 above is not germane to the enquiry on obviousness anyway.

Question 2

133. The second question relates to whether it was obvious to incorporate the *idea* of pre-payment for calls into the architecture of a telephone system in the manner described and claimed in claims 1 and 9 of the Patent.

134. The sequence of operation of the method claimed is as follows:

- (i) The caller pays cash or uses a regular credit card to buy a PIN number and thus ‘call time’ or more accurately (see above), *telephone call credit*
- (ii) He picks up the telephone inputs the correct service number together with the number he wishes to call,
- (iii) These three matters, PIN number, number to be called and credit, are recorded by the service provider in the memory of a processor (which is not something which a local exchange can do), this being a function of the Special Exchange,
- (iv) The Special Exchange verifies the PIN and creditworthiness of the caller,
- (v) The computer compares the caller’s credit with the minimum cost of the call, and
- (vi) Sets up the call and monitors the credit as it is used, and
- (vii) If the credit is exceeded, the call is disconnected.

135. The evidence of Mr Docherty was that all this was both *necessary and inevitable* if the telephone company were to choose prepayment as its way of doing business. Assuming that prepayment was an obvious *idea*⁶⁸, Mr Chandler readily agreed with the inevitability of steps (i) – (iii) above and reluctantly, I think, with items (v)-(vii)⁶⁹. But, as noted, he still disagreed about the role of the Special Exchange.

136. In my judgment, save for the role of the Special Exchange, all the other elements set out above are indeed the inevitable consequence of choosing pre-pay as the means for charging for telephone calls. In particular, apart from making use of computer -driven switches in the Special Exchange, steps (v), (vi) and (vii) above are collectively identical to what happened when pre-payment was effected by cash or by the use of BT Phonecards years before the priority date (see above, §§ 44-48 ‘*Pre-payment methods*’)

137. I should next record two further general matters which Mr Carr posed at this juncture as antidotes to obviousness.: First, he relied on commercial success of the invention subject of the Patent. Secondly, he asked the classic question: ‘If pre-pay calling was known and (as WaveCrest say) obvious, why did not BT adopt the pre-pay a calling system proposed in the Patent?’

Commercial success

68 Which I do not think Mr Chandler in fact accepted.,

69 See T2/326-328.

138. To put flesh on their commercial success argument, Aerotel called a Mr Mitchell Knisbacher who had been its Director of Licencing from 1994-2001, to support their case. He gave evidence by videolink from I think, Vermont I found him to be a satisfactory witness.
139. I have approached this issue on the usual basis viz that commercial success is the complement of a long felt want, the latter having been identified in the preamble to the Patent.
140. **Facts** The case on commercial success which is pleaded relates to licencing agreements which Aerotel entered into with a number of companies and the income arising therefrom. All but the Telco agreement is in respect of the settlement of litigation under the US equivalent of the Patent. The existence of such licences is not in doubt but Mr Purvis submitted that their existence alone is no evidence whatever of commercial success. He noted first that Aerotel are apparently simply a licencing vehicle; they provide no telephone services. He further noted that two of the licences were entered into with bankrupt companies and apart from the Telco settlement, none of them related to the Patent. Moreover, in answer to ‘long felt want’, he pointed to the fact that none of the settlements related to activities occurring in the first 10 years or so of the life of the Patent.
141. Mr Knisbacher did his best to assist the court but because he had left the company before all but the NACT settlement occurred⁷⁰, he was unable to give much direct help as to what compelled the various parties to become Aerotel’s licensee. Moreover, there was no evidence about the so-called ‘detriments’ mentioned in the preamble to the Patent which was said to lead to solution which it provided.
142. **Law** I have long considered that the statement of law on this subject by Lord Herschell in *Longbottom v Shaw* (1891) 8 RPC 333 at 336 -337 (HL – but not cited), can hardly be bettered. I shall therefore apply it to this case.
143. It should also be remembered that when present, commercial success is at best a secondary measure or aid by which to assess obviousness. It is I think, well to keep in mind the observations of Sir Donald Nicholls V-C on this point in *Molnlycke AB v Procter & Gamble Ltd* [1994] RPC 49 at 112-113⁷¹. When the issue is one of obviousness, the court’s task is to determine as a fact what is included in the state of the art and then again to find as a fact, whether in the light of the state of the art the relevant inventive step is obvious. In this, said the Vice-Chancellor, the court was assisted by the evidence of properly qualified experts. Secondary evidence such as evidence of contemporaneous events had its place, he said, and the importance of it varied from case to case. Nevertheless it “had to be kept firmly in its place”. By itself, commercial success is “of very little importance”.
144. Successful licencing may of course have been the result of a number of variables which have nothing to do with the Patent (or its US equivalent): commercial considerations, the notorious cost of IP litigation, the parties’ respective negotiating skills and so on. In my view, this evidence fails to

70 See § 11 above.

71 Not cited.

provide any assistance to Aerotel and their case on commercial success has not I think, been made out.

Why not adopted by BT?

145. First, motive to do or not to do various things in the past is another issue of the ‘secondary’ kind which often arises when obviousness is in question. More often than not, the evidence tends to be speculative and of little value. I have looked at the evidence and at the parties’ submissions on this point and have come to the conclusion that there has indeed been some guessing on both sides as to motive.

146. Exceptionally in this case, I think that one can find evidence which is plausibly of some assistance in answering the obviousness issue. First there is no doubt that much of BT’s monolithic market power remained in spite of deregulation. More importantly however is the fact that at the time in this country, the change from Strowger switching at the exchanges accompanied by the change to DTMF/ pulse dialling, both major systemic changes, was only just underway. Since DTMF telephones were essential in practical terms in order to implement new business thinking in the telephone industry, it would I think have been commercially imprudent on BT’s part to move to pre-payment ‘in Aerotel form’ *at that stage*. The prior art from BT (both cited and not cited in this case - see below) provides a clearer picture as to how BT were beginning to respond to the rapidly changing market place in the UK in relation to the far more important post-payment part of the business.

147. I do not think that the possible use by the public of the tone diallers which I have mentioned in §28 above, is an answer to this. For one thing, they were relatively expensive.

1

148. A lesser angle on motivation to move to pre-payment may I think relate to the ‘detriments’ spoken of on p 2 of the Patent. I have found these to be thin and unconvincing to say the least and it may be that this too has some bearing on why telephone companies concentrated first on their new generation of post-pay services

149. On this topic, I have also borne in mind what Laddie J said in *Brugger v Medic-Aid* [1996] RPC 635 at 655:

“ On the basis of this they say there is no reason why it should have been obvious to modify the prior art in any particular direction. That it appears to me, is a non sequitur. The fact, if it be one, that existing commercial products are highly successful and satisfactory does not indicate that there are no obvious modifications to make to them. It merely demonstrates that there may be little incentive to those already making those products to change the design – a quite different matter.”.

150. I now turn to the prior art citations.

WATS resale lines again.

151. I have already introduced the WATS resale lines in paragraphs 87-94

above. At the beginning of 1985, the skilled worker found himself in a new and rapidly changing world as far as telecommunications services were concerned and the very existence of WATS lines was itself a product of that change.

152. Mr Purvis first invited me to compare Mr Docherty's block diagram for the system described in the Patent with his diagram showing the working of the WATS resale lines. I have reproduced both in this judgment (above) and save for the operation of the Special Exchange, they are identical in terms of system architecture/hardware. By the same token, Mr Docherty's diagram had the same disposition of structural hardware as that reproduced in §51 of the judgement of the Court of Appeal in *Aerotel v Telco*.

153. I was next invited by Mr Purvis to consider Mr Chandler's definition of a Special Exchange⁷²:

“a system comprising a telephone call router (which may be a switch) computers and memory. The special exchange is capable of being dialled by customers, prompting for PIN numbers and routing approved calls into a telephone network for connection to the ultimate destination.”

Mr Purvis submitted that the computer – driven switches in the WATS system did this, including the automatic routing and least cost selection⁷³. There was therefore he said, no material difference in *hardware* between the two systems. I agree; the 'WATS box' is in the same location relative to the local exchange as is the Special Exchange in the Patent. But as Mr Purvis recognised, that is not the end of the enquiry.

154. Whilst my finding on the hardware of the system has an impact upon the findings of the Court of Appeal in *Telco* (which I shall return to below), the WATS switches evidently do not cater for those parts of the claims relating to what I have referred to as the 'pre-payment features'. The WATS system said Mr Carr was just another post-payment system. That, he submitted, was the end of the obviousness argument on this citation.

155. Had the skilled worker been invited to conduct work on the WATS reselling system to improve it or say, to make it more commercially attractive, he would I think, have inevitably considered *both* forms of payment. Let us assume that for some commercial reason his attention had been directed to the pre-pay alternative. He would of course have been aware that the 'WATS box' was a computer-driven switch used in connection with a post-payment service. But he would also appreciate that the 'WATS box' containing processors and other items, could be enhanced for use to record information relating not only to customers' PIN codes (as it was already doing for post-payment systems) but also to record and monitor call credit as well – and disconnect.

156. As I have frequently said, in this enquiry one is not concerned with computer matters, capacity, hardware, software methodology and so forth.

⁷² 4/1/49. He did not of course accept this definition because of the inclusion therein of a router See above).

⁷³ See 11/6/2 and T2/235-236

That is simply not part of the claimed invention. It was available to the skilled worker on demand as part of the team and it would not I think, have been a problem.

157. The answer to the fourth *Windsurfer* question is in my view easily answered in the light of the foregoing. I do not consider that the adaptation of WATS resale lines to accommodate pre-payment for the telephone calls it handled involved an inventive step. Pre-payment could be catered for with the 'WATS box' by computers modified to support the enhanced functionality which the change demanded. This too involved no inventive step. In my judgment, claims 1 (and 2) and 9 (and 10) are invalid for that reason alone.

The ATS III/65 [3/2 and 11/21]

158. ATS III/65 system (or 'box') was a computerised switching and billing system which was supplied to WATS resellers by the US company NACT. It was common ground that this was a commercial example of a WATS reseller and thus much of what I have just recorded in relation to WATS resellers will apply equally to this device. There is also no doubt that early versions of this product were sold in the 1983-84 period to customers in the USA. In fact, Mr Chandler accepted that ATS III/65 possessed all the attributes of claims 1 and 9, apart from the pre-pay feature: T3/345-350⁷⁴.

159. Court Bundle 10 is a substantial lever arch file and is devoted to technical material relating to ATS III/65. These are user manuals relating to various 'versions' of this system -which are all slightly different. In addition, as Mr Carr reminded me, they all contain errors of various kinds. There was however little evidence apart from the user guides and the advertisements and photographs which are to be found at 11/21, as to what any version of these systems worked.

160. For reasons which will shortly be apparent, I do not propose to say anything in particular about any version of this product before the version known as 'Version 2.0'. In brief, save for Version 2.0, the antecedent versions of ATS III/65 (or some of them) were WATS resell lines of the kind previously discussed; they had processing memory and other items in the position occupied by the Special Exchange in the Patent. Version 2.0 however was a product which was said to be a *complete anticipation* of the Aerotel claims. The user guide relating to this version is pleaded and, as will be seen, WaveCrest relied via CEA notices upon what was said by depositions and declarations in the US litigation concerning it and products allegedly made in accordance with it.

161. NACT was a US company which was sued in the US by Aerotel under the US version of the Patent. Though documents relating to the US litigation were produced by Aerotel for this case (at a rather late stage, so I was told), I need not go into the details of that litigation save to say that Aerotel's reaction to the Version 2.0 user guide when it was pleaded in the US was that it was quite simply a forgery, a concoction of the most serious kind.

⁷⁴ And subject to the usual skirmish over routing function, as to which, see above under 'Construction'.

Whilst Aerotel were doubtless rolling up their sleeves for a fight with NACT over this issue, the case suddenly settled.

162. Mr Docherty said that if he wanted to produce a user guide and he had the Patent in front of him, he would have produced something like the Version 2.0 user guide⁷⁵. I would also mention at this juncture that like Mr Carr, Mr Docherty was also critical about the technical quality of *all* these user guides. Aerotel said for example that they were all drafts and were in error and also unsatisfactory from a practical point of view (missing pages, for example). Mr Docherty agreed⁷⁶.

163. In this case, WaveCrest relied on the Version 2.0 user guide as a prior publication and on the ATSI/65 system operating in accordance with that guide as a prior user. The Version 2.0 user guide is to be found at 3/2. It is printed by a dot matrix printer and on its face is dated October 1983. Needless to say, Aerotel in this case continued to maintain that the document was a fake and in addition, that no hardware had ever been sold to a customer made anywhere in accordance with it.

164. As to evidence, WaveCrest relied first on two CEA notices: see 6/4 and 6/8. However, none of the protagonists in the NACT case who were concerned with the technical documents, which included NACT's relevant laboratory notebooks, was called. Foremost among these was a Mr Stephen Stanfill, a one time NACT employee, who gave deposition evidence in the US that he had drafted Versions 1.5 and 2.0 of the user guides.

165. WaveCrest declined to cross-examine a Mr Gus Lesnevitch, a forensic document examiner, who was offered for cross-examination by videolink from the USA., The court had therefore to consider the authenticity of the Version 2.0 user guide mainly on the basis of the evidence of the forensic document experts, Dr Giles and Mr Speckin, who came to court and to whom I have already referred.

166. I find the gist of the evidence of the experts (who were cross-examined), to be as follows:

- (i) That despite Mr Stanfill's evidence that dot matrix printers were used in 1983 to print the user guides, only version 1.4 seemed to have been printed with such a printer. To the extent that Versions 1.5 and 2.0 were printed using such a printer, they could only have been on a more modern dot matrix printer manufactured post-1990⁷⁷.
- (ii) Versions 1.5 and 2.0 were printed in Times New Roman whereas version 1.4 is printed in an earlier typeface⁷⁸. On the question of typefaces, Mr Speckin pointed out that Times New Roman was not introduced by Apple till 1991 and by Microsoft in 1992⁷⁹ Dr Giles could not comment on this as it was beyond her expertise.

75 T5/681

76 T5/754-755

77 T1/106

78 T1/98

79 Speckin's Second Witness statement: 4/7/5

- (iii) Though Versions 1.5 and 2.0 are dated July and October 1983 respectively, Dr Giles thought they were unlikely to have been printed until 1985 at the earliest. Mr Speckin on the other hand, thought that they could not have been printed before the early 1990's⁸⁰.

167. I would add that no explanation for these discrepancies can be found in the NACT documents. What is clear and to my mind seems most important, is that neither expert believed that these two documents was printed before January 1985, the priority date. Therefore Version 2.0 cannot have been distributed before then. Moreover, as an added matter, there were missing pages from Version 2.0 as well.

168. The bulk of the evidence on this topic is epitomised in Appendix 1 to WaveCrest's closing skeleton of argument and it is almost as long as all the rest of the entire closing skeleton. I have read this and have followed through the documents in question and the references. In spite of the impressive amount of work which has gone into this Appendix, I shall deal with it very shortly. In my judgment, I not only find it unconvincing but worse, I am left with a distinct feeling of unease on this issue. This impression was heightened in the light of the evidence of Dr Giles and Mr Speckin on the genuineness of Version 2.0 of the system.

169. Mr Carr reminded me of course that the burden was upon WaveCrest to make good their case in its entirety under this citation; he saw no shifting of the evidential burden. He also submitted that though the usual civil standard applied to WaveCrest's evidence on this citation, I had to take great care in assessing its quality and weighing its effect; losing a patent because of a prior user requires sound, cohesive evidence. This is what was lacking in this case, he submitted.

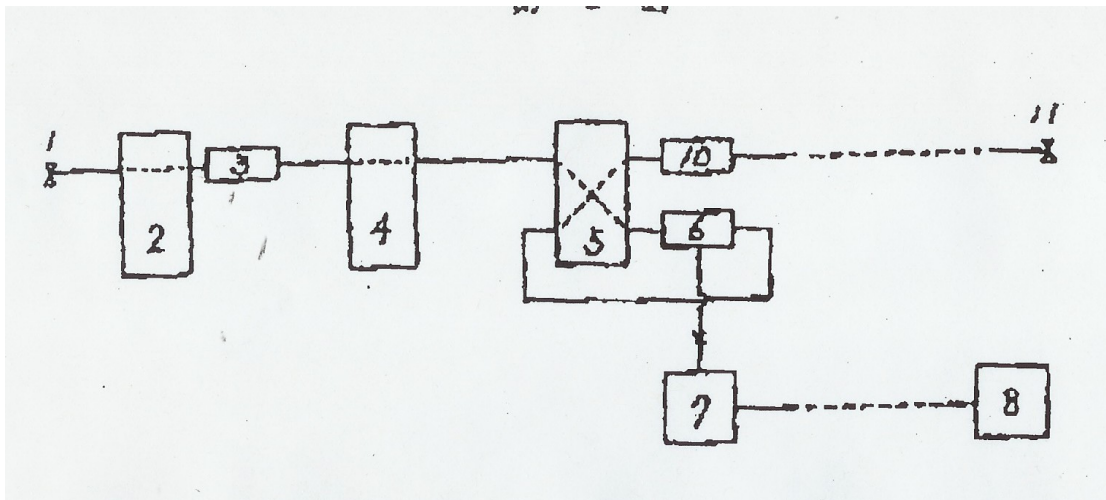
170. I agree with Mr Carr; the quality of the evidence relating to Version 2.0 falls short of what would be required to sustain WaveCrest's assertion that it is an anticipation of the disclosure of the Patent. I am not satisfied that WaveCrest have shown any more than that ATS III/65 was a commercial example of a WATS resale line. Thus, the comments I have made in relation to WATS reselling in general apply also to this citation.

Matsuda [3/1]

171. In relation to this citation, the parties worked from a translation from the Japanese and I confess to have found it difficult to understand the narrative at places. Nevertheless, the broad picture seems fairly clear. Matsuda is another post-payment proposal which enables a subscriber to charge calls to his account even where he makes calls from any telephone. It is an automated credit telephone system in which a push-button telephone is used with what is called a 'crossbar telephone exchange'. There was a good deal of evidence about crossbar exchanges which were it seems, the standard type of exchanges in use in Japan at the time. I do not think I need go into this complicated sub-issue.

80 T1/104-105 and T3/462,464.

172. The system described works as follows - by reference to Matsuda's figure 1 which is reproduced below



173. Via a push button telephone, the caller enters his dialling code and that of the 'call centre access code'. The call is routed through the local exchange 2 and the long distance exchange 5, where the call centre access code accesses what is called in translation 'unique fee trunk 6'. This in turn activates a computer (or 'telecommunications processing device') 7 which records the dialling code and sends a message back to the caller via the exchange 5 asking him to enter his account number. This too is stored in the computer which then interrogates 'datacentre 8' to establish whether the number is 'valid and active' - and if it is, it receives (and stores) the caller's security code. The computer then invites the caller to enter his security number and if the two match, then it invited the caller to enter his destination number. That is also stored. It then sends the destination number to the exchange 5 thus completing the call. The call is routed through the unique fee trunk 6 which monitors the call units and detects when the call is finished. A signal is then sent back to the computer 7 from the fee trunk 6 together with relevant information about the dialling code whence the call was made, the registered number of the caller, the dialled number and the call units. The computer records the duration of the call and sends this information to the datacentre for an item to be entered on the caller's established account.

174. WaveCrest contend that the combination of the unique fee trunk 6, computer 7 and associated datacentre 8, constitutes the Special Exchange of the Patent and thus, as with the WATS reselling lines, the only difference between Matsuda and what is claimed lies once again in the decision to choose pre-payment to pay for the calls. Needless to say, Aerotel deny that this combination of elements is a Special Exchange.

175. Matsuda is undoubtedly a more 'technically detailed' disclosure than that of the Patent. What Matsuda also teaches is a way of doing this and, so it seems, overcoming a problem inherent in the Japanese telephone system at the time which I do not think it is necessary to go into, save to say that it would otherwise have been necessary to re-wire every 'crossbar switch' at

the local exchanges. Crossbar switches it seems, were controlled not by computers but by hard-wired logic entities called 'markers'.

176. Aerotel's response to Matsuda was twofold. First, there is the issue of where the Special Exchange might be in Matsuda. And then there is the usual question of there being no pre-payment. As to the absence of a Special Exchange, Aerotel's first concern is the absence in Matsuda of any routing facility. I have already considered and rejected this under 'Construction' above. The evidence however shows that the 'live exchange 5' acts like a router and so I do not consider there to be force in this point in any event⁸¹. Routing functionality is there. Then there is the 'telecommunications processing device 7'. This says Mr Carr is not a computer but a hard-wired logic device. Of course a 'computer' is not required as such by the claims but even so, in cross-examination, Mr Chandler retreated on this issue. He said that the skilled person reading Matsuda at the priority date would realise that one could use a computer to implement item 7: see T3/396-397. A wired logic device, he said

“can be considered to be a primitive electromechanical computer”.

177. Applying the *Windsurfing* approach, one is therefore in much the same position as with WATS resale lines, albeit via a rather more sinuous route. The missing elements are again in the pre-payment aspects of claims 1 and 9. I have already considered the absence of these features in relation to obviousness and the WATS lines and in the case of Matsuda, I have reached the same conclusion. The Patent is invalid on the same reasoning.

BT's 'Cashless Calling' : BT Charge to Own Account and BT AccountCall

178. Some time before the priority date, BT commissioned a public marketing survey entitled 'Cashless Calling'. This generated an in-house report dating from December 1983 (3/3) and in connection with it, a leaflet entitled 'Cashless Calling- alternative methods of paying for telephone calls': see 3/3A/190. It is accepted that copies of this leaflet were issued to the public before the priority date. The leaflet described three proposals for cashless calling all of which involved post-payment: the BT Phonecard (previously mentioned), an automatic telephone credit card and a service called Charge to Own Account. The latter is pleaded.

The witnesses from BT

179. Two BT witnesses were called by WaveCrest in support of their cases under this head: Mr Andrew Murrey and Mr John Empringham. Both gentlemen were admirable witnesses doing their best to try to remember the detail of events which occurred quite some time ago. Both witnesses also gave useful and reliable evidence concerning the variety of new telephone products which had been proposed or were either in operation by the priority date or were in the course of being rolled out.

180. **Mr Andrew Murrey** is Head of Products at BT Payphones having worked

⁸¹ Docherty re-examination: T5/789-790.

for BT in various capacities since 1975. He has a degree in Electrical and Electronic Engineering. He was in fact involved with two relevant BT products: BT AccountCall and BT CreditCall. Only the first of these is pleaded but the second has also come into the case and there is some evidence relating to it.

181. **Mr John Empringham** has now retired but was employed by BT from 1966 to 2001. He has an honours degree in Electrical and Electronic Engineering from the University of Surrey and was involved with the introduction of two payphones. He finished his career in BT on the Payphone Business Planning Team as Head of Product Development. He was also involved in the development and marketing of a number of BT products including the trials for the Account Call and CreditCall services.

182. Mr Carr criticised these witnesses from time to time for being unable to remember names and dates and to provide fuller detail of what they were being cross-examined about. I have taken that into account but as often happens on such occasions when witnesses are being asked what happened 20 years ago, that can be an unfair criticism.

BT Charge to Own Account [3/3 and 3A/3]

183. This proposed service ('COA') was made known to the public in 1983 via the functional description in the 'Cashless Calling' leaflet [3A/3/188-189] to which I have referred. It is common ground that copies of this leaflet were issued to the public during the marketing survey and that the service was never implemented

184. The COA service was a post-payment service which could be used from any telephone and it was common ground that COA was to be a computerised operation. Existing home or business accounts could be used for billing; alternatively, the service could be billed to a special account i.e. to customers who had no home or business telephone. The description of its operation given in the leaflet is functional and lacks technical detail but the following actions on the customer's part are clear from the leaflet:

- (i) The caller picks up any telephone and dials the 'Charge to Own Account Number'
- (ii) He dials his own telephone number
- (iii) He dials a four digit personal/PIN number, and finally
- (iv) He dials the number required.

185. According to Mr Carr, the question of pre-payment apart, there was an initial difficulty with this citation in view of the minimal information it contained. He submitted that the 'Cashless Calling' leaflet was not an enabling disclosure.

186. In such cases, what is relevant when the issue is obviousness is first to hear what the experts say about how a particular citation would be understood by the skilled reader at the priority date and then proceed in the manner of *Windsurfing*. Neither Mr Murrey nor Mr Empringham were involved in the thinking within BT behind this proposal. But evidence was

given about it by the general experts and in cross-examination on this question, there were some differences between them.

187. In his first witness statement⁸², Mr Docherty found the ‘brief functional description of the system’ proposed in the BT leaflet to be of much the same quality as that of the narrative in the Patent. In either case, the person skilled in the art would have to ‘embark upon a research and development project to put it into effect’. He confirmed this in cross-examination: T4/632-633 Mr Chandler having said that though the leaflet proposed no direct guidance as to how the system would be put into effect, suggested under cross-examination that the skilled person would do so by modifying software at each local exchange. He would take advantage of recent advances in technology and install SPC (‘stored program control’) switches at local exchanges together with a new signalling system: T3/411. Mr Purvis suggested to him that this was just another sort of Special Exchange⁸³ as described in the Patent. Mr Chandler disagreed.

188. Even allowing for the general terms in which the Patent and its claims are cast, that is, essentially by reference to the block disposition of interactive elements, the opinions of the experts on this matter make me concerned as to how the BT leaflet would strike the more modest expertise of the skilled reader. Would he for example have been familiar with SPC switches?

189. I believe that before even the skilled reader got to consider the business side of the citation (i.e. altering the form of payment), he would be likely to be put off by the minimalist nature of the proposal. From a technical point of view he would not, I think, readily understand how to put into effect what was described let alone build upon it. In other words, he would not wish to use the BT leaflet as a promising way forward at all.

190. In my judgment the BT Charge to Own Account proposal whose operation is described in the ‘Cashless Calling’ leaflet is not material which is realistically useful with which to attack the validity of the Patent on the ground of obviousness.

BT AccountCall [3/4]

191. This evolved from BT’s Charge to Own Account and was in fact an automated version of BT’s Telephone Credit Card see § 37 above. It only worked with DTMF telephones. A threshold issue with this citation arose as to its public availability.

192. The BT Account Call is described in another leaflet [3/4] entitled ‘ACCOUNTCALL: Another great idea from British Telecom’ The system works as follows: The user first registered his telephone number (home or business) for billing purposes – this again being a post- payment service. The subscriber was then issued with a special AccountCall number and a PIN code. When he wished to make a call he would first dial an access number (144 or 197) to alert the local exchange that an AccountCall was

82 6/1/104’

83 T4/409-419

about to be made. A change of tone would prompt the dialling of his AccountCall number followed by his PIN code. Automatic verification of the integrity of the latter took place automatically and if approval was forthcoming, after a prompt, the caller would dial the destination number. The cost of the call would then appear on his bill in due course.

193. The principal difference between AccountCall and Charge to own Account was therefore the presence of the user's AccountCall number.

194. This service was the subject of a two-stage trialling exercise which spanned the priority date: a technical trialling which took place in 1984 and a marketing trial which took place just after the priority date. The purpose of the technical trial was to ensure that the system worked before it went to the public at large. WaveCrest therefore only rely on the technical trials which took place in the Bath/Bristol area in 1984 and involved primarily the use of numbers of BT staff – and their friends. It was also on display at the Martlesham Heath '84 public exhibition, at BT's Research Centre near Felixstowe.

Public availability

195. The Amended Grounds of Invalidity (2/4/4/§D1) rely on the making available to and use of the AccountCall system by the public before the priority date. It is not said that copies of the leaflet identified in §192 above were issued to the public. Furthermore, there was no allegation of any undertakings as to confidentiality having been obtained from any participants in this trial. Is confidentiality then to be implied from the circumstances? I think not.

196. The two BT witnesses were cross-examined extensively about the details of the trial and about those involved. These trials involved both BT staff and their friends and families. Mr Murrey said that those involved were actually encouraged to involve family and friends in the trial but that he could not name a single non-BT employee who had taken part T6/844-846. Mr Empringham, asked if he would have felt free to telephone Mercury (a potential competitor) 'and tell them about this proposed new development replied predictably: "*I would not have phoned up Mercury of this development, you are correct*"⁸⁴ As for the Martlesham Heath Exhibition, in September 1984, Mr Empringham was clear:⁸⁵:

A. I would not deliberately have disclosed anything that I was not authorized to disclose. But may I just say, Mr. Carr, that I also, looking in my diaries of that happy time in 1984. I noticed that I attended a public exhibition at Martlesham Heath. This was a shop window for BT and the payphone division were invited to present their wares as part of a publicity thing and I know that I stood in a tent in Martlesham operating a credit card payphone which was, you know, a simulation of how the service actually worked in (inaudible) and also behind us

84 T5/517-518

85 T5/818-819

we had a board which described how the Accountcall service worked. I was specifically authorized to disclose in general terms how the new service would operate.

197. I have reviewed the evidence on the disclosure of AccountCall both via the trials and the exhibition at Martlesham Heath and have come to the conclusion that there was adequate disclosure of the workings of AccountCall on both occasions for the purposes advanced by Mr Purvis. I appreciate that the detail which is likely to have been disclosed on these occasions may not have been high in technical terms but in terms of functionality, I consider that its mode of operation as epitomised in para 192 above was disclosed to the public without fetter of confidence. In this connection it is important again to bear in mind that the entire tenor of the discussion in this case was conceptual and not technical. But this was also how the Patent was drafted.

198. I should make another fact clear at this juncture. The argument put forward by Aerotel that AccountCall was available only from 'specially modified payphones' carrying a sticker is wrong. The stickers may have been there but Mr Empringham explained that AccountCall was actually available from *any* touch tone telephone in the Bristol/Bath area though it was only *promoted* from certain telephones at the time. He has also explained why this was done: T5/812-814. Mr Docherty in fact went further. He said⁸⁶ that any engineer considering the AccountCall system would have 'concluded immediately that it was a DMTF-based system'. Therefore having regard to my views on the issue which are recorded under 'Construction' (supra), AccountCall could in truth have been used 'from any available telephone'.

Obviousness

199. At the priority date, the skilled addressee would at once have realised that in operation, the AccountCall system had to make use of separate computer-driven switches to perform the functional tasks required of it. Those tasks required the comparison of information input by the caller with corresponding information retained in a database which contained a record of the customer's account details (e.g. AccountCall number and PIN number) and if the comparison matched, means to enable the call to be validated via the local exchange. Moreover, he would also have appreciated without being told, that such computer functionality was not part of the local exchange as such; 'it sits behind it'⁸⁷.

200. This is in fact exactly what happened when BT 's AccountCall was set up. As indeed the leaflet says on p2:

'The AccountCall computer is programmed to reject all other numbers.'

201. According to Mr Murrey's witness statement, BT added equipment based on an electronic common control PBX (i.e. a private branch exchange) connected to the local exchange. Mr Carr I think accepted this but submitted (correctly) that it was still not a Special Exchange within the meaning of the

⁸⁶ T5/788.

⁸⁷ Cf Mr Chandler's definition of the inventive concept.

claims as it had no pre-pay role.

202.I have considered the meaning of Special Exchange under the 'Construction' section above. In essence it is an exchange standing apart from the local exchange which is modified to support the particular functionality chosen by the patentee. This includes the facility to handle pre-paid calls from any available telephone, to monitor and to terminate them if necessary, when the credit runs out. I have rejected the need for a router as an essential feature.

203.In this case, what is required in addition to the functional requirements mentioned above in connection with AccountCall, is means in the database to store customer credit information, to monitor its use and to cause the call to be terminated when the credit expires. All these are functions associated with the choice of pre-payment as the way to pay for the call. In terms of step three of *Windsurfing*, this is what is 'different'.

204.These 'missing' pre-pay *functions* were in fact present in the prior art BT Phonecard which formed part of the common general knowledge, albeit working in a different way. But as I have frequently mentioned, the Patent and its claims are wholly unconcerned with how any functions are achieved; this Patent is concerned with interactive building 'blocks' for a telephone system. The system proposed uses DTMF telephones and computers; the way to get a computer to perform the required functions, is not part of the invention. If it were, the Patent might well be bad for insufficiency. Thus in my view (and in the view of Mr Docherty), obviousness all comes back again to the initial business decision to go for pre-payment. This is what Mr Docherty had to say⁸⁸:

Q. So post-payment was a crucial part of the thinking behind AccountCall?

A. I think it was crucial in this respect. If I start any business, I can think of it as a postpaid business or a prepaid business, two business models I can operate. By this point, BT have 22 million subscribers or thereabouts. Once every three months, they are sending them a bill. That is the way that they deal with them. We have a direct relationship, and if I bill you for £100, you will send me a cheque for £100, or let me take a direct debit for £100.

When I consider a new service, if I go, "Well, look, I will make that a postpaid service because all I have to do is add that detail to this telephone bill", then, in terms of the billing logistics, I have no real incremental cost. So I bill you £100, you pay me £100. Now, let us say, you know, BT were full -- and I think you suggested it yourself yesterday - of a lot of very clever people. Let us bear in mind, as is very clear with AccountCall, that this was a service lying strictly within the domain and the remit of BT's national payphone service. Now, would they have thought of prepaid? Well, blindingly obviously they would have thought prepaid.

They already operated prepaid service.

THE JUDGE: With a charge card?

A. With BT's Phonocard.

205. Going back then to the fourth step of the *Windsurfing* enquiry, I am of the view that there is no degree of invention required whatever in relation either to an initial decision to arrange for pre-payment rather than post-payment for the telephone calls made by AccountCall or to the implementation of such a decision. The Patent is therefore in my judgment also invalid on the ground of obviousness in the light of the use of BT AccountCall.

PBXs and call processors based on minicomputers

206. PBXs and minicomputers came into the obviousness enquiry as part of the common general knowledge - but were not specifically pleaded. I have referred to the evidence regarding the general availability of stored-programme-controlled PBXs associated with minicomputers before the priority date - indeed since the 1970s: see §32 and §§85-87 above. Mr Chandler in fact stated that such PBX's were *just the sort* of equipment he would start with (some modification being required) in order to build a Special Exchange: T2/4/§87.

207. I have said that the claims of the Patent are not limited to placing pre-pay calls through a public network; they could just as well be placed as it were 'in house' via say private trunk lines or a programme-controlled PBX. WaveCrest seized on this to advance another obviousness argument based on such PBXs. In this connection Mr Purvis first invited the court to consider the diagram showing the use of a PBX forming Appendix 5 to WaveCrest's opening skeleton of argument. This he said, was the basic hardware of the claims. Mr Purvis then invited Mr Chandler in cross-examination to consider the operation of a *pre-pay* telephone service in which callers went through such a prior art PBX which in his example, had lines to a variety of fortune tellers.⁸⁹: T2/298-304. I need not go through this evidence since Mr Chandler eventually agreed that Mr Purvis' pre-pay horoscope service would indeed work in accordance with the teaching of the Patent using a stored programme-controlled PBX. Thus, said Mr Purvis, charging by for services such as fortune telling on a pre-pay basis via a suitable PBX is either an obvious use of a known PBX system or if there be some element of novelty or inventiveness in it, it must lie entirely in the field of excluded matter viz a method of doing business.

208. I agree with the first of these submissions and will next turn to the separate issue of excluded matter.

Conclusion on obviousness

⁸⁹ In doing so, he had in mind an example in the case: a WaveCrest horoscope telephone card which is said to infringe and which is mentioned in the Product Description: 2/10/4.

209. It will be seen from the foregoing that in all those cases in which I have found obviousness to have been established, the citations relate to post-payment systems in which additional computer-driven switches exist in another exchange 'sitting behind the local exchange'. In what follows I have called such an exchange an 'Added Exchange'. To convert an Added Exchange into a Special Exchange, provision must therefore be made for enhancement to those computers in order to enable them implement the alternative method of payment.

***Excluded Matter: Aerotel v Telco in the Court of Appeal*⁹⁰**

General considerations

210. My findings in this section should be read with my findings relating to

- (i) billing methods (set out in the common general knowledge section⁹¹), and
- (ii) WATS reselling generally, Matsuda and BT AccountCall (set out in the preceding section under 'Obviousness') which all make use on Added Exchange 'sitting behind the local exchange'.

211. The relevant pleading reads as follows [2/4/6]:

In so far as the patentee made any contribution to human knowledge at the priority date (which is denied), such contribution consisted solely of matter which is excluded from patentability within the meaning of s 1(2)(b) of the Patents Act 1977, being a scheme or method for doing business or a program for a computer.

212. I briefly referred to this earlier litigation involving the Patent at the beginning of this judgment. The paragraphs which follow (and which are taken with some editing from the headnote in [2007] RPC 7), sufficiently summarise the procedural position.

213. Aerotel sued Telco for infringement of the Patent. Telco counterclaimed for revocation and applied for summary judgment, basing the application on the exclusion to patentability. The application succeeded and an order for revocation was made. Aerotel appealed, but prior to the appeal being heard it reached a settlement with Telco. Telco withdrew its opposition to the appeal which was nevertheless heard on its merits by the Court of Appeal.

214. At first instance, Lewison J considered only the method claim, claim 1. He held that the way in which the Patent described the method and the way in which it solved the problem of payment for telephone calls led to the conclusion that it described no more than a method of doing business and was thus unpatentable: PA '77, s. 1 (2), Art 52, EPC..

⁹⁰ Shortly after the conclusion of the trial the parties sent me short written submissions on the judgment of Kitchin J in *Astron Clinica Ltd's Patents* [2008] EWHC 85 (Pat) in which *Aerotel v Telco* was considered.

⁹¹ See §§32-49 and particularly §49

215. The parties agreed that rather than consider PA '77 s 1(2), it would be better to go directly to its antecedent, Art 52 of the European Patent Convention. So far as presently material, Art 52 provides as follows:

(1) European patents shall be granted for any inventions which are susceptible of industrial application which are new and which involve an inventive step.

(2) The following in particular shall not be regarded as inventions within the meaning of para 1:

(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, and

(d) presentation of information

216. Mr Carr warned me about giving Art 52(2) too wide a scope fearing that were I to do so, many valuable patents would be lost. In support of this, he cited Pumfrey J's warning in *Inpro v Research in Motion* [2006] RPC 20⁹² where he said:

“ I am anxious that these exclusions are not given too wide a scope. All modern industry depends on programmed computers, and one must be astute not to defeat patents on the ground that the subject matter is excluded under Art 52 unless the invention lies in the excluded matter as such.”

217. In this case, of course, the Special Exchange comprises essentially interactive computers which are programmed to operate switches which enable the claimed system to work.

218. In its judgment, the Court of Appeal (Jacob LJ delivering the judgment of the Court) went at length into the correct approach to the construction of Article 52, both in historical perspective and with regard to precedent. I need not go into that in this judgment save to say that Jacob LJ felt bound to apply the “technical effect” approach to the issue of patentability with the rider that novel or inventive purely excluded matter did not count as a “technical contribution” [38]. The “technical effect” approach was this: one asks whether the invention defined in a claim made a technical contribution to the known art. That said, Jacob LJ proposed the following structured approach to answer the enquiry:

(i) Properly construe the claim

(ii) Identify the actual contribution made by the patent

(iii) Ask whether it falls solely within the excluded subject matter, and

(iv) Check whether the actual or alleged contribution is truly technical in

92 Cited with approval by Jacob LJ in *Aerotel v Telco* at § 22

nature.

219. The Court of Appeal looked upon the system claimed in claim 9 as a claim to a new physical device, comprising an assembly or combination of conventional components. It held that the system proposed in the Patent, as illustrated in Aerotel's block drawing reproduced in § 51 of that judgment, was new *as a whole*; this was the contribution made by the Patent to telecommunication systems at large. Furthermore, the method claim, claim 1, claimed 'essentially' the use of this new system.

"And it is new in itself not merely because it is to be used for the business of selling phone calls. So, moving on to step two, the contribution is a new system. It is true that it could be implemented using conventional computers but the key to it is a new physical combination of hardware. It is clear to us that there is here more than just a method of doing business as such."

220. I have already observed however, that the Court of Appeal came to its conclusion absent the prior art which has been raised by WaveCrest in this case. The Court was unaware for example, that the existence of an Added Exchange 'sitting behind the local exchange' (and consisting of conventional computers programmed to carry out some (but not all) of the tasks required of a Special Exchange), had not only already been proposed but in the case of the WATS resellers, had actually become part of the common general knowledge.

221. The parties' contentions on this objection were predictable. I can take WaveCrest's basic submission from the first paragraph of its closing skeleton of argument:

'...the Patent is no more than the implementation of an existing combination of hardware to perform a particular method of doing business between telephone company and customer, implemented by programming existing computers...the patentee's contribution to what was known lies entirely in the fields excluded from patentability'.

Aerotel argued that in fact nothing had changed since the decision of the Court of Appeal and that this court was bound by it – in spite even of my antecedent findings on obviousness.

Aerotel v Telco: The structured approach

222. Applying the structured approach proposed by Jacob LJ in the light of my antecedent findings, I have come the following conclusions.

223. Step (a) I have already spent some time construing the relevant claims and need say no more about that at this point.

224. Step (b) The second step involves identifying the 'actual contribution' made to the art. Jacob LJ held this to be essentially an exercise in judgment, 'probably involving the problem to be solved, how the invention worked and what its advantages were'. He went on to suggest that the exercise was best summed up by asking: what had the inventor really added to human knowledge? This, he added, was a matter of substance not form. Let me try

to apply that to this case.

225. First, I must again say that I regard the ‘problem’ to be solved by the Patent as in fact being trivial. Inevitably, this has an impact on my view of Aerotel’s ‘actual contribution’ to the art. More importantly, the invention works in the same overall manner as does the extra computer-driven exchange (with switches) in the prior art mentioned above. The Added Exchange enables *post-paid* calls to be made ‘on any available telephone’. What was not done before however (i.e. the ‘addition to human knowledge’) was to have used the Added Exchange to:

- (i) enable *pre-paid* calls to be made, and to
- (ii) expand the capacity of the Added Exchange in consequence, so as to cope with the decision to elect for pre-payment.

The second matter is the inevitable consequence of the first when an Added Exchange is present. Moreover, how it is done is not part of the invention; it is done simply ‘by computer’.

226. Step (c) The step two ‘contribution’ consists in my judgment, entirely of excluded matter. First, the election to solicit pre-pay clientele is unarguably a ‘business method’ (see above §§49-50 above). The consequence in ‘computer terms’ forms no part of the invention; it is done with appropriate software. Moreover, even if it did form part of the invention, it would therefore only involve the construction of appropriate computer programs and would also be excluded from patentability.

227. Step (d) The final step is to cross-check so as to ensure that there is no technical contribution within the proposal of the Patent. What is disclosed in the Patent and claimed, is not in my judgment, a ‘new overall combination of *apparatus*⁹³’ and more importantly, neither is any known equipment interactive in some new way. The Special Exchange still operates in the same manner as an Added Exchange yet its extra computer function, according to Aerotel, takes it out of the exclusion. This is a distinction of form not substance, in my view. The Special Exchange merely arranges for the processor operating the switches in the known Added Exchange to have enough amended capacity to handle the additional operations consequent upon the election to charge by pre-payment: See Mr Chandler T2/293-294.

228. In my view, for the above reasons, the subject matter of the Patent is excluded from patentability within Art 52, EPC.

Insufficiency

229. WaveCrest have pleaded three issues under this head⁹⁴:

⁹³ *Aerotel v Telco, supra*, §56.

⁹⁴ 2/4/1-2

- (i) The Aerotel system cannot be used from ‘any available phone’ in the UK as required by the claims.
- (ii) The system as described in the Patent cannot either work out the minimum cost of a call to the called station, or monitor the running cost of a call.
- (iii) The Patent does not explain how to make a call from a calling station without the calling station being charged for the call.

230. I should say at the outset that WaveCrest’s agenda in advancing these matters was primarily tactical so as to provide a ‘squeeze’ on obviousness. By the close of the case, WaveCrest went further saying in their closing skeleton of argument:

‘The insufficiency arguments have done their job in this case. They do not establish invalidity on their own, but serve to establish the true position as regards the actual contribution of the patentee.’

231. The burden is of course on WaveCrest to make good their objections on the ground of insufficiency. Having regard to WaveCrest’s closing statement however I need not, I think, add specific findings on these three technical issues to an already lengthy judgment. I would however mention that the issues thus raised have indeed infiltrated into and have had an impact on the obviousness case, as WaveCrest appear to have intended.

***Infringement*⁹⁵**

232. Having held that the Patent is invalid it follows that it has not been infringed. In case I should be wrong about that, I must nonetheless make some findings regarding infringement.

233. I have mentioned that at trial little time was in fact taken with the topic of infringement and no significant evidence was led upon it. By the close of the trial, it had been agreed that WaveCrest’s two telephone calling services GoTalk and Talkback (see §8 above) infringed claims 1 and 9, if those claims were valid. It was also accepted by Aerotel that WaveCrest’s modified version of GoTalk, that is, Go-Talk Carrier Pre-select, did not infringe. Both the GoTalk services made use of regular credit cards to provide the credit necessary to make future calls, one variant providing an automatic top-up when the credit falls below a particular level.

234. That leaves the Calling Card System. Mr Chandler bought a £5 WaveCrest card and said that it worked thus:⁹⁶

- (i) The user purchases a card with a pre-paid value – say \$5. The card has a serial number and a PIN code which is revealed by scratching off a protective coating. He then dials an access code given on the card.

⁹⁵ See Admissions at 2/9 and the amended Product Description at 2/10

⁹⁶ First report :4/1/94-104.

- (ii) The caller is thereupon prompted to enter the PIN number
- (iii) The caller is then told by voice what his credit stands at and is directed to enter the required number. This done, the call is connected.
- (iv) Following the call, the user pushes the hash key and is informed of the remaining credit – if any.
- (v) If the credit get used up, the call is disconnected.

WaveCrest have admitted that they use a Special Exchange (see above, §99) and it not in dispute that the card can be used ‘from any available telephone’.

235. One of WaveCrest’s non-infringement arguments is based principally on the assertion that their cards are often *but not always* sold at a discount⁹⁷. Where there is a discount to the purchaser, a discounted pre-payment is not inserted in the memory of the Special Exchange, since the latter operates on the basis that the card carries its face value, £5 say, and not the £4 for which it was purchased. I therefore reject the argument that the sale of a WaveCrest card at a discount can affect the infringement issue; what has been bought is of course the face value of the card. The claim cannot be construed in such a way that infringement depends upon the whim of the retailer of the card. In both cases, the caller has *pre-paid* for the future call and the full value is stored in the computer memory.

236. WaveCrest raised a further argument that pre-payment is not allocated to the special code in the memory after the pre-payment has been made (as required by the claims) but beforehand on the face of the card during the course of its manufacture and thus, prior to pre-payment.

237. It appears however that the Patent does not specify *when* the allocation of the special code is to be made and the claims do not exclude a situation where the code is allocated prior to pre-payment. Moreover a difference in when the pre-payment is made cannot affect how the invention works.

238. No separate arguments were raised in respect of claim 9.

239. In my judgment, if the Patent is valid, it has been infringed by WaveCrest’s Calling Card System and also by their GoTalk and Talkback services.

Conclusion

240. The claim will be dismissed and the counterclaim succeeds. The Patent is invalid on the grounds of obviousness and excluded matter and will be revoked. I shall hear counsel on the form of order to be made and on any other matters which require attention, in due course.

⁹⁷ This assertion is made in the Product Description :2/10/13 – but there is no evidence to support it. The WaveCrest card which Mr Chandler bought was a £5 card for which he paid the full £5.

