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Case No: HC09C00090

IN THE HIGH COURT OF JUSTICE
CHANCERY DIVISION
PATENTS COURT

Royal Courts of Justice
Strand, London, WC2A 2LL

Date: 20 April 2010

Before :

THE HON MR JUSTICE ARNOLD

Between :

HTC CORPORATION

Claimant

- and -

YOZMOT 33 LIMITED

Defendant

Colin Birss Q.C. and Adrian Speck (instructed by Lovells LLP) for the Claimant
Henry Carr Q.C. and Piers Acland Q.C. (instructed by Bristows) for the Defendant

Hearing dates: 23-25, 29 March 2010

Judgment

MR. JUSTICE ARNOLD :

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Introduction

1. The Defendant (“Yozmot”) is the registered proprietor of European Patent (UK) No. 0 909 499 B1 entitled “Telephone identification calling apparatus and procedures” (“the Patent”). Yozmot contends that the Claimant (“HTC”) has infringed the Patent. HTC denies infringement and contends that the Patent is invalid. Yozmot denies that the Patent as granted is invalid, but in the alternative it has a conditional application to amend. It is common ground that the Patent is not entitled to the earliest claimed priority date (29 July 1996), but is entitled to the second claimed priority date (3 July 1997).

The witnesses

2. Yozmot’s expert witness was Tzvika Shechori. Mr Shechori is presently Senior Director and Chief System Architect for Elbit Systems Ltd, a large defence electronics manufacturer. He obtained a BSc in Electronic Engineering from the Israel Institute of Technology in 1977. From 1985 to 1994 he was chief engineer at Golan Electronics, developing communications intelligence equipment for Israeli Government agencies. From 1995 to 1999 he was director of the Radio Engineering Department at Cellcom Israel Ltd, a major Israeli telecommunications company. During this time he was in charge of the deployment and optimisation of 1000 base stations and of Cellcom’s network management system. It was also part of his job to evaluate cellular telephones introduced on to the market across the world. From 1999 to 2001 and 2001 to 2007 he was successively Vice President of Engineering & Technical Operations and Vice President of Research & Technology at Cellcom. He joined Elbit in 2007.
3. Mr Shechori was very knowledgeable about cellular telephones in July 1997. On the other hand, he had no experience of designing cellular telephones either in 1997 or

subsequently. It follows that his opinions about what a designer would or would not do in 1997 have to be treated with some caution. Apart from that, he was a good expert witness.

4. HTC's expert witness was Professor Angel Lozano Solsona. From 1986 to 1992 he studied Telecommunications Engineering at Universitat Politècnica de Catalunya in Barcelona. In 1994 he obtained a Masters in Electrical Engineering from Stanford University. In 1998 he obtained a PhD from Stanford for work on designing dynamic channel assignment algorithms for use in cellular systems. From summer 1995 to 1998 he also worked part-time for Pacific Communication Sciences, Inc. In that capacity he worked on the design of chipsets for Personal Handyphone System and Personal Digital Cellular telephones for DDI Corporation of Japan, particularly with regard to dynamic channel assignment. From 1999 to 2008 he was a researcher at Bell Laboratories, working mainly on multi-input/multi-output communication. From 2005 to 2008 he was an Adjunct Associate Professor of Electrical Engineering at Columbia University. Since 2008 he had been Professor of Information and Communication Technologies at Universitat Pompeu Fabra in Barcelona.
5. Professor Lozano clearly has considerable expertise with regard to certain aspects of cellular telephony. Furthermore, unlike Mr Shechori, he was actually involved in designing cellular telephones in July 1997. On the other hand, the particular aspect he was working on is not relevant to the present case. He explained that he was a member of a larger team which included members who were working on other aspects. Nevertheless, he was not very knowledgeable about one of the aspects of cellular telephones that is central to this case, namely the type of loudspeaker that they employed as ringers in 1997. This led him to make certain assumptions in his first report which, as he accepted, were not correct. Accordingly, I have treated his evidence as to the common general knowledge of the skilled person to whom the Patent is addressed with caution. I should make it clear, however, that I am satisfied that Professor Lozano properly discharged his responsibilities as an expert witness. Moreover, his evidence was of assistance despite the caveat I have mentioned.

Technical background to the Patent

6. The technical background to the Patent can be summarised as follows.

Electromagnetic loudspeakers

7. Electromagnetic loudspeakers are transducers which convert an electrical signal into sound by using an electromagnet to vibrate a diaphragm. Both moving-coil and moving-armature loudspeakers were well known in 1997, but moving-coil loudspeakers were more common. In a moving-coil loudspeaker, the diaphragm is connected to an electromagnet (i.e. a coil of wire wrapped around an iron core) and placed in close proximity to a fixed permanent magnet. The diaphragm flexes towards and away from the permanent magnet depending on the polarisation of the electromagnet. Moving-coil loudspeakers are capable of producing audible sounds across a broad range of frequencies with good fidelity. A good moving-coil loudspeaker will have something close to a flat frequency response across the whole range of frequencies of interest, which in the case of music is from around 20 Hz up to around 20,000 Hz.

Piezoelectric loudspeakers, in particular buzzers

8. Piezoelectric loudspeakers are transducers which convert an electrical signal into sound by using a piezoelectric crystal to vibrate a diaphragm. Simple piezoelectric loudspeakers are often referred to, particularly in the context of telephones and other consumer electronic devices, as “buzzers”. (They are also referred to as “ringers”, a word which is also used to refer to the part of a telephone that sounds its ring regardless of how the ring is produced, and as “sounders”.) Depending on their design, they can produce sound at or close to a single resonant frequency or across a range of frequencies. For example, one used in the Nokia 9000 (as to which, see below) had a frequency response curve which meant that it produced about 80 db or more of sound pressure from below 1 kHz to around 7 kHz. Generally speaking, however, buzzers have a significantly narrower range and significantly worse fidelity than moving-coil loudspeakers. As a result, they cannot reproduce the human voice, let alone complex music, with good fidelity. Nevertheless, an appropriately selected buzzer can reproduce speech, albeit with poor fidelity, and simple tunes.
9. Buzzers have the advantage that they consume significantly less power than moving-coil loudspeakers. This is useful for applications such as telephone ringers and alarms, since a relatively high volume of sound can be produced more efficiently than by a moving-coil loudspeaker. The evidence before me is that a moving-coil loudspeaker suitable for inclusion in a cellular telephone in 1997 consumed between 6 and 10 times as much power as a buzzer.

Landline telephones

10. Conventional landline (or wireline) telephones comprise a handset with a microphone and an earphone loudspeaker, a ringer (in the sense of a device which makes a ring when a call is received), a keypad and some basic electronics. By July 1997 most ringers were electronic ringers which produced either single tones or multiple tones. A single-tone electronic ringer would produce a fixed tone, which was turned on and off by the alternating half-cycles of the alternating current delivered down the wire from the exchange (the ringer was excited by the positive half-cycles, but not the negative ones). A multitone electronic ringer would produce two or more tones, which were played in accordance with the ringer's circuitry. In a multitone electronic ringer, the current delivered down the wire from the exchange served only to provide power to the ringer, rather than also to produce the ring itself (as was the case for single-tone electronic ringers).

Cellular telephones

11. Cellular telephones are wireless telephones which operate in a cellular network. In cellular networks, territories are divided into individual cells. Each cell features a base station. The base station provides network coverage for the cell. Coverage for the entire territory is provided by the network of base stations. In July 1997 many cellular telephones operated using a so-called second generation standard such as GSM. Work was underway on defining third generation standards such as UMTS.
12. The cellular telephones available in July 1997 had quite a range of sizes, weights, batteries, talk times, standby times and memory capacities. For example, the Nokia 9000 was significantly larger and heavier than most other cellular telephones on the

market: it measured 173 x 64 x 38 mm and weighed 397 g, whereas around 150-160 x 50-60 x 17-25 mm and 150-220 g was more typical. It also had more memory than most. Again by way of example, the Mitsubishi MT-20 (as to which, see below) was available with a range of battery capacities from 400 mAh to 1000 mAh, which gave a corresponding range of talk times and standby times.

13. In July 1997 all the cellular telephones on the market used piezoelectric buzzers as ringers and moving-coil loudspeakers for the earphone. The reason why piezoelectric buzzers were used as ringers was to save power and hence conserve battery life.

Carphones

14. Carphones are cellular telephones which are permanently installed in cars.

Hands-free car kits

15. Two main types of hands-free car kit to enable use of a handheld cellular telephone in a car were available in 1997, referred to as simple and fixed. The main difference between them was that a simple kit could be taken from car to car, whereas a fixed kit could not. The basic components of a kit were a loudspeaker (which could be an earpiece), a microphone and a power cable to take power from the car battery. Many kits also include a cradle for the telephone. Most kits were designed to be compatible with a variety of cellular telephones.

Telephone exchange

16. Cellular telephone systems do not have telephone exchanges in the way that landline systems do (or at least used to do), but they have a computer system which can be regarded as equivalent to a telephone exchange. Examples of the functions carried out by the telephone exchange include: assigning frequencies to each call; reassigning frequencies for handoffs (i.e. when users move from one cell to another); interconnecting calls with the local and long distance landline telephone companies; and compiling billing information. The telephone exchange also provides resources such as registration, authentication, location updating, call routing and data storage for storing the details of each cellular telephone subscriber in the network.

Ringtones

17. In 1997 cellular phones generally had a single, simple ringtone sounded by a buzzer. Top-end cellular phones could play a small number of built-in ringtones. These were monophonic ring tones i.e. they consisted of single notes, not chords. (Polyphonic ringtones were not introduced into cellular phones until around 2000. High-fidelity ringtones in formats such as mp3 were introduced in about 2002/2003.)

Calling line identifier

18. Calling line identifier (also known as “caller ID”) refers to a telephone function which identifies the number of the calling party to the receiving party. By 1997 this function was widely available with landline telephones and universally available with cellular telephones. Some handsets could access the memory on their address book and, if the

name and number of the incoming caller was stored, the number could be recognised so as to display the caller's name on the telephone's screen.

19. The Nokia 2160 cellular telephone, which was a successful model prior to July 1997, had a function called "distinct ringing" which enabled the user to set the telephone to produce a distinctive ringtone when one or more designated callers rang.

Voicemail

20. By 1997 voicemail systems were commonly used with both landline and cellular telephones. Voicemail systems store recorded voice messages externally to the telephone in memory at the telephone exchange.

Short message service

21. SMS messages (nowadays better known as "texts") were offered by many digital cellular telephones in 1997. In March 1997 Nokia introduced the Nokia 8110i cellular telephone featuring a facility it called Smart Messaging, which enabled (among other things) ringtones to be sent to telephones by SMS.

Memory

22. A variety of types of memory were available in 1997, including ROM (Read Only Memory), EPROM (Erasable Programmable Read Only Memory), EEPROM (Electrically Erasable Programmable Read Only Memory), RAM (Random Access Memory), NV-RAM (Non-Volatile Random Access Memory) and flash memory.
23. Although flash memory was commercially available, it was still very expensive. In July 1997 the only cellular telephone on the market which incorporated flash memory was the Nokia 9000. Professor Lozano's evidence, however, was that the cellular telephones he was working on designing at that time were intended to incorporate flash memory.

The Patent

24. It is convenient to summarise the disclosure of the Patent using the headings and sub-headings of the specification itself.

Field of the invention

25. Paragraph [0001] of the specification identifies the field of the invention as follows:

"The invention relates to improvements in telephones, particularly but not exclusively cellular telephones and, more specifically, to a method and apparatus for permitting cellular telephones to be called by means of a customized call message in place of or in addition to the standard call ring, as desired by the cellular telephone owner. Furthermore, this invention relates to a method and apparatus for recognizing calling subscribers by means of a customized list and for being recognized by receiving subscribers by means of a customized outgoing message."

Background of the invention

26. Paragraphs [0002] and [0003] identify three problems with existing telephones. First, cellular telephones are often used in public places and, when several ring at the same time, it is not always clear whose phone is ringing. Secondly, the regular ring of standard non-cellular telephones may be a “disagreeable” sound. Thirdly, the identity of the caller is uncertain. Although it is known to display the name of callers on the telephone display provided that the caller belongs to a list programmed by the receiving subscriber into the telephone, this is inconvenient because it requires the user to check the display and does not identify unlisted or unknown callers.
27. Paragraphs [0004]-[0012] set out eight purposes of the invention. The first three are as follows:
- “[0004] It would be therefore highly desirable, and it is a purpose of the invention, to provide a system for assigning to each telephone, in particular, but not exclusively, a cellular telephone, an acoustic call of its own, in place of or in addition to, the standard ring.
- [0005] It is another purpose of this invention to provide a system which permits each telephone owner and user – hereinafter, ‘the subscriber’ - to create, his customized call message (hereinafter, briefly, CCM), whether it be a sound, bars of music, a name, a message, and any other call chosen by the subscriber.
- [0006] It is a further purpose of this invention to provide such a system that does not require extensive and costly modification of the telephone, in particular the cellular telephone, itself, nor significant complications in its relationship with the telephone company and exchange with which the telephone is connected.”
28. Paragraphs [0007]-[0009] identify further purposes of the invention as being the provision of a system that enable subscribers to prepare three other types of message. Thus (i) a receiving subscriber can prepare a call signal which identifies a specific calling subscriber (referred to as “Identified Calling Signal” or “ICS”) and provide a list of ICSs for a large number of calling subscribers; (ii) a calling subscriber can prepare a message identifying himself to the person he is calling (referred to as “Self-Identifying Outgoing Message” or “SIOM”); and (iii) a calling subscriber can prepare a message containing useful information (referred to as “Outgoing Information Service Message” or “OISM”).
29. The specification then states two more purposes in the following terms:
- “[0010] It is a still further purpose of this invention to provide such a system which may be implemented without modifying the telephone apparatus itself by adding to the telephone apparatus an add-on device which, combined with the telephone apparatus itself and the telephone exchange

resources, allow the creation of a CCM, ICS, SIOM, OISM and other messages and/or other services.

[0011] It is a still further purpose of this invention to provide such a system which may be implemented using a combination of the telephone resources with the memory available in the telephone exchange or by adding to the telephone an electronic component which replaces the function of the telephone exchange memory.”

30. Paragraphs [0014]-[0017] contain a number of “preliminary observations” which explain some of the terminology used in the specification. It is clear from paragraphs [0001], [0004] and [0006] quoted above that the inventors regarded the invention as applicable to landline telephones as well as cellular telephones, but this point is reinforced in paragraph [0015]:

“Reference will always be made hereinafter, for purposes of illustration, to cellular telephones, but it should always be understood that this is not a limitation, since the invention is equally applicable to standard, non-cellular telephones.”

31. Paragraph [0016] describes the normal operation of telephones. This includes the following statements:

“Typically, the ring is produced by a loudspeaker – hereinafter ‘the ring loudspeaker’ – driven by an oscillating circuit.

...

If the receiving subscriber is ready to receive the call, he performs what will be called ‘a hookup procedure’, which will permit a caller to establish contact with the receiver. This is generally done, in cellular telephones, by pressing a button or by lifting a cover which protects the keyboard or in similar ways or, if the receiver is a standard apparatus, by lifting the earpiece.

...

During the conversation, a second loudspeaker - hereinafter ‘the earphone loudspeaker’ - much less powerful than the first-mentioned one, so that it has to be placed close to the ear clearly to distinguish the sounds emitted by it, permits the receiving subscriber to hear the message of the calling subscriber.”

Summary of the invention

32. The core of the invention is summarised in the following passage:

“[0018] Keeping the above facts in mind, the system according to the invention comprises providing, first of all, in the telephone, particularly the cellular telephone, what will be called hereinafter a ‘boosted loudspeaker’, viz. loudspeaker means that are more powerful than the standard earphone loudspeaker, so that it emits sounds loud enough to be heard in the environment without placing it near the ear. The boosted loudspeaker may be an additional loudspeaker, or the earphone loudspeaker itself, driven, when required, by what will be called a ‘booster circuit’, viz. an additional circuit which delivers more power than the standard one. In non cellular apparatus such boosted loudspeakers are generally provided anyway and are used in telephones to permit to conduct conversations without lifting the earpiece; however, they must be actuated by the subscribers for this purpose. In any case, switch means, practically transistor means, is provided to switch from the boosted loudspeaker and the earphone loudspeaker, and from both said loudspeakers to the ring loudspeaker, if present, and *vice versa*, as the case may be.

[0019] Means are provided in the telephones according to the invention for the dial call, which is emitted by the telephone exchange when calling the telephone as a receiver, to actuate the boosted loudspeaker instead of the ring loudspeaker. By ‘telephone exchange’ is meant herein the exchange with which the cellular telephone in question is connected. The telephone exchange transmits with the dial call what will be called ‘a customized call message’ (hereinafter, briefly, CCM), that is registered, as will be explained hereinafter, in the memory cell assigned to the particular cellular telephone. The customized call message - be it a sound code or a few bars of music or a spoken message – is heard through the boosted loudspeaker in the environment in which the receiver is located.

[0020] When the receiving subscriber carries out the hookup procedure; the boosted loudspeaker is deactivated, the earphone loudspeaker is activated, and the receiver is ready to carry out a conversation in a normal way. If the boosted loudspeaker is the earphone loudspeaker itself driven by a booster circuit, the earphone loudspeaker is disconnected from the booster circuit and connected to its ordinary low power circuit. Concurrently, the telephone exchange discontinues the communication of the memory cell with the receiver and places the caller in communication with the receiver in the ordinary way.

[0021] Since the boosted loudspeaker draws from the telephone power source more power than the ring loudspeaker, it is

desirable, at least in cellular telephones in which the power source is a battery, that it operate for as short a time as possible. Therefore, in an embodiment of the invention means are provided for discontinuing the customized call message and returning to the normal call ring if, after a predetermined short time, the hookup procedure has not been performed. Said means are essentially switch means which switch off the boosted loudspeaker and switch on the ring loudspeaker....”

33. This section of the specification goes on to describe six embodiments of the invention. The first embodiment relates to the creation of a CCM (paragraphs [0022]-[0023]), the second to the creation of an ICS (paragraphs [0024]-[0026]), the third to the creation of a SIOM (paragraphs [0027]-[0031]) and the fourth to the creation of an OISM (paragraphs [0032]-[0034]). In each case the message is registered (i.e. stored) in a memory cell associated with the cellular telephone at the telephone exchange.

34. The fifth embodiment is described as follows:

“[0035] In a fifth embodiment of the invention an add-on device is plugged to the telephone through its output bus. Said add-on device contains the components which are missing in the specific model of telephone to which it is added and that are necessary in order to create and send a CCM, ICS, SIOM and OISM as described in the previous embodiments. Said components might be the boosted loudspeaker, the microprocessor regulating the actions of the system, means causing the activation and disactivation of the ring loudspeaker, earphone loudspeaker and the boosted loudspeaker, according to the need and the required order, or any other component necessary in order to create and send a CCM, ICS, SIOM and OISM as described in the previous embodiments.

[0036] The add-on may be implemented in a variety of ways as long as it contains all the elements and/or components which that enable the add-on device combined to the telephone apparatus to which it is plugged to create and send a CCM, ICS, SIOM and OISM as described in the previous embodiments.

[0037] One particular instance of this embodiment is represented by a hands-free set modified to function as the add-on device. The term ‘hands-free set’ in this application means any device which, in conjunction with a cellular phone, a radio phone or a regular phone, enable the user to hold a conversation without having to hold telephone in his hand in the course of the conversation. By ‘hands-free set’ we also refer, specifically but not exclusively, to hands-free car cellular units and hands-free sets for cellular carphones which are designed to enable a hands-free conversation in a car. To this end, a controller is added to the hands-free set. Such controller, among other things, causes the switching between

the hands-free set's loudspeaker which, in this particular embodiment functions as boosted loudspeaker, the telephone ear loudspeaker and the ring loudspeaker.”

35. The sixth embodiment is a “Built-In Identification System” or “BIIS”, which is described in paragraph [0034]. In this embodiment the function performed by the telephone exchange “memory cell” is replaced by an electronic component added to the telephone apparatus in which CCMs, ICSs, SIOMs and OISM s can be recorded and stored.
36. Paragraph [0039] explains that in all embodiments of the invention the operations required, such as switching between components, are carried out under the control of a microprocessor. Telephones and telephone exchanges are generally provided with microprocessors which only need to be programmed as required. If such a microprocessor is lacking, it can be provided.
37. Paragraph [0041] explains that the expression “customized message” includes CCM, ICS, SIOM and OISM.
38. Paragraphs [0042]-[0052] are consistory clauses. Curiously, these do not correspond precisely to the claims of the Patent as granted, but rather to the claims which were contained in the application for the Patent.

Brief description of the drawings

39. This section of the specification introduces eight figures labelled Fig. 1 to Fig. 8. Each of these is described as a schematic illustration. They are very schematic indeed.

Detailed description of preferred embodiments

40. This section of the specification describes in slightly more detail the six embodiments which were introduced in paragraphs [0022]-[0038] by reference to the figures. Most of these further details add little of any significance, but two points should be noted.
41. The first is that embodiment 5, the add-on-device, actually comprises two different embodiments. The first, which is illustrated in Fig. 7, is an add-on device plugged into the telephone “through the telephone’s output bus”. The second embodiment is a hands-free set modified to function as the add-on device, which is illustrated in Fig. 8.
42. The second point concerns embodiment 6, the Built-In Identification System. Paragraph [0081] states that Fig. 6 illustrates “a variation of embodiments 1-5 which may be carried out by adding to the receiver an electronic component 62 capable of storing audible messages and by programming the receiver’s controller ...”. Paragraph [0082] states that:

“In embodiment 6, electronic component 62 replaces the telephone exchange memory cell described in embodiments 1-5, but otherwise all methods remain as described in the previous embodiments.”

The granted claims

43. As granted, the Patent has 18 claims. Claim 1 is a method claim. Claims 2 to 9 are dependent on claim 1. Claim 10 is an apparatus claim. Claims 11-14 are dependent on claim 10. Claim 15 is an independent apparatus claim. Claims 16-18 are dependent on claim 15. Yozmot only alleges infringement of claims 1, 2, 5 and 6, but contends that claims 5, 6 and 7 are independently valid.

44. Claim 1 is as follows:

“Method for performing the calling procedure of cellular telephones, which comprises the steps of:

I - creating for each cellular telephone a customized message by:

registering said message or messages in one or more sections of memory means chosen from among that constituted by the memory cell assigned to said cellular telephone in the telephone exchange, that constituted by additional memory means coupled to the cellular telephone, and that constituted partly by said memory cell and partly by additional memory means coupled to the cellular telephone;

II - providing boosted loudspeaker means in said cellular telephone;

III - when said cellular telephone is switched on, but is not in communication with another telephone, causing the ring loudspeaker, if any, and the earphone loudspeaker to be deactivated, and the boosted loudspeaker to be activated;

IV - when a caller telephone dials the number of said cellular telephone, for said cellular telephone to become a receiver, activating the boosted loudspeaker and retrieving from said memory means the chosen aforesaid customized message and/or other messages registered for said caller;

V - when the hookup procedure is performed, deactivating the boosted loudspeaker, if not already deactivated, and activating the earphone loudspeaker; and

VI - placing the caller telephone in communication with said receiver in the normal way.”

45. Claim 5 is as follows:

“Method according to claim 2, wherein the customized call is a CCM and is formulated and recorded by the receiving subscriber.”

46. Claims 6 is as follows:

“Method according to claim 2, wherein the customized call is an ICS message and is formulated and recorded by the receiving subscriber.”

47. Claim 7 is as follows:

“Method according to claim 2, wherein the customized call is a SIOM message or a OISM and is formulated and recorded by the calling subscriber.”

The proposed amended claims

48. The principal amendment proposed by Yozmot is to amend claim 1 as follows:

“Method for performing the calling procedure of cellular telephones, which comprises the steps of:

I - creating for each cellular telephone a customized message by:

~~registering said message or messages in one or more sections of memory means chosen from among that constituted by the memory cell assigned to said cellular telephone in the telephone exchange, that constituted by additional memory means coupled to the cellular telephone, and that constituted partly by said memory cell and partly by additional memory means coupled to the cellular telephone;~~

II - providing boosted loudspeaker means in said cellular telephone wherein such loudspeaker means consists of a loudspeaker which is additional to the earphone loudspeaker;

III - when said cellular telephone is switched on, but is not in communication with another telephone, causing the ring loudspeaker, if any, and the earphone loudspeaker to be deactivated, and the boosted loudspeaker to be activated;

IV - when a caller telephone dials the number of said cellular telephone, for said cellular telephone to become a receiver, activating the boosted loudspeaker and retrieving from said memory means the chosen aforesaid customized message and/or other messages registered for said caller;

V - when the hookup procedure is performed, deactivating the boosted loudspeaker, if not already deactivated, and activating the earphone loudspeaker; and

VI - placing the caller telephone in communication with said receiver in the normal way.”

The skilled addressee

49. A patent specification is addressed to those likely to have a practical interest in the subject matter of the invention, and such persons are those with practical knowledge

and experience of the kind of work in which the invention is intended to be used. The addressee comes to a reading of the specification with the common general knowledge of persons skilled in the relevant art, and he (or, once and for all, she) reads it knowing that its purpose is to describe and demarcate an invention. He is unimaginative and has no inventive capacity.

50. There is little or no dispute between the parties as to the addressee of the Patent. It is addressed to a person (or a team) working on the design of cellular telephones. Such a person would be likely to have a degree in electrical engineering, or a similar discipline, and several years' experience in the industry.

Common general knowledge

51. The law as to what constitutes common general knowledge is set out in the decisions of the Court of Appeal in *General Tire & Rubber Co v Firestone Tyre & Rubber Co Ltd* [1972] RPC 457 at 482-483 and *Beloit Technologies Inc v Valmet Paper Machinery Inc* [1997] RPC 489 at 494-495.
52. The common general knowledge of the addressee of the Patent includes all the matters I have set out under the heading "Technical background to the Patent" above. These matters were largely uncontroversial by the end of the trial. There were three areas of controversy, however.

Electromagnetic loudspeakers as ringers in landline telephones

53. The first is whether the use of electromagnetic loudspeakers as ringers in landline telephones was common general knowledge. HTC contends that it was. Yozmot contends that HTC failed to prove this.
54. In the section of his first report dealing with common general knowledge, Professor Lozano exhibited an extract from Chapter 4, "Electronic Dialing and Ringing Circuits", of what appears to be a fairly elementary textbook entitled *Understanding Telephone Electronics* (3rd edition, Butterworth-Heinemann, 1997) by Stephen J. Bigelow ("Bigelow"). The cover page of Bigelow features three bullet points, the first of which reads "Covers conventional telephone fundamentals". In paragraph 33 of his report Professor Lozano stated:

"[Bigelow] provides a helpful overview of the development of wireless telephones with electronic ringers. I do not believe that the technology involved or the skilled person's perception of it was any different the year before, i.e. 1996. Pages from this book are exhibited"

He went on in paragraph 34 to summarise what Bigelow says about electronic ringers. I have substantially reproduced this in paragraph 10 above.

55. I believe it is clear from this that Professor Lozano was saying that he considered that the contents of the pages he exhibited would have formed part of the skilled person's common general knowledge. Although Professor Lozano did not specifically draw attention to the point in his report, the exhibited pages clearly describe the use of both electromagnetic transducers and piezoelectric transducers as electronic ringers in

landlines, and include circuit diagrams for both (see pages 126 to 129). Professor Lozano went on in the next paragraph of his report to discuss the use of loudspeakers as earphones and ringers in cellular telephones.

56. In his second report in reply to Professor Lozano's first report, Mr Shechori did not take issue with what Professor Lozano had said about landline telephones. By contrast, he did take issue with what Professor Lozano had said about the use of loudspeakers as ringers in cellular telephones. On the other hand, Mr Shechori was careful to say that absence of comment should not be taken to indicate agreement with Professor Lozano.
57. Counsel for Yozmot pointed out in his closing submissions that Bigelow had not been put to Mr Shechori in cross-examination. Counsel for HTC submitted that this was not necessary given that Mr Shechori had had the opportunity to deal with the matter in his second report and had not suggested that electromagnetic ringers were not used as ringers in landline telephones. Moreover, he pointed out that Professor Lozano was not cross-examined on the matter either. Counsel for Yozmot's response to the latter point was that, given his demonstrated lack of knowledge about the ringers used in cellular telephones in 1997, Professor Lozano was not qualified to give evidence about whether the use of electromagnetic ringers in landline telephones was common general knowledge.
58. I do not regard this state of the evidence as very satisfactory. In my view both sides can be criticised for failing properly to deal with the matter in cross-examination. I bear in mind that the burden of proof here lies on HTC, but the issue should not be resolved on the burden of proof unless I am unable to come to conclusion one way or the other: see *Stephens v Cannon* [2005] EWCA Civ 222, [2005] CP Rep 31.
59. Despite the unsatisfactory state of the evidence, I have come to conclusion this is a matter which was common general knowledge. My reasons are as follows. First, in my view the best evidence is the textbook itself. Although expert evidence is generally adduced to prove common general knowledge, the easiest way to prove that something is common general knowledge rather than merely known to some is to show that it is mentioned in an appropriate textbook. That is the position here.
60. Secondly, Mr Shechori did not suggest otherwise. Given the importance that Yozmot attaches to the use of buzzers rather than moving coil loudspeakers as ringers in telephones, I am confident that Mr Shechori would have been asked to address the point in his second report if moving coil loudspeakers were not commonly used as ringers in landline telephones.
61. Thirdly, in my view Professor Lozano was qualified to give evidence about this matter. After all, he had a degree in telecommunications engineering. I suspect the reason for his error in relation to cellular telephones was due to his assuming that they were the same as landline telephones in this respect. In any event, he was entitled to and did rely upon the exhibited pages from Bigelow as representing the common general knowledge of the skilled person. That evidence was unchallenged in cross-examination as well as being uncontradicted by Mr Shechori.
62. Fourthly, as I have said and as Yozmot was at pains to stress for the purpose of its argument on inventive step, there is a good technical reason why cellular telephones

employed buzzers as ringers in July 1997, namely to save power and hence battery life. As counsel for Yozmot himself submitted in his written closing submissions, this is not an issue with landline telephones. Accordingly, there is no technical reason why moving coil loudspeakers should not have been used as ringers in landline telephones.

Prevailing attitudes in the cellular telephone industry

63. Yozmot relies upon what it contends were the prevailing attitudes in the cellular telephone industry in July 1997. There is some common ground between the parties here, but there are also some differences at least of emphasis.
64. Yozmot contends that there were significant concerns about the size and weight of cellular telephones. I accept that size and weight were concerns, but that did not mean that designers were striving to minimise size and weight at all costs. As I have already said, there was a variety of sizes and weights of cellular telephone available. The Nokia 9000 demonstrates that there was thought to be a market for quite a large and heavy telephone even if it was handheld. Moreover, as HTC points out, size and weight was less of an issue for carphones than for handheld devices.
65. It is common ground that the size and weight of the battery was one of the most important factors in the size and weight of a cellular telephone, and that cellular telephone designers were generally looking to reduce battery size and weight. On the other hand, as I have already said, a variety of batteries was available. Again, battery life was much less of an issue for carphones.
66. It is also common ground that designers were concerned about power consumption, and hence battery life. On the other hand, designers were not concerned to minimise power consumption at all costs. On the contrary, they were prepared to accept increased power consumption as the price for increased functionality. Thus it was appreciated that the 3G systems that were under development were likely to be more power hungry, but this did not deter such development.
67. It is also common ground that the decision as to whether to include a new function in a cellular telephone involved consideration of the trade-off between the advantages conferred by the new function and any extra hardware needed, extra software, the effect on power consumption, size and weight. Yozmot contends that network operators were mainly interested in features that generated revenue, and that the main source of revenue in 1997 was voice calls. I accept those points, but as HTC demonstrated, handset manufacturers introduced some new features because they were thought to be attractive to consumers regardless of whether they generated revenue for the network operator. These features consumed additional power. This confirms that power saving was not of overriding importance for designers.
68. Finally, HTC contends that the evidence shows that landline telephones formed one source of functions that the industry looked to for implementation in the mobile context. I accept this.

Power consumption of buzzers and moving coil loudspeakers

69. There was a disagreement between the experts as to effect on battery life of the difference in power consumption between buzzers and moving coil loudspeakers.

Professor Lozano considered that use of a moving coil loudspeaker rather than a buzzer would shorten the battery life by a maximum of 4.2%, while Mr Shechori's estimate was 5.7%. It does not matter who is right about this. As Mr Shechori accepted, even if 5.7% is the right figure, this is not significant when compared with the variations in battery capacity which existed in 1997. Furthermore, as Professor Lozano pointed out, a difference of this magnitude does not significantly affect the user's recharging pattern: a user who needs to be recharge every other day will still need to recharge at roughly the same intervals.

Construction of claim 1

70. The task for the court when construing a patent claim is to determine what the person skilled in the art would have understood the patentee to have been using the language of the claim to mean: see *Kirin Amgen Inc v Hoechst Marion Roussel Ltd* [2004] UKHL 46, [2005] RPC 9 at [30]-[35]. In that case the list of principles to be found in the judgment of Jacob LJ in *Technip France SA's Patent* [2004] EWCA Civ 381, [2004] RPC 46 at [41] was approved subject to one point.

Method for performing the calling procedure of cellular telephones

71. There are three issues of construction which turn on the same underlying point, namely the relationship between the first integer of claim 1 on the one hand and steps I and II on the other. It is common ground that steps I and II must be carried out before steps III to VI. It is also common ground that steps I and II may only need to be carried out once, whereas steps III to VI must be carried out repeatedly.
72. The first issue is as to the meaning of the words "method of performing a calling procedure". HTC contends that steps I and II do not form part of a "method of performing a calling procedure". Yozmot contends that a "method for performing the calling procedure" can include preparatory steps which are necessary for the calling procedure to be performed, and that steps I and II are such preparatory steps.
73. In my judgment Yozmot's interpretation is to be preferred. It has to be said that the claim is curiously drafted, both in this and in other respects. Nevertheless, it must be given a purposive interpretation. HTC's interpretation has the consequence that the claim cannot be infringed. That is not a purposive interpretation.

Step I: creating for each cellular telephone a customised message.

74. Creation of the customised message is effected by registering the message in memory as set out in step I. In claim 1 the customised message may be created for the user or by the user. It is that customised message which is then retrieved in step IV.
75. Again, there is a dispute as to how this relates to the first integer of the claim. Yozmot contends that creation is a prerequisite for the steps which follow, and in that sense part of the method of performing a calling procedure. HTC contends that creation is an activity which is undertaken before any calling procedure. Again, I consider that Yozmot's construction is correct for the reason given in paragraph 73 above.

Step I: additional memory means coupled to the telephone

76. “Additional” to what? HTC contends that this means additional to the memory that the cellular telephone is manufactured with. Yozmot contends that it means additional to the memory which is used for executing the programs necessary for making calls.
77. The effect of HTC’s construction is to restrict the claim (in the case where the memory means is “coupled to the cellular telephone” rather than constituted by the “memory cell assigned to said cellular telephone”) to a method which employs cellular telephones to which the additional memory has been retrofitted after manufacture. Counsel for Yozmot submitted that this was wrong for three main reasons. First, because one of the stated purposes of the invention is to avoid the need for extensive and costly modification of the cellular telephone. Secondly, because it makes no difference to the claimed methods or apparatus whether the additional memory means is fitted at the time of manufacture or retrofitted afterwards. Thirdly, because such an interpretation is inconsistent with the description of embodiment 6 in the specification, which makes it plain that the “additional memory means” can be “built-in” i.e. incorporated at the outset. In my judgment these reasons are cogent, and I therefore conclude that HTC’s construction cannot be correct.
78. Nevertheless, Yozmot’s construction is not free from difficulty in circumstances where the “additional memory means” is said to have been incorporated at the time of manufacture. How then does one determine whether or not the memory means in question is “additional”? In explaining Yozmot’s construction, counsel for Yozmot submitted that the test was whether the memory means was additional to the memory that would otherwise be in the telephone. But how does one know what memory would otherwise be in the telephone? Taking a purposive approach, I think the right answer must be that the requirement that the memory means be “additional” is satisfied if there is sufficient memory to record and store the customized message in addition to performing the other functions of the telephone.

Step II: providing boosted loudspeaker means

79. Once again, there is a dispute as to how this relates to the first integer of the claim. Counsel for Yozmot submitted that “providing” should be understood as meaning “there is provided”. That is not an attractive interpretation viewed as a matter of language. Given that I accept Yozmot’s construction of step II as being preparatory to steps III to IV, however, this seems to me to be the best way to make sense of the wording.

Step II: in said cellular telephone

80. Yozmot contends that “in” means that the boosted loudspeaker must be located within the casing of the cellular telephone. HTC contend that it is sufficient that the boosted loudspeaker is connected to the cellular telephone so as to form part of the apparatus as a whole. On HTC’s construction, embodiment 5 described in the specification falls within claim 1, whereas on Yozmot’s construction it does not. This is true not only of the hands-free kit illustrated in Fig. 8, but also the add-on device illustrated in Fig 7.
81. As a matter of language, Yozmot’s construction appears persuasive at first blush. As counsel for Yozmot submitted, this is not just question of the use of the word “in”, but

also the contrast between “in” in step II and “coupled to” in step I. If one asks what the technical purpose is of interpreting the claim in the manner suggested by Yozmot, however, Yozmot’s interpretation is rather less persuasive. The specification does not identify any reason why the boosted loudspeaker should be located within the casing of the cellular telephone as opposed to within the add-on (Fig. 7) or hands-free kit (Fig. 8). On the contrary, the specification suggests that the inventors considered that it would be perfectly acceptable to locate the boosted loudspeaker within the add-on or hands-free kit. Moreover, the skilled reader would appreciate that the key function of the boosted loudspeaker is to make the customised message audible to the user. It can perform this function just as well if it is located outside as within the casing of the cellular telephone. Accordingly, I consider that the skilled person would conclude that the word “in” was being used in loose rather than a strict sense, and encompassed composite apparatus of the kind illustrated in Figs 7 and 8. The contrast with the words “coupled to” is a classic example of the kind of “meticulous verbal analysis” that was rejected by the House of Lords in *Catnic Components Ltd v Hill & Smith Ltd* [1982] RPC 183.

Step III: ring loudspeaker

82. It is common ground that the word “loudspeaker” is an ordinary English word which should be given its dictionary meaning. The *Shorter Oxford English Dictionary* defines “loudspeaker” as:

“an instrument for converting variations in applied electrical impulses into corresponding sound waves (usu. music or voice) that are able to be heard at a distance from the instrument.”

83. As for the expression “ring loudspeaker”, it is common ground that this is not a term of art. It is defined in paragraph [0016] to mean a loudspeaker driven by an oscillating circuit which produces a ring. Yozmot contends that, when used in relation to a cellular telephone, “ring loudspeaker” means a buzzer. In support of this Yozmot relies on the fact that the skilled reader would know from his common general knowledge that all ring loudspeakers used in cellular telephones at that time were buzzers. HTC contends that the expression “ring loudspeaker” covers, but is not limited to, a buzzer. In my judgment, HTC’s construction is to be preferred for the following reasons.
84. First, the Patent uses the expression “ring loudspeaker”. This is an entirely general expression which is apt to describe any loudspeaker which produces a ring. In any event, that is exactly how the specification defines it. There is no reference anywhere in the specification to a buzzer.
85. Secondly, the skilled reader would appreciate that, even in a cellular telephone, it would in principle be possible to use other types of loudspeaker as the ringer. There is no reason why the patentee would want to confine his claims to a buzzer.
86. Thirdly, the specification is explicit that the invention is equally applicable to landline telephones. Accordingly, the skilled reader would appreciate that the expression “ring loudspeaker” was intended to describe the devices used in landline telephones, and not merely in cellular telephones. Furthermore, he would be aware from his common

general knowledge that some landline telephones used moving coil loudspeakers as ringers.

Step III: boosted loudspeaker

87. Again, it is common ground that the term “boosted loudspeaker” is not a term of art. It is defined in paragraph [0018] to mean a loudspeaker which is more powerful than the standard earphone loudspeaker, so that it emits sounds loud enough to be heard in the environment without placing it near the ear. It may be an additional loudspeaker or the earphone loudspeaker boosted by a booster circuit. No particular level of loudness is required, however. Moreover, it is clear from paragraph [0037] of the specification that the expression “boosted loudspeaker” covers the kind of loudspeaker that forms part of a carphone or a hands-free set for use in cars. Thus the environment in question may be the environment of a car.
88. The function of the boosted loudspeaker is to sound the customized message. The customized message may be a human voice, music or other sounds. Thus the boosted loudspeaker must be able to reproduce such sounds. No particular degree of fidelity of reproduction is required, however.
89. Yozmot contends “boosted loudspeaker” means a moving coil loudspeaker, and not a buzzer. HTC contends that “boosted loudspeaker” means any loudspeaker which is loud enough to be heard in the environment, and thus extends to a buzzer. Yozmot advances four arguments in support of its construction which it is worth considering in turn.
90. First, Yozmot says that the specification uses the expression “boosted loudspeaker” in contrast to “ring loudspeaker”, and the latter means a buzzer. I do not accept either limb of this argument. The specification does not exclude the possibility that the same loudspeaker is used as both ring loudspeaker and boosted loudspeaker. Indeed, step III in claim 1 explicitly allows for the possibility that there is no ring loudspeaker at all. Furthermore, for the reasons I have given, I do not accept that the ring loudspeaker can only be a buzzer.
91. Secondly, Yozmot relies upon the statement in paragraph [0018] that:

“In non cellular apparatus, such boosted loudspeakers are generally provided anyway and are used in telephones to permit [sic] to conduct conversations without lifting the earpiece; however they must be activated by the subscribers for this purpose.”

Yozmot say, and I accept, that this refers to the familiar speakerphone facility in landline telephones. Yozmot also say, and I accept, that there is no evidence of a buzzer having been used as a speakerphone and that a buzzer is unlikely to be used for that purpose. In my view it does not follow that the skilled reader would think that this sentence was intended to limit the scope of the expression “boosted loudspeaker”. It is simply an example of a situation where a loudspeaker is already provided which will function as a boosted loudspeaker.

92. Thirdly, Yozmot relies upon the statement in paragraph [0021] that “the boosted loudspeaker draws from the telephone power source more power than the ring loudspeaker”. Yozmot says that this is a clear indication that the boosted loudspeaker is a moving coil loudspeaker, and that the specification is drawing a contrast with the power drawn by a buzzer. In my view this is probably Yozmot’s best point, but in the end I am not persuaded by it. The statement in question is a general one which, for the reasons I have already explained, would be understood by the skilled reader to apply to landline telephones as well as cellular telephones. Indeed, the same sentence goes on to talk specifically about the consequences for cellular telephones, thereby confirming the opening statement is a general one. I agree that the skilled reader would appreciate that, if the ring loudspeaker was a buzzer and the boosted loudspeaker was a moving coil loudspeaker, that would explain why the latter drew more power from the former; but I do not accept that the skilled person would think that was the only possible explanation. Another reason why the boosted loudspeaker may draw more power than the ring loudspeaker is that it is playing customised messages, which may include music, rather than simple ringtones. In any event, I am not persuaded that the skilled reader would regard this passage as limiting the ambit of the expression “boosted loudspeaker”.
93. Fourthly, Yozmot argues that “boosted loudspeaker” would not be an appropriate description for a buzzer, since buzzers are loud enough to be heard in the environment. I am unimpressed by this argument. Paragraph [0018] makes it clear that “boosted” simply means that the loudspeaker is to be heard in the environment. If a buzzer is loud enough anyway, then it will qualify as a boosted loudspeaker. Furthermore, the evidence is that buzzers vary in the sound pressure levels they produce, with some being quieter than others. Thus a buzzer may need a “booster circuit” to make it sound louder.
94. HTC’s construction is supported by the following points. First, nowhere does the specification specify that the boosted loudspeaker need be of any particular construction, let alone that it should be a moving coil loudspeaker.
95. Secondly, “boosted loudspeaker” is defined purely by reference to its function, which is simply to be loud enough to be heard in the environment.
96. Thirdly, the specification does not impose any restriction on the sound quality of the loudspeaker. Thus there is no reason to think that the patentee intended to exclude, say, an embodiment in accordance with Fig. 7 of the Patent which incorporated the buzzer used in the Nokia 9000. It is true that the customized messages would be not reproduced with great fidelity, but the fidelity could be perfectly adequate if the customized messages were simple tones.
97. Fourthly, as I have already observed, the specification does not exclude the possibility that the same loudspeaker may function as both ring loudspeaker and boosted loudspeaker.
98. Accordingly, I conclude that HTC’s construction is to be preferred.

Step III: causing ... the boosted loudspeaker to be activated

99. A separate point concerns the word “activated”. Another curiosity of the drafting of claim 1 is that it appears to require the boosted loudspeaker to be activated in both step III and step IV. By the end of the trial there was little dispute that step III should not be interpreted as requiring that the booster loudspeaker is activated at that stage, but rather as indicating that it is to be activated in the next step. At one stage Yozmot appeared to be suggesting that the boosted loudspeaker had to be able to have three different states, namely off, “primed” and on. HTC adopted this construction, but Yozmot subsequently made it clear that this was not what it was contending. In my judgment the claim does not require the boosted loudspeaker to be able to be “primed”, it only requires it to be on or off.

Step V: when the hookup procedure is performed, disactivating the boosted loudspeaker ... and activating the earphone loudspeaker

100. The difficulty here is that paragraph [0018] states that the boosted loudspeaker may be the earphone loudspeaker equipped with a “booster circuit”. In addition, HTC points out that in the hands-free set variant of embodiment 5 the hands-free set’s loudspeaker will function as the earphone loudspeaker while the hands-free set is in use. HTC contends that it follows that the same component may act as both earphone loudspeaker and boosted loudspeaker depending on what function it is performing at the time. I agree with this interpretation.

Validity

101. HTC has raised a plethora of objections to validity. It relies upon no less than five items of prior art. If that was not enough, it also relies upon allegations of insufficiency, added matter and not a patentable invention. One is tempted to conclude that the Patent must be valid if HTC has to advance so many different arguments against it, but that is not a substitute for analysis of the merits of each argument.
102. I will consider the objections to validity in the order in which they were argued, and I shall follow the parties’ example of considering novelty and obviousness together in relation to the relevant items of prior art.
103. Claim 7 is not alleged by HTC to be lacking in novelty or to be obvious in the light of the prior art, but its validity is attacked on the other grounds. The amended claims are primarily relied upon by Yozmot in relation to the allegation of insufficiency, if necessary, but they are also potentially relevant to the MT-20 prior art.

Novelty

104. As was explained in *Synthon BV v SmithKline Beecham plc* [2005] UKHL 59, [2006] RPC 10, in order for an item of prior art to deprive a patent claim of novelty, two requirements must be satisfied. First, the prior art must disclose subject matter which, if performed, would necessarily infringe that claim. As it was put by the Court of Appeal in *General Tire and Rubber Co v Firestone Tyre and Rubber Co Ltd* [1972] RPC 457 at 486, “[t]he prior inventor must be shown to have planted his flag at the precise destination before the patentee”. Secondly, the prior art must disclose that

subject matter sufficiently to enable the skilled addressee to perform it. In the present case the dispute is over the first requirement rather than the second.

Obviousness

105. A patent will be invalid for lack of inventive step if the invention claimed in it was obvious to a person skilled in the art having regard to the state of the art at the priority date. The familiar structured approach to the assessment of allegations of obviousness first articulated by the Court of Appeal in *Windsurfing International Inc v Tabur Marine (Great Britain) Ltd* [1985] RPC 59 was re-stated by Jacob LJ in *Pozzoli v BDMO SA* [2007] EWCA Civ 588, [2007] FSR 37 at [23] as follows:

- “(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?”

106. In both *H. Lundbeck A/S v Generics (UK) Ltd* [2008] EWCA Civ 311, [2008] RPC 19 at [24] and *Conor Medsystems Inc v Angiotech Pharmaceuticals Inc* [2008] UKHL 49, [2008] RPC 28 at [42] Lord Hoffmann approved without qualification the following statement of principle by Kitchin J at first instance in the former case:

“The question of obviousness must be considered on the facts of each case. The court must consider the weight to be attached to any particular factor in the light of all the relevant circumstances. These may include such matters as the motive to find a solution to the problem the patent addresses, the number and extent of the possible avenues of research, the effort involved in pursuing them and the expectation of success.”

107. What matters is whether or not the invention was technically obvious, not whether it was commercially obvious: see *Hallen Co v Brabantia (UK) Ltd* [1991] RPC 195 at 213. This does not necessarily mean that commercial considerations are irrelevant. The mindset of the skilled person may be conditioned by commercial considerations only to consider certain types of technical solutions, as in *Dyson Appliances Ltd v Hoover Ltd* [2002] RPC 22.

108. I was reminded by counsel for Yozmot that it is easy to be misled by the apparently simplicity of a solution into the belief that no invention was needed to arrive at it: see

Haberman v Jackel International Ltd [1999] FSR 683 and *Panduit Corp v Band-It Co Ltd* [2002] EWCA Civ 465, [2003] FSR 8.

109. I have already identified the person skilled in the art and his common general knowledge above. I have also construed claim 1. This is not a case in which there is anything to be gained in trying to identify a core inventive concept.

Noziri

110. United Kingdom Patent Application No. 2 220 822A entitled “Telephone with variable calling sound” (“Noziri”) was published on 17 January 1990. The first paragraph of the specification states that the invention relates to a telephone which is “capable of producing a calling detect signal indicative of the arrival of an incoming call, the signal being in the form of a preselected sound.” The next paragraph identifies two problems with conventional telephones which the invention is intended to address. The first is that “the tone of the calling detect signal ... has been stereotyped leaving almost no room for selection”, and so the user “gets tired of the stereotypical signal sound”. The second is that “where more than one telephone is provided adjacent to each other”, “it often happens that since the signal is of the same tone with respect to all of the telephones, the user fails to ascertain from which of them the signal is generating”.

111. Noziri then states (on page 2):

“An object of the present invention is to provide an improved telephone which generates, as a calling detect signal, sound inoffensive to the user and which permits selecting a desired sound for the calling detect signal so that [it] is possible to discriminate a particular telephone from other telephones arranged adjacent thereto.

Another object of the present invention is to provide an improved telephone which generates a calling detect signal in the form of a sound different from the ring from a standard telephone ringer and different from the audio tone from a tone generator.”

112. Noziri goes on to explain the telephone has a “transmitter for converting sound to electrical signal”, a “receiver for converting electrical signal to sound” and a “sound output device to give a calling detect signal in the form of a pre-selected sound (other than a ring or audio tone)”. The telephone also has a circuit connected to the sound output device via a switch which is closed when an incoming call arrives, causing the sound output device to operate.
113. Noziri then describes a preferred embodiment by reference to three figures. Fig. 2 is an illustration of a telephone with some of its component parts shown. The functionality is shown in a block diagram in Fig. 1. The telephone has a handset which incorporates a “receiver” and “transmitter” i.e. an earphone loudspeaker and a microphone. It also has a ringer and a sound output device. The sound output device can be selected instead of the ringer through a changeover switch. The sound output device comprises a switch, a sound recording and reproduction unit and a speaker.

When an incoming call arrives, the telephone can be set so that either the ringer or the sound output device is activated.

114. The sound recording and reproduction unit described on page 4 is a miniature tape deck, but Noziri states at page 6 that it may be a type using a semiconductor memory instead. It goes on to say that any other means that can record and reproduce sounds may be used. Noziri says that the sound recorded and used for the calling detect signal may be a sound of the user's choice. The abstract suggests "a birdcall, wave sound, particular word or remark, radio, TV or music" as possible sounds.

Obviousness

115. It is common ground that the only difference between Noziri and claim 1 is that Noziri discloses a landline telephone and not a cellular telephone. The issue, therefore, is whether, if Noziri was read by the skilled person without knowledge of the invention, it would be obvious to apply the teaching of Noziri to cellular telephones.
116. Professor Lozano's opinion was that the skilled person would immediately appreciate that Noziri's concept and teaching were equally applicable to cellular telephones. Counsel for Yozmot submitted that this opinion was sheer hindsight. He pointed out that Professor Lozano had read the Patent before he had read the prior art, and therefore had had the solution in mind when reading Noziri. He also suggested that the question which HTC's solicitors had asked Professor Lozano to consider invited the answer HTC wanted. In my view there is some force in both these points, and particularly the first, but neither is conclusive. More important are the reasons Professor Lozano gave for his opinion. There were two main reasons. The first is that the problems which Noziri sets out to address are at least as relevant, if not more relevant, to cellular telephones as to landline telephones. I would add that the Patent seeks to address the same problems. The second is that the skilled person would appreciate that the functionality described in Noziri could readily be applied to a cellular telephone. In my view this reasoning is persuasive. I would add that it is supported by the Patent itself, which as I have pointed out, says that the invention is equally applicable to landline telephones and cellular telephones.
117. In his first report, Mr Shechori expressed the opinion that it would not occur to the skilled person to apply Noziri's teaching to cellular telephones, because this would run counter to the prevailing thinking in the industry which was to reduce size, weight and power consumption. I do not find this reasoning persuasive. For the reasons I have explained above, I do not accept that the attitude of the skilled person in July 1997 was that size, weight and power consumption had to be reduced at all costs. On the contrary, the skilled person was aware that there was a trade-off between functionality on the one hand and size, weight and power consumption on the other hand. It was a matter of choice for the designer as to whether the trade-off was worthwhile or not. Furthermore, as Professor Lozano said in cross-examination, the effect on power consumption and so on is "pretty minor". Accordingly, no invention would be required to apply the teaching of Noziri to cellular telephones
118. Moreover, Mr Shechori essentially accepted this in the course of cross-examination:
- "Q. I would like you to imagine this, Mr. Shechori. Consider the

team we were discussing yesterday working on cellphone development in 1997. You obviously know what I am talking about. I would like to imagine that the team is given this document. Some sort of magic elf comes into their office and says, 'Have a look at that.' Anyone in that team reading this document in 1997 would perceive in it the idea of a customised call message in a telephone.

A. Yes.

Q. Can I suggest that, in a nutshell, what the reader of this document in 1997 would take from it is that they would see, 'Here is a function which a phone designer might find useful to allow the user to be able to tell which telephone is ringing, you implement it by recording the sound, and the trade off is you need more equipment in the phone, like a speaker.' Is that a fair summary?

A. Like a speaker, like memory means, like additional power process that will teach. With a tape recorder, we are quite familiar how to do the recording. When we have a cellphone that does not have those buttons, it is a challenge that we have to overcome.

Q. I am quite happy to accept from you the additional qualifications of things you need. You need memory obviously to record on to and you need some processing and you need some power. The thrust of this teaching to anyone reading this in 1997 is that it is presenting a function. You implement it by recording the sound. You will need certain inevitable, let us call them, bits of kit to make that work. You will need a speaker to play it. You will need memory to record it on. You will need suitable power. Those are all things that will go in the balance of a trade-off whether you want to use that function in your phone or not.

A. Yes, this is correct.

Q. And it will be up to the design team if the trade-off of the implications of implementing that function are worthwhile for a given mobile phone product.

A. This is true.

Q. And it is the sort of balancing exercise which design teams do all the time when they are designing products in this industry.

A. I believe so.

Q. And it is exactly the sort of trade-off which perhaps, for example, a team designing a high-end phone with a lot of functions, which is going to be expensive, might come down in favour of it whereas a team designing a low-end phone might not come down in favour of it.

A. I agree.

...

Q. What I want to suggest to you, sir, from what we have been

discussing is that frankly it was obvious to a skilled team reading Noziri that the implementation of a CCM function in a mobile phone was an obvious thing to do.

- A. It is good engineering practice to implement if desired.
Q. We discussed the variations of weight and power and everything else. Can I suggest that if you were a skilled team who was concerned about working on a phone which was built into a car at that time, a cellphone built into a car, none of those considerations of speaker power, power, available power, weight would deter you from implementing the function.
A. Agreed.”

119. As the last question and answer shows, even if the skilled person would be deterred by consideration of size, weight and power consumption from implementing Noziri’s teaching in a handheld cellular telephone, which I do not accept, they would not be deterred from doing so in a carphone.
120. Accordingly, in my judgment claim 1 is obvious over Noziri. It follows that claim 5 is obvious as well, since Noziri discloses formulation and recording of a CCM by the receiving subscriber. Professor Lozano’s opinion was that recording an ICS was an obvious alternative. Given that the idea of an ICS was established to be common general knowledge, I agree with this. Accordingly claim 6 is obvious as well.

Shen

121. United States Patent No 5,481,594 entitled “Audio caller identification unit” (“Shen”) was published on 2 January 1996. Shen begins by describing calling line identification. It goes on to identify the disadvantage that the user has to go and look at the display to determine the number of the calling party and that they can usually only remember a few numbers. Next it describes the disclosure of 4 earlier patents which use speech units to speak the caller’s name. Shen says speech units have poor sound quality (including problems of pronunciation) or are expensive. It therefore proposes a unit which identifies callers’ identities by audible alerts recorded by the user using an audio input which can then be played when the particular caller calls.
122. Shen describes a preferred embodiment by reference to four figures. I reproduce Fig. 3 below.

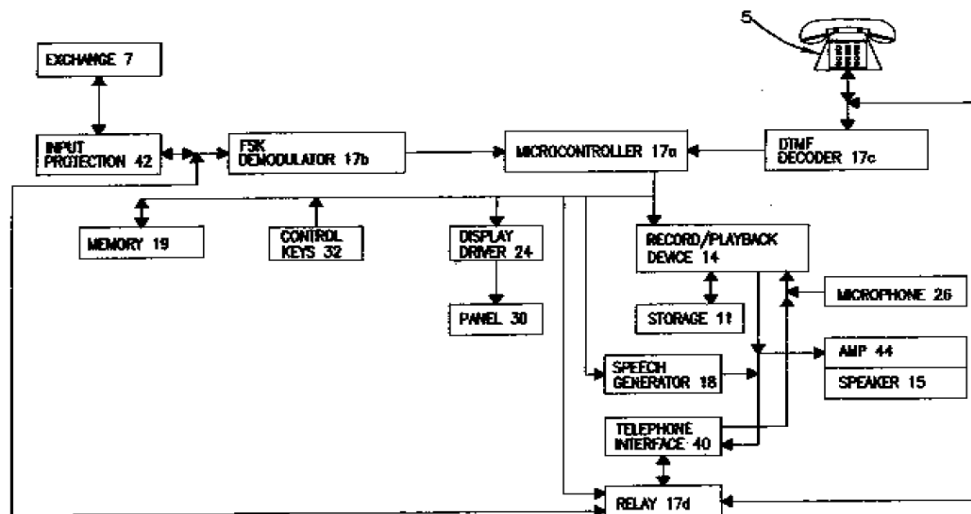


FIG. 3

123. The telephone is connected to the unit which is itself connected to the telephone exchange. The audio input may be a microphone which forms part of the unit (shown as 26 in Fig. 3) or that in the handset of the telephone. The unit also comprises a recording/playback device and memory upon which the audio messages are stored. Shen stated at column 4 lines 27-32 states that the storage could take various forms including RAM. There is a speaker through which the messages are played (marked 15 in Fig. 3). Shen describes two different modes of operation. “Programming mode” is when the user sets up the device by inserting a number of a calling party and recording the message associated with that number. The second mode is “monitoring mode”. When an incoming call arrives, the telephone’s standard ring is suppressed. The unit decodes the information identifying the caller sent over the network and compares it with calling parties’ numbers in storage. If there is a match, the appropriate message is played.

Obviousness

124. Again, it is common ground that the difference between Shen and claim 1 is that Shen does not disclose a cellular telephone. The issue is therefore essentially the same as in relation to Noziri. In my judgment it follows claims 1 and 5 are obvious over Shen, but Shen adds nothing to HTC’s case so far as they are concerned. The only point of differentiation is that Shen discloses ICS. It follows that claim 6 is obvious over Shen even if not over Noziri.

Van der Salm

125. International Patent Application No. WO 96/27974 entitled “A telephone set having calling party dependent ringing” (“Van der Salm”) was published on 12 September 1996. Under the heading “Background of the Invention” Van der Salm surveys a number of prior patents and patent applications, including Noziri. These include disclosures of personalised ringtones to enable a phone to be distinguished from those of adjacent telephones and of devices that enable calling party identification ringing. Van der Salm explains that the prior art devices are only capable of providing calling party dependent ringing upon receipt of caller dependant data from the network which

matches user identification data pre-stored in the user's telephone. Van der Salm therefore proposes a wired or wireless telephone which provides the user with a ring signal relating to the identity of the calling party without the need to retrieve ring signal data from memory.

126. The ring signal of the telephone may be generated in four principal ways. In the first and "simplest" embodiment, the ringing sound is produced directly from the signalling information received by the telephone on receipt of a call. Signalling information is provided by the network and includes information about the specific caller, the type of call and so on. For example, each digit of the calling party number can be used to generate a different tone.
127. In the second method, the telephone comprises processing means for processing the data provided by the signalling information in accordance with "processing algorithms" stored in the telephone. Van der Salm states that the algorithms can be pre-stored by the manufacturer of the telephone or are programmable by the user. Alternatively, in order to save memory space and processing power, Van der Salm says that the algorithms can be "hard wired".
128. The third method is for use where no signalling information containing calling party identity is provided by the network. In these circumstances, the ringing sound should be produced using "default data" stored in the telephone.
129. The fourth method is provided because, as Van der Salm states at page 8 lines 9-10, "users may require for a limited number of calling parties recognizable or very special ringing sounds". To meet this requirement Van der Salm describes an embodiment which comprises memory means which can be responsive to processing means for retrieving data associated with data obtained from the signalling information. This retrieved data is used to produce the special ringing sound.
130. At page 9 lines 12-15 Van der Salm states that:

"The ring generator means of the telephone set according to the present inventions may be either one of a group of synthesized voice, recorded voice, synthesized music, recorded music, single tone and multiple tone producing means."
131. Van der Salm describes a number of preferred embodiments by reference to five figures. I reproduce Fig. 2 and Fig. 4 below.

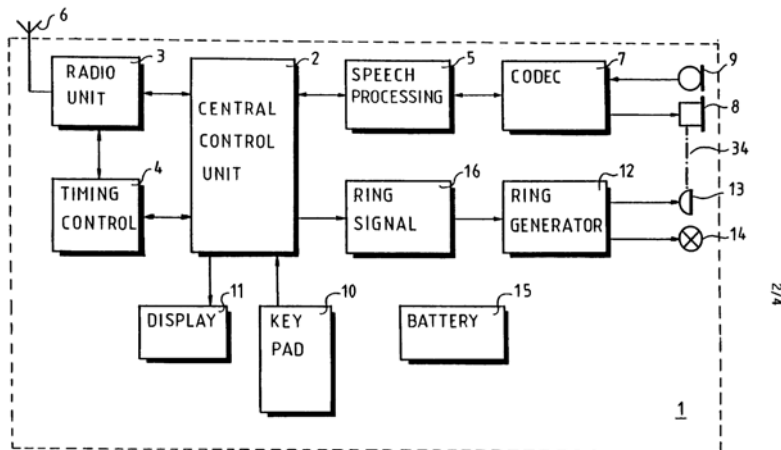
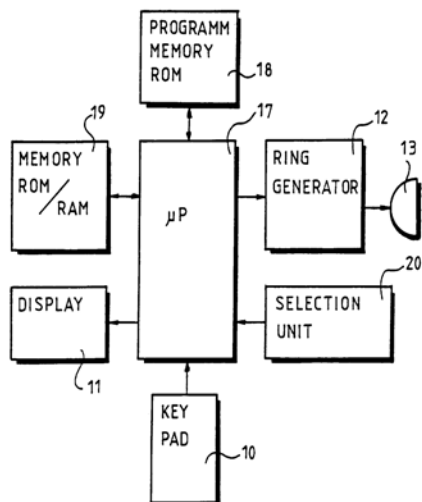


FIG.2

FIG. 4



132. Fig. 2 shows a cellular phone with a radio unit and antenna. Component 8 is described as a “loudspeaker”. This enables the user to hear the caller i.e. it is earphone loudspeaker. It is shown adjacent to the microphone into which the user speaks, marked 9. Component 13 generates the ringing sound and is described at page 13 line 26 as a “buzzer”. It is controlled by the ring generator means 12.
133. Fig. 4 illustrates an embodiment in which both “programm [sic] memory” 18, which is of the ROM type, and memory means 19, which “may comprise non-volatile ROM and volatile Random Access Memory (RAM)”, are provided. Van der Salm explains that data can be stored in the memory means 19 by the user using the telephone keypad.
134. Van der Salm states at page 18 lines 16-25:

“Instead of music, the ring generator means 12 may include speech synthesizer means, arranged to provide in a spoken manner the name of the calling party or the type of call. By selecting relevant speech parameters of a calling party, using 20 the codec 7 and speech processing unit 5, for example, a speech or voice ring signal can be produced resembling the voice of the calling party. The buzzer 13 and loudspeaker 8 and, if applicable, their driving circuits, may be combined as an integral unit, such as indicated by a dot/dashed line 34 in Fig. 2.”

Novelty

135. HTC contends that Van der Salm anticipates claim 1. Yozmot contends that Van der Salm does not disclose a boosted loudspeaker, but does not suggest than any other feature of the claim is missing.
136. It is common ground that Van der Salm not only describes component 13 as a buzzer, but also represents it in Figs. 2 and 4 by the conventional symbol for a piezoelectric sounder. Nevertheless, Van der Salm discloses the possibility of recording a small number of ringtones on the telephone to identify calling parties which may consist of music or speech, and in particular synthesised speech. It follows that the buzzer must be capable of playing such tones, even if only with limited fidelity. It is clear from Van der Salm that the buzzer can play them loudly enough to be heard in the environment. It follows that buzzer 13 qualifies as a “boosted loudspeaker” as I have construed that expression.
137. HTC relies in the alternative upon the last sentence of the passage I have quoted in paragraph 134 as disclosing combination of the buzzer and the loudspeaker into one loudspeaker. Yozmot contends that this sentence discloses no such thing, but merely putting the two components into a single unit i.e. a single sound cavity. I agree with Yozmot.
138. Accordingly, I conclude that Van der Salm anticipates claim 1. Since it discloses CCM and ICS, it also anticipates claims 5 and 6.

Obviousness

139. If I am wrong on anticipation because “boosted loudspeaker” should be construed as meaning a moving coil loudspeaker, HTC contend in the alternative that it would be obvious to replace the buzzer 13 with a moving coil loudspeaker.
140. Yozmot contends that this would not be obvious because the skilled person would not consider this embodiment of Van der Salm worthwhile to develop. In my judgment the evidence does not go that far. It shows that the main interest of Van der Salm lies in the algorithm idea, but that is another matter. Yozmot also contends that Van der Salm had followed the conventional approach in using a buzzer, and that to change the buzzer to a moving coil loudspeaker would go against the conventional thinking. In my view this would not require invention, as Mr Shechori accepted:

“ Q. ‘In each case it is recommended to have an intermittent

ringing sound as with conventional ringing. The ringing sound produced may be any audible signal, such as but not limited to music or voice.’ Do you see that?

A. Yes.

Q. Now, any skilled person in 1997 would know that if you wanted to play music or voice with a reasonable degree of fidelity, you would use a loudspeaker in the sense of being a moving coil loudspeaker in your sense rather than a buzzer.

A. Yes.

Q. That would not be a flash of genius; that is absolutely basic knowledge to a skilled person.

A. Yes.”

141. Accordingly, I conclude that claim 1 is obvious over Van der Salm even if it is not anticipated. Claims 5 and 6 would be obvious on this basis as well.

Mitsubishi MT-20

142. The MT-20 is a model of cellular telephone which was marketed by Mitsubishi before 1997. The MT-20 came with four different ringtones, one of which could be selected for the normal ringtone. The MT-20 also had a feature that allowed the user to associate a special ringtone with selected entries in its memory. When a call was received from one of these numbers, the special ringtone was heard instead of the normal ring.

143. The MT-20 had a moving coil earphone loudspeaker and a piezoelectric buzzer. In addition a hands-free holder was available. When the MT20 was installed in the hands-free holder, the sound was heard through a speaker in the holder (or an optional further speaker).

Novelty

144. Given my construction of “boosted loudspeaker”, the MT-20 implements the method of claim 1 since the buzzer qualifies as a boosted loudspeaker.

145. HTC contends that claim 1 is anticipated even if “boosted loudspeaker” is construed as meaning a moving coil loudspeaker. For this purpose HTC postulated a scenario in which the MT-20 is the hands-free holder, it rings (so that the ringtone sounds through the loudspeaker in the holder), the user removes the telephone from the holder (so that the speaker in the holder stops ringing and the buzzer in the telephone starts to ring) and then the telephone is answered (so that the buzzer is switched off and the earphone speaker is switched on). Mr Shechori accepted that this scenario was realistic even on the basis that it involved the user parking the vehicle. As Professor Lozano pointed out, however, it could also occur if a passenger decided to pick up the telephone. In my view that is an even more realistic scenario.

146. HTC contends that this scenario falls within claim 1. Yozmot disputes this on the ground that, once the telephone is removed from the holder, the loudspeaker in the holder is not even connected to the telephone. Accordingly Yozmot contends that the boosted loudspeaker is not “in” the cellular telephone on any construction of the word “in”.

147. In my judgment HTC is correct that this scenario falls within claim 1. As HTC points out, the claim is a method claim. In this scenario the user provides a boosted loudspeaker by placing the telephone in the holder. At that point, the boosted loudspeaker is “in” the telephone as I have construed it. The boosted loudspeaker continues to be “in” the telephone when it needs to be, namely in steps III and IV. In step V the boosted loudspeaker does not need to remain “in” the telephone. On the contrary, it is “disactivated”. In my judgment disactivating includes disconnecting. Certainly there is nothing in the specification which indicates that the patentee intended to exclude disconnecting the boosted loudspeaker in step V.
148. The second basis for anticipation of claim 1 would be cured by the proposed amendment, but not the first. It is not suggested by HTC that the MT-20 anticipates claim 5 or claim 6 either way.

Obviousness

149. If the MT-20 does not anticipate claim 1 on either of the bases discussed, then in my judgment claim 1 has not been shown to be obvious over the MT-20. HTC say that it would be obvious to modify the MT-20 to use a better piezoelectric sounder, which I accept, but I do not see that this makes any difference to the obviousness of claim 1 either way.
150. Assuming that claim 1 is anticipated, then I consider that claims 5 and 6 are obvious. Mr Shechori accepted that it would be obvious to provide a service like Nokia’s ringtones by SMS. This would involve the user selecting and then storing the ringtones in the telephone’s memory.

Nokia 9000

151. The Nokia 9000 is a combined cellular telephone and personal digital assistant which was first marketed by Nokia in mid 1996. The Nokia 9000 has a moving coil earphone loudspeaker, a piezoelectric buzzer which sounds the ringtone and another moving coil speaker which was used as a speakerphone.
152. The Nokia 9000 provided the user with a choice of ringtones. It also allowed the user to compose and store his own ringtone.

Novelty

153. Given my construction of “boosted loudspeaker”, the Nokia 9000 implements the method of claim 1 since the buzzer qualifies as a boosted loudspeaker. It follows that claims 5 and 6 are anticipated as well.

Obviousness

154. HTC contends that, even if “boosted loudspeaker” is interpreted to mean a moving coil loudspeaker, it would be obvious to program the Nokia 9000 to play more complicated ringtones through the speakerphone that is already present. Professor Lozano’s opinion was that this was obvious. Two main reasons were suggested by Mr Shechori as to why this would not be obvious. The first was that this would adversely affect the power consumption and hence the battery life. For the reasons given above,

I am not persuaded by this. The second is that the speakerphone was designed to be used when the device was open, not when it was closed. This would be a minor matter to modify. Yozmot also suggested that the speakerphone loudspeaker was too quiet, but I do not accept this. If it was loud enough for use as a speakerphone, it was loud enough for use as the boosted loudspeaker.

Insufficiency

155. HTC contends that the specification of the Patent does not disclose the invention clearly and completely enough for it to be performed by a person skilled in the art. The essential question under this head is whether the skilled person can perform the invention without undue burden. What amounts to undue burden is a question of fact and degree depending on the nature of the invention: see *Mentor Corp v Hollister Inc* [1993] RPC 7.
156. The insufficiency objection relates to embodiments of the invention where the customised message is sent over the network rather than being recorded, stored and retrieved at the cellular telephone. Thus it applies to some embodiments where the customized message is CCM or ICS and all embodiments where it is SIOM or OISM.
157. HTC alleges that the specification is insufficient for two reasons, one general and one more specific. The general reason is that the wireless networks available in 1997, such as GSM, were not capable of supporting the functionality envisaged by the Patent and would therefore have required modification. The more specific reason is that this modification would have represented a major technical challenge in the case of musical ringtones of any complexity.
158. So far as the general reason is concerned, the problem is as follows. In cellular networks, paging, channel assignment and ringing all take place before hookup. Transmission of the ringtone from the network to the telephone cannot take place during the paging stage, because the paging channel is common to all users in the cell and only supports the transmission of a handful of bits e.g. GSM in 1997 only allowed the transmission of user identifiers that did not exceed 32 bits. Accordingly, the ringtone would have to be transmitted during channel assignment. In principle, it would be possible to redesign the network to enable the transmission of simple ringtones by transmitting more bits during the channel assignment stage. Professor Lozano's evidence is that this would require "a considerable amount of work", but he accepted that it was technically achievable. As I understand the position, the work would be more in getting the change approved by the appropriate standard-setting body such as ETSI than in actually devising the technical solution. Accordingly, I do not consider that the Patent is insufficient on this ground.
159. As to the more specific reason, Professor Lozano's evidence was that the solution of sending more bits during channel assignment would not be feasible for complex ringtones such as mp3 audiofiles. This would require the addition of a new stage to the call setup procedure after channel assignment but before ringing. This would require a major overhaul of the network protocols. Professor Lozano said that achieving this would be a "major technical accomplishment". Moreover, the problem would remain that the audiofile would need to be buffered so as to ensure that the file (or enough of it to play) had arrived before it was played, and hence avoid interruption. This would mean a considerable delay in playing the ringtone. Professor

Lozano gave an example of a 10 second ringtone encoded at the minimum mp3 rate of 32 kb/s, which would require a buffering time of 22 seconds. Thus there would be a 22 second delay before the receiving subscriber was alerted to the incoming call.

160. For his part Mr Shechori suggested that this problem could be solved by using a voice channel that had been allocated for use when the receiving party picked up. He suggested that it would operate like an auto-answering system. The system to which he referred, however, only became available in 1999. Furthermore, his proposal involves programming the receiving telephone to hookup automatically before any sound is transmitted down the voice channel. This does not amount to a method within claim 1. In any event, this would still involve a fairly substantial change to the network protocols.
161. Subject to one qualification, I accept Professor Lozano's evidence. The qualification is that I do not regard the delay which would be caused by buffering as in itself amounting to a technical problem. The point about a delay of the order of 22 seconds is that it would not be commercially acceptable. Even taking that into account, however, Professor Lozano's evidence establishes that sending mp3 audiofiles over a cellular network for use as ringtones would involve a considerable technical challenge.
162. The question is whether this means that the Patent is insufficient. With some hesitation, I have concluded that it does not. The problem only applies to complex audiofiles such as mp3 files. It does not apply to simpler musical ringtones, let alone voice messages and other sounds. In my judgment the specification does not promise that the invention can be implemented with complex audiofiles of this kind, and certainly not that it can be implemented by sending them over the network rather than storing them locally. Just as a patent does not have to teach the skilled reader how to make all possible products which fall within the ambit of a product claim, a patent does not have to teach the skilled reader how to implement a method claim with regard to all possible subject matter which may be the subject of the method.
163. It follows that it is not necessary for me to consider that the insufficiency, if there was one, would be cured by the proposed amendments to claim 1.

Added matter

164. HTC contends that the matter disclosed in the specification of the Patent extends beyond that disclosed in the application as filed.
165. The test for added matter was stated by Aldous J in *Bonzel v Intervention Ltd (No 3)* [1991] RPC 553 at 574 as follows:

“The decision as to whether there was an extension of disclosure must be made on a comparison of the two documents read through the eyes of a skilled addressee. The task of the Court is threefold:

- (1) To ascertain through the eyes of the skilled addressee what is disclosed, both explicitly and implicitly in the application.

- (2) To do the same in respect of the patent [as proposed to be amended].
 - (3) To compare the two disclosures and decide whether any subject matter relevant to the invention has been added whether by deletion or addition. The comparison is strict in the sense that subject matter will be added unless such matter is clearly and unambiguously disclosed in the application either explicitly or implicitly.”
166. More recently, Jacob LJ explained the relevant law in some detail in *Vector Corp v Glatt Air Techniques Ltd* [2007] EWCA Civ 805, [2008] RPC 10 at [4]-[9].
167. In the present case, the body of the specification of the Patent is identical to that of the application as filed. The only changes are to the claims. As Jacob LJ’s exposition of the law makes clear, an amendment to the claims may result in the addition of subject matter; but it does not necessarily have that effect. The change to the claims which is said by HTC to have resulted in added matter is that claim 1 in the application was to a “method for *improving* the calling procedure of telephones” whereas granted claim 1 is to a “method for *performing* the calling procedure of telephones”.
168. The argument that this change in language makes a new technical contribution is as follows. It is said that the skilled person on reading the application would understand that it only disclosed a method and apparatus for improving the calling procedure of pre-existing telephones i.e. the additional components of the invention (the boosted loudspeaker and so on) had to be retrofitted to an existing handset, rather than included at the time of manufacture. By contrast, it is said that, if the first integer of claim 1 is construed as contended for by Yozmot, then the skilled reader is taught for the first time that the method can be implemented by means of components fitted at the time of manufacture of the telephone.
169. I do not accept this argument. In my judgment the specification discloses that the invention can be implemented by means of components fitted at the time of manufacture of the telephone. The change in the language of claim 1, which is likely to have been made to avoid a clarity objection under Article 84 EPC, would make no difference to the skilled reader’s understanding of the invention. It is only a lawyer with an excessively detailed attention to minutiae of wording who could suggest otherwise.

Not a patentable invention

170. HTC contend that the claimed invention falls within the exclusion from patentability contained in section 1(2)(d) of the Patents Act 1977 in respect of “the presentation of information”. Since I have decided that claims 1, 5 and 6 are invalid for lack of novelty and obviousness, this objection is only relevant to claim 7. HTC says that the contribution made by the claimed invention is no more than the presentation of information in an audible way. Accordingly, HTC contends that this is not a technical contribution, but one which falls solely within excluded subject matter. In support of this argument, HTC relies upon the decision of Mann J in *Gemstar-TV Guide International Inc v Virgin Media Ltd* [2009] EWHC 3068 (Pat) at [52]-[60]. I do not accept this argument. While the invention of claim 7 involves the audible presentation

of information, in my judgment the contribution made by the invention does not lie solely in that area, but on the contrary has a technical character. The invention provides a technical solution to the problem of identifying unlisted or unknown callers.

Infringement

171. Yozmot allege infringement in relation to the following models of HTC cellular telephone: HTC Hero; HTC Touch; HTC P3470; HTC Touch Cruise; HTC Touch HD; HTC Touch Diamond; HTC P6300; HTC Touch Dual; HTC TyN II; HTC Snap; HTC S310; HTC S710; and HTC S730. Each of the HTC products has two loudspeakers, an earphone loudspeaker and a second, more powerful loudspeaker that is used as the ringer and may be used as a speakerphone.
172. Yozmot allege that HTC has infringed the Patent in two ways: first, under section 60(1)(b) of the Patent Act 1977 by offering the method of claims 1, 2, 5 and 6 of the Patent for use in the United Kingdom when it knows, or it is obvious to a reasonable person in the circumstances, that its use there without Yozmot's consent would be an infringement of the Patent; and secondly, under section 60(2) of the 1977 Act by supplying or offering to supply means relating to an essential element of the invention claimed in those claims for putting the invention into effect when it knows, or it is obvious to a reasonable person in the circumstances, that those means are suitable for putting, and are intended to put, the invention into effect in the United Kingdom.

Do the HTC products implement the claimed inventions?

173. As I have construed claim 1, all of the HTC products with the possible exception of the HTC Touch Diamond implement the methods of claims 1. There is no dispute that, if that is so, they also implement the methods of claims 2, 5 and 6.
174. As for the HTC Touch Diamond, the question is whether this has "additional memory means". Whereas all the other HTC products have a removable flash memory card which provides additional storage for digital images and audio files, the HTC Touch Diamond has an internal 4GB flash memory. Given my interpretation of the words "additional memory", I consider that this is more than sufficient to constitute additional memory.

Infringement under section 60(1)(b)

175. Yozmot contends that, by offering to supply and supplying the HTC products in the United Kingdom, HTC has offered the claimed methods for use here. HTC disputes this, but does not dispute that, if it has offered the claimed methods for use here, it did so with the requisite state of mind. In my judgment, given the way I have construed claim 1, the offer to supply and supply of the HTC products in the UK does amount to an offer of the claimed methods for use by the users of those products.

Infringement under section 60(2)

176. In these circumstances Yozmot does not need to rely upon its alternative case under section 60(2). Accordingly, I shall only deal with it briefly. HTC does not dispute that, if they implement the claimed inventions as I have held, the HTC products

constitute means relating to an essential element of the inventions. Nor does it dispute supplying them with the requisite state of mind. HTC nevertheless contends that it has not committed an infringing act within section 60(2), because it supplies retailers and other intermediaries who in turn supply end users, and it is only the end users who infringe. HTC contends that section 60(2) only makes it an infringement to supply the person who is alleged actually to infringe, relying about the judgment of Lewison J in *Cranway Ltd v Playtech Ltd* [2009] EWHC 1588 (Pat), [2010] FSR 10 at [147]-[157]. Yozmot contends that the present case is to be distinguished from *Cranway*, and in the alternative *Cranway* is wrong on this point. In my judgment the present case is to be distinguished from *Cranway* on the ground that, unlike in that case, HTC has itself offered to supply the essential means, namely the telephones, to consumers who will themselves infringe the method claims as I have construed them. It is therefore unnecessary to consider whether *Cranway* is correct on this point.

Conclusion

177. Claims 1, 5 and 6 of the Patent are invalid. The proposed amendments do not cure the invalidity of these claims. Claim 7 of the Patent is valid. If claims 1, 5 and 6 the Patent were valid, they would have been infringed by HTC.