



Neutral Citation Number: [2019] EWHC 126 (IPEC)

Case No: IP-2016-000202

IN THE HIGH COURT OF JUSTICE
BUSINESS AND PROPERTY COURTS OF ENGLAND AND WALES
INTELLECTUAL PROPERTY ENTERPRISE COURT

Royal Courts of Justice, Rolls Building
Fetter Lane, London, EC4A 1NL

Date: 29/01/2019

Before :

HIS HONOUR JUDGE HACON

Between :

(1) TECHNETIX B.V.
(2) TECHNETIX LIMITED
(3) TECHNETIX GROUP LIMITED
- and -
TELESTE LIMITED

Claimants

Defendant

Adam Gamsa (instructed by **Kempner & Partners LLP**) for the **Claimants**
Mark Chacksfield and **Thomas Jones** (instructed by **EIP Legal**) for the **Defendant**

Hearing dates: 28-29 November 2018

Approved Judgment

I direct that pursuant to CPR PD 39A para 6.1 no official shorthand note shall be taken of this Judgment and that copies of this version as handed down may be treated as authentic.

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HIS HONOUR JUDGE HACON

Judge Hacon :

Introduction

1. This action is in the field of cable TV and internet services. The First Claimant is the proprietor of UK Patent No. 2 382 473 B. The other two Claimants are licensees. For the most part it not necessary for me to distinguish the three Claimants, so I will refer to them collectively as 'Technetix'.
2. Technetix allege that the patent has been infringed by the Defendant ('Teleste') in the course of marketing equipment used to feed cable TV or internet signals to subscribers. Teleste has counterclaimed for revocation of the patent because of alleged lack of novelty and inventive step.
3. Technetix did not seek to uphold the patent as granted, making an unconditional application to amend. Teleste resists the amendment, by the time of trial only on the ground that the patent as amended would remain invalid for the same reasons. The trial was conducted by reference to the patent as proposed to be amended. Hereafter my references to 'the Patent' will mean the patent as if it has always existed in its proposed amended form. The Patent has a filing date of 21 November 2001 and no priority date.
4. Technetix accept that if claim 1 is invalid over the cited prior art, none of the other claims are valid. I need only consider claim 1.
5. Adam Gamsa appeared for Technetix, Mark Chacksfield and Thomas Jones for Teleste.

Technical Background

6. I will describe the technical background by reference to cable TV. The TV signal travels from an origin called the 'head end' to a final distribution point which, in the UK, is typically in a street cabinet. The distance from the head end to the cabinet may be several kilometres, over which the signal will attenuate to a degree that depends on the distance travelled and the qualities of the trunk cable. TV subscribers, relatively close by the cabinet, receive the signal via cables which cause further attenuation of the signal.
7. The strength of the signal delivered to a subscriber's set-top box must fall within a required range to ensure that it is accurately processed. The signal will arrive at the distribution point at a strength higher than required. 'Directional couplers' are used to reduce it. A directional coupler taps off a proportion of the signal so that its strength when ultimately fed to the set-top box lies within the required range. The necessary proportion to be tapped off will vary. Directional couplers come in different grades to meet the differing requirements.
8. Directional couplers usually feed 'splitters'. These divide the signal into two equal parts. They can be used in series so that the signal is divided into four, eight, or a larger number of parts as appropriate to deliver the signal via output ports to multiple subscribers.

9. Directional couplers and splitters are mounted on a support. The support and mounted components are collectively referred to as a 'tap unit'. A cable TV street cabinet will contain a number of tap units.
10. Typically, a group of eight subscribers located at approximately the same distance from the tap unit will receive a signal via one directional coupler, with splitters having eight output ports, or 'signal outputs'. Another group of subscribers at a different distance from the tap unit will receive their signal via another directional coupler selected to tap off a different proportion of the signal, and so on.

The witnesses

11. Christopher Bailey gave expert evidence for Technetix. He is an engineer of 25 years standing, currently Head of Market & Applications Engineering at PPC Broadband Inc., a company in the broadband and communications industry. Mr Bailey was cross-examined and gave clear, straightforward evidence.
12. Teleste filed an expert report from John Bartlett, a consultant in the cable TV industry. Following his cross-examination of Mr Bailey, Mr Chacksfield told me that he would not call Mr Bartlett. Mr Bartlett's report fell away save for any passages which were approved by Mr Bailey and thereby became part of Mr Bailey's evidence.

The skilled person

13. It was common ground that the skilled person was an electronics engineer working in the broadband or cable industry. He or she would have a degree in electronics and experience of cable network design.

The common general knowledge

14. Mr Bailey said that US-style tap units with a removeable face plate, protected in a box from the weather and RF (radio frequency) interference were known to the skilled person. It is not clear to me whether when giving this answer in cross-examination Mr Bailey meant that such units were common general knowledge to the skilled person in the UK. I will assume that he did.
15. I will discuss other disputes about the common general knowledge below in the context in which they arose.

The Patent

16. The background section of the specification identifies two known types of tap unit. The first has directional couplers in series, each of them passing a portion of the signal to a signal splitter. The splitters have different loss characteristics so that a range of levels of signal output are available to suit the varying needs of customers located at varying distances from the tap unit. If a signal output fails and no alternative unused output is available, the entire tap unit needs to be replaced.
17. The second known type has a base unit with a number of plug-in modules. Each module consists of a directional coupler and an 8-way splitter, the modules having varying output levels. This is an improvement over the first type in that if a module fails, it can

be changed without having to replace the entire tap unit. But it still requires an engineer to maintain a large number of expensive modules in stock.

18. A tap unit according to the invention has at least one removable directional coupler in the signal path between the input of the signal from the network and a group of signal outputs. The engineer can select a directional coupler to suit the output level required. To effect repairs or changes to the tap unit the engineer need only carry in stock a range of directional couplers, which are relatively small and inexpensive.
19. The arrangement of the invention was sometimes described in the evidence as a ‘plug and play functionality’, i.e. allowing the selection of the appropriate directional coupler and plugging it into a receptor in the base unit to achieve the required signal output level. This can be done without disturbing other components, in particular the group of signal outputs.

Claim 1

20. Claim 1 was divided into convenient integers:
 - (1) *A cable tap unit comprising*
 - (2) *a base unit with an input for a signal from a cable network,*
 - (3) *at least one group of signal outputs,*
 - (4) *at least one receptor means positioned in the base unit in a signal path between the input and the group of outputs,*
 - (5) *and directional coupler means,*
 - (6) *wherein the directional coupler means is received by and detachable from the receptor means such that the signal transmission characteristics of the path are selectable as required by choice of directional coupler means,*
 - (7) *wherein the directional coupler means is separable from and insertable into the base unit independent of the group of signal outputs.*

The normal construction of claim 1

The law

21. I discussed my understanding of the normal construction of a claim, as explained in *Actavis UK Ltd v Eli Lilly and Company* [2017] UKSC 48; [2017] RPC 21 and *Icescape Limited v Ice-World International BV* [2018] EWCA Civ 2219, in *Regen Lab SA v Estar Medical Ltd* [2019] EWHC 63 (Pat) at [202]-[208].
22. Mr Gamsa relied on this from the judgment of Floyd LJ (with whom Patten LJ and Sir Stanley Burton agreed) in *Adaptive Spectrum and Signal Alignment Inc v British Telecommunications plc* [2014] EWCA Civ 1462:

“[107] Mr Wyand submitted that the court should be slow to arrive at a construction which resulted in a finding of invalidity for obviousness over

common general knowledge. He relied on a passage in Terrell on the Law of Patents, 17th Edition at paragraph 9-107:

‘The overall principle is therefore that a construction which leads to a foolish result should, if possible, be rejected as being without the intention of the patentee, for a construction which does not lead to an absurd result is to be preferred. However a finding of invalidity cannot of itself be regarded as an absurd result, unless the relevant piece of prior art is specifically acknowledged in the patent, or unless the invention would to the knowledge of the ordinary reader then be obvious simply in the light of common general knowledge.’

[108] This passage follows a discussion of two cases. The first is a decision of this court in *Ocli Coating Laboratory v Pilkington* [1995] RPC 145. In that case the court concluded that a good reason for confining the meaning of the claims to what it described as a literal construction was that, if the wider construction was adopted, the patent would be rendered obvious in the light of the prior art. As the authors of Terrell point out, however, that cannot be a universal proposition. Where there is no reason to assume that the patentee was aware of a particular piece of prior art, his claim may well have been framed in ignorance of it. In such circumstances it would be wrong to impute to the patentee an intention to frame a claim so as to avoid attacks which could be based on it. It is also perhaps relevant to observe that that case was decided at a time when the courts decided construction by making a distinction between the strict, literal or acontextual meaning of the language and its purposive meaning, as opposed to adopting the unitary approach propounded in *Kirin Amgen*. One aspect of that approach invited speculation as to whether there was a possible reason why the patentee might have wanted to restrict himself to the strict, literal meaning.

[109] The second case cited was a decision of Jacob J in *Beloit v Valmet (No 2)* [1995] RPC 705. At page 720 Jacob J pointed out:

“... there is normally no reason to suppose the patentee when he set the limits of his monopoly knew of a particular piece of prior art ... Of course the position is different if the prior art is specifically acknowledged in the patent...”

[110] Even if prior art is specifically acknowledged, much may turn, as Lewison J pointed out in *Ultraframe v Eurocell* [2005] RPC 7 at [73], on the way in which the prior art is referred to in the patent.

[111] As with any canon of construction, one must be wary of treating it as a rigid rule. Moreover as soon as one departs from documents specifically acknowledged in the specification, the skilled reader has no basis for assuming that the patentee was aware of the document in question. Still further, where the objection is one of obviousness rather than lack of novelty, a value judgment is involved on which widely differing views are possible. It is true that if the document is said to form part of the common general knowledge, it might be said to be more likely that the patentee is aware of it. But a patentee may have been isolated from the common general knowledge, or may, despite the later finding of obviousness, have genuinely believed that he had made an invention

over it. As will be seen below, the argument of invalidity over Kerpez involved, amongst other things, resolving a dispute between experts as to the feasibility of identifying noise sources. I am not persuaded therefore that it would be right to give weight to this factor in the present case.”

23. Mr Gamsa drew from this a principle of law similar to that asserted by counsel at the start of the passage: the court should be slow to arrive at a construction that would render a patent anticipated or obvious over the common general knowledge of the skilled person.
24. I think that Floyd LJ’s view on the relevance of prior art to construction was more nuanced than Mr Gamsa suggested. Floyd LJ pointed out that once one departs from documents specifically acknowledged in the specification, it is difficult for the skilled person reading the document to make assumptions about what prior art the patentee had in mind when framing his claims. The court must construe the claims according to the canons of normal construction as explained in *Actavis*. This includes reading the claim and the description through the eyes of the skilled person and thus with the common general knowledge in mind. Yet even where the relevant prior art is common general knowledge said to anticipate the claim, it may be that the skilled person would conclude that the patentee was isolated from that part of the common general knowledge or just overlooked it.
25. It seems to me that there is no rule that a court must always be slow at finding that a claim lacks novelty over the common general knowledge. It will depend in part on the clarity of the meaning of the claim on a normal construction. Each case must be decided on its own facts. All the more so where the issue is inventive step, for the reason identified by Floyd LJ.

Cable tap unit

26. Mr Gamsa argued that the cable signal emerging from the unit must be suitable for that purpose and that consequently the unit had to be environmentally sealed and RF shielded. (RF shielding blocks radio frequency electromagnetic radiation.)
27. The need for, and the nature and extent of sealing and shielding will depend on the location of the tap unit. Neither the specification nor Mr Bailey’s evidence indicated that claim 1 requires any specifics in that regard.
28. Mr Gamsa also argued that if the directional coupler and splitters are connected by coaxial cable, the unit they form ceases to be a cable tap unit within the meaning given to that term by claim 1. He referred to prior art, but it did not establish that the skilled person would regard ‘cable tap unit’ as a term of art at the priority date which excluded a unit with components connected by coaxial cable.
29. On the other hand, it was a part of Teleste’s argument on another issue of construction that the signal path of claim 1 is formed by the circuitry of the base unit. I have reached the view that if any significant proportion of the signal path is not within the base unit, for instance it is formed by coaxial cable joining components, the unit thus created would not be a cable tap unit within the meaning of that term in claim 1.

A base unit with an input for a signal from a cable network

30. It was Technetix' case that the signal input of the base unit may be separate and mounted on to the base unit. Mr Chacksfield submitted that the signal input must form part of the base unit.
31. Mr Chacksfield's interpretation is the more natural reading of the words 'a base unit with an input for a signal from a cable network' in claim 1. Had there been a comma after 'unit' the natural meaning would have been different.
32. Mr Chacksfield pointed out that claim 1 requires '...at least one receptor means positioned in the base unit in a signal path between the input and a group of outputs ...'. He said that there must be a signal path, formed by the circuitry of the base unit, between the input and outputs. I think that by itself this is neutral. It does not exclude the possibility of the circuitry being connected at one end to a signal input mounted on, but not part of, the base unit. However, the base unit must have the necessary circuitry.
33. The description at page 2 states that the signal outputs may be detachable from the base unit – the claim 5 embodiment. There is no indication that the input may be detachable and no example with an input separable from the base unit. I think the reader of the Patent would take this to be support for the natural reading of claim 1 referred to above.
34. In my view, the skilled person would construe claim 1 to require the input to form an integral part of the base unit.

Group of signal outputs

35. Mr Gamsa characterised Mr Bailey's evidence at paragraphs 13 to 18 of his second report as stating that the Patent requires the signal output to provide a signal at a suitable level. If it does not, it is not a signal output within the meaning of claim 1.
36. I do not read Mr Bailey's evidence as being so prescriptive. In those paragraphs Mr Bailey was discussing the signal from Teleste's product, stating that the signal was too high for a subscriber drop connection.
37. There is nothing in claim 1 or the Patent's description supporting the alleged narrow definition of 'signal output', or by extension 'group of signal outputs'. Whether the signal is too high or too low, it is still a signal transmitted from what the skilled person would take to be a signal output, albeit a signal unsuitable for a subscriber drop connection. In practice, a signal that is too high, which is all that Mr Bailey was considering, would be made suitable by connection to a splitter outside the tap unit, as he confirmed.

Receptor means

38. At a hearing on 17 July 2018 it was agreed between the parties that 'receptor means' was to be interpreted in the manner described by Mr Bartlett at paragraphs 73 and 74 of his first report. This was formalised in the order of that date. In paragraphs 73 and 74 Mr Bartlett was describing the embodiment described in the Patent in which both the directional couplers and the signal outputs are individually replaceable, the claim 5 embodiment:

“73. The document continues to describe a further aspect where the base unit is provided with detachable modules which carry at least one group of signal outputs. This continues the same idea in that the skilled person would understand that the design and circuitry of the base unit, instead of including the output circuitry, would have an additional receptor for inserting groups of signal outputs each linked (by the circuitry in the base unit) to one of the directional couplers.

74. Again, this is different from the prior art described in the Background to the Invention in that instead of having modular combined directional coupler-splitters, in the second ‘aspect’ [of the invention] the directional couplers and splitter units are individually modular and the base unit has two kinds of receptors, one for directional couplers and one for splitter units. It is also different from the method of attaching components to the back board of the cabinet and wiring them together in that it provides a unit which can be plugged into the network and which contains circuitry and convenient receptors into which components can be inserted.”

39. In the context of claim 1, the receptor is connected to the circuitry of the base unit within which it is positioned. It receives a directional coupler and provides a means for plugging the directional coupler into the network and unplugging it from the network.

Separation and insertion of the directional coupler

40. In one of the cited items of prior art the tap unit is in a sealed box. Technetix argued that where this is the case a directional coupler cannot be separable from or insertable into the base unit because the engineer must first open the box. To explain the argument, Mr Gamsa likened the directional coupler to a piston in a car engine. He said that a piston cannot be ‘insertable’ into a car when the bonnet must be removed and the engine dropped before the piston can be inserted.
41. I have no idea whether car mechanics talk to each other about insertable pistons. If they do, the obvious fact that there must be access to the right part of the engine before a piston can be inserted may or may not mean that absent such access, mechanics would reject the idea that the piston is ‘insertable’. It is not self-evident.
42. The more relevant point is that integer (7) is not concerned with whether it is physically possible to insert and remove the directional coupler from a receptor means in the base unit. The specification reads as if it is possible and evidence went forward, unsurprisingly, on that assumption. Integer (7) is about whether this can be done independently of the signal outputs, to which I turn next.

Separation and insertion of the directional coupler is independent of the signal outputs

43. Integer (7) of claim 1 is important since it was added by Technetix in the proposed amendment to the granted patent expressly to overcome the acknowledged invalidity of the claim. It requires:

“...the directional coupler means is separable from and insertable into the base unit independent of the group of signal outputs.”

44. The invention thus allows the directional coupler to be inserted into and removed from the base unit independently of the signal outputs. The advantage afforded by such independence is stated at page 2 of the Patent:

“As the directional coupler is separable from and insertable into the base unit independent of the group of signal outputs, the signal levels of the outputs can be selected as required by an engineer according to need, and as the directional couplers are relatively small and inexpensive components, this ensures that the value and volume of items that an engineer needs to carry with him to provide the necessary variations in signal output required is substantially reduced.”

45. Two points of dispute arose. The first was whether the directional couplers in the tap unit must be separable from and insertable into the base unit independently of all the signal outputs or only some of them.
46. Integer (7) refers to *the* directional coupler and *the* group of signal outputs. This is a reference back the cable tap unit *comprising* various features, including integers (3) to (6) which require the presence of at least one group of signal outputs and a directional coupler means. It must therefore be possible to identify in the unit at least one directional coupler and also a group of signal outputs in a signal path running via that directional coupler (once inserted). That directional coupler must be separable from and insertable into the base unit independently of the identified group of signal outputs. It makes no difference whether or not the directional coupler is replaceable independently of other groups of signal outputs. I do not find the meaning of claim 1 ambiguous in this regard. That meaning is not modified or contradicted by anything in the description.
47. I note that whereas in his report Mr Bailey took the view that the skilled person would understand that the directional coupler must be replaceable independently of all signal outputs in order to gain the full advantage of the invention, in cross-examination he conceded that this view made no technical sense.
48. As the Patent specification states, there is an improved ability to service a tap unit if the directional coupler can be replaced independently of at least one group of signal outputs. No doubt the greater the degree of independence, the greater the improvement in serviceability, but that is by the way.
49. The second dispute was whether the claim on a normal construction excludes a tap unit in which the act of obtaining access to the directional coupler interrupts the signal from the directional coupler to the signal outputs. The example given, taken from one of the cited items of prior art, was a tap unit with signal splitters in the lid. When the lid is opened to replace a directional coupler, the signal via the signal splitters to the outputs is broken.
50. I see nothing in the claim or the description which would put such a tap unit outside claim 1 on its normal construction, assuming all other integers are present. The invention requires a signal path from an input to a group of outputs which will pass through splitters, but the skilled person will know that the path is necessarily interrupted by the removal of a directional coupler, during its replacement for instance. Mr Bailey confirmed this in cross-examination. So interruption of the signal path elsewhere at the same time, such as by opening the box lid and temporarily breaking the signal path to

and/or from the splitters, would be seen by the skilled person to be irrelevant to compliance with claim 1.

Validity

The prior art

51. Two items of prior art were cited:
- (1) United States Patent No. 5,058,198 ('Rocci'), and
 - (2) United States Patent No. 6,292,371 ('Toner').
52. Claim 1 was alleged to lack both novelty and inventive step over each of them.

The law

53. There was no dispute about the law. As to novelty, I must apply the principles set out by Lord Hoffmann in *SmithKline Beecham plc's Patent (Synthon)* [2005] UKHL 59; [2006] RPC 10, at [19]-[33].
54. Inventive step is assessed as set out by the Court of Appeal in *Pozzoli SpA v BDMO SA* [2007] EWHC 1372 (Ch); [2007] FSR 36. Mr Gamsa also referred me to Kitchin J's observation in *Generics (UK) Ltd v H. Lundbeck A/S* [2007] EWHC 1040 (Pat); [2007] RPC 32 that the court must consider the weight to be attached to any particular factor in all the relevant circumstances (at [72], approved by the House of Lords in *Conor Medsystems Inc v Angiotech Pharmaceuticals Inc* [2008] UKHL 49; [2008] RPC 28, at [42]), and to Jacob LJ's warning that hindsight must be avoided in *Technip France SA's Patent* [2004] RPC 46, at [112].

Rocci

55. The invention claimed in Rocci is entitled 'Radio frequency tap unit which can be reconfigured with minimal disruption of service'. The tap unit is used in a cable TV network. Minimising disruption of the service is achieved by creating modules within the unit which can be individually replaced without interfering with the signal to all the subscribers fed by the tap, just some. The directional coupler and the splitter (with signal outputs) are each in modules. The directional coupler may be removed from or placed into the base unit independently of the signal outputs.
56. There are 10 figures in Rocci. The first three illustrate the prior art. Figures 4 to 10 illustrate the only embodiment of the invention described. It has one directional coupler module and one splitter module.
57. Rocci was directed to the United States market. There, cable TV signals are generally transmitted on overhead wires and tap units are exposed to the elements unless protected within a weather-proof box. When cable TV came to the UK, regulations required that the cables were laid underground and it became customary to locate tap units in street cabinets. The cabinets are enough to protect the tap units from the weather without the need to put them into a box.

58. The single embodiment of Rocci has the splitter in the front plate of the box, with the base unit and directional coupler inside the box.

Novelty

59. Technetix argued that Rocci did not enable the invention of the Patent. As was common ground, when an engineer sought to replace a directional coupler, he or she would be obliged to open the lid of the box and thereby interrupt the signal to the signal outputs because the splitter is in the lid. The invention of the Patent was distinguished from Rocci by Mr Gamsa in this way in closing:

“There are clearly benefits to the Patented approach of being able to remove the directional couplers without physically affecting any of the signal outputs.”

60. I have discussed this argument in the section on construction. I think the paragraph just quoted reveals the flaw in Technetix’ argument. As it accurately states, the advantage of the invention in the Patent is that the directional coupler is replaceable (separable from and insertable into the base unit) without *physically* affecting the signal outputs. This means that the engineer need only carry a range of directional couplers and can select the grade needed. Claim 1 does not require that the directional couplers be replaceable without interrupting the signal to the signal outputs. That would be an impossibility. Mr Bailey confirmed that removing the directional coupler is going to interrupt the signal anyway.
61. Mr Gamsa submitted that my construction of claim 1, i.e. the irrelevance to claim 1 of the signal path being cut when the tap unit is accessed, must be wrong because it would have led the skilled reader of the Patent to conclude that claim 1 lacked novelty. The argument was that tap units like Rocci were part of the common general knowledge, specifically the idea of a unit with a lid which, when removed, interrupted the signal path to the signal outputs. The skilled reader of the Patent would not construe claim 1 to cover such an arrangement.
62. I find this hard to follow. The common general knowledge relied on, if it existed, would not have rendered claim 1 lacking in novelty. I do not see that it could have driven the skilled person to any conclusion about the construction of claim 1.
63. Rocci enabled the invention as described and claimed. Claim 1 lacks novelty over Rocci.

Inventive step

64. Here I assume that Rocci does not anticipate claim 1 because it does not enable the invention for the reason given by Technetix. Teleste’s argument was that it would have been obvious to the skilled person at the priority date to take the Rocci tap unit out of its box and put the components in what Mr Chacksfield called a ‘flat design’, i.e. arranged such that the base unit could be put into a street cabinet. There would be no splitter in a lid and so no interruption of the signal caused by opening the lid.
65. Mr Bailey had two related reasons in his report for saying that changing Rocci to a flat design would not be obvious. First, the skilled person would consider Rocci to be inherently impractical; there was a risk that the environmental and RF seals would not

have sufficient integrity to ensure that the unit was sealed. Secondly, it would not be obvious to move Rocci outside its box because that would render the directional coupler vulnerable to water ingress.

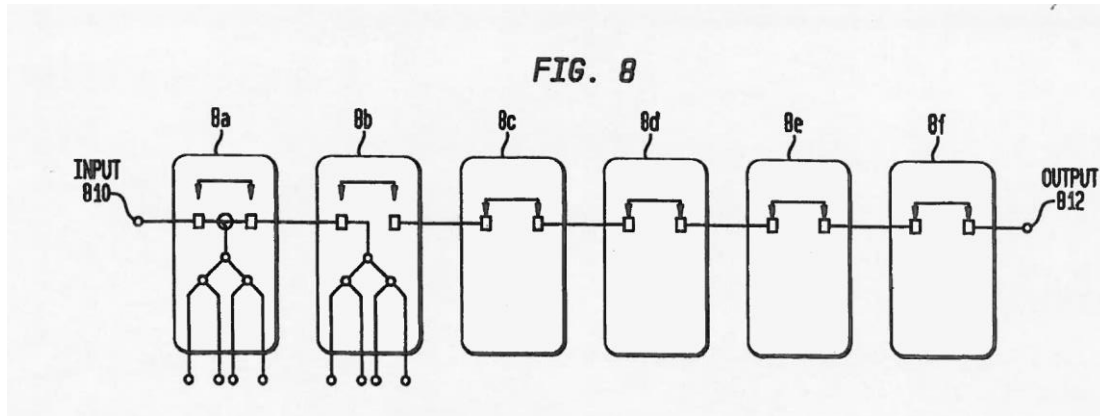
66. These concerns of the skilled person would carry no force if it was obvious to move the Rocci tap unit into a UK-style street cabinet which would offer sufficient protection from the weather. Mr Bailey also said in his report that the skilled person would not have modified Rocci so that it could be installed in a cabinet because the Rocci tap unit did not make efficient use of space. In cross-examination he changed his mind. He conceded that the skilled person would find it obvious to modify the embodiment shown in figure 4 of Rocci into a flat design without a lid. Such a design would be suitable for a street cabinet.
67. Mr Bailey's only reservation in the end, which he maintained in cross-examination, was that Rocci would not be a good starting point.
68. Mr Bailey had said in his report that he considered Rocci before being shown the Patent and that in his view the skilled person would not contemplate modifying Rocci in any way at all. This could rarely be true of any prior art in any field. It implies that the prior art defies the very idea of modification.
69. By the time of cross-examination it became clear that what Mr Bailey really meant was that there were better starting points because the skilled person would hold a low opinion of Rocci. Perhaps. Even so, Mr Bailey conceded that it would have been obvious to amend Rocci in such a way as to create the claim 1 invention.
70. On that evidence, if Rocci did not anticipate claim 1, claim 1 would have lacked inventive step over Rocci.

Toner

71. The invention in Toner is a housing used to accommodate components for a cable TV network, including taps and splitters. It has a number of modular cavities into which components can be inserted. When a modular cavity is empty a switch provides conductivity between the input and output of the cavity so that the signal path remains unbroken across that cavity.

Novelty

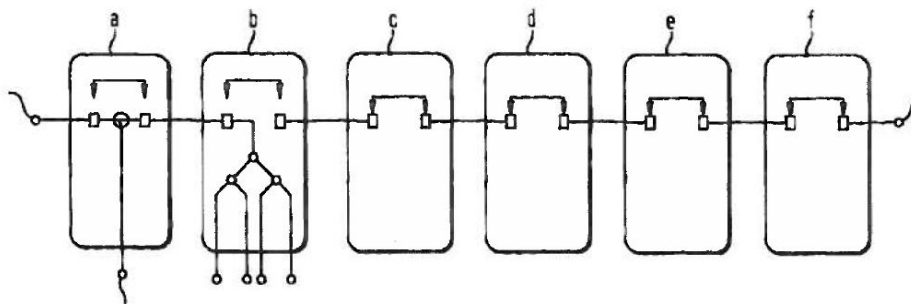
72. Teleste relied on the embodiment illustrated in figure 8 of Toner:



73. Figure 8 is explained at column 6, lines 14-24. The signal path from input 810 passes to modular cavity 8a and therein to a directional coupler conventionally represented by a circle containing a horizontal and a diagonally descending line (the signal path). The directional coupler taps off part of the signal which passes via a splitter and then two further splitters (shown below the directional coupler) to four signal outputs beneath. The rest of the signal passes to module 8b which has what is called a 'terminating splitter'. There is no directional coupler in 8b; the signal passes via splitters only to the four signal outputs of that module.
74. While the directional coupler in module 8a cannot be removed independently of the signal outputs in 8a, it can be removed independently of the signal outputs of module 8b.
75. Technetix' only answer to the allegation of lack of novelty over this embodiment was that as a matter of construction claim 1 requires the directional coupler to be removed independent of all groups of signal outputs in the tap unit. For reasons I have given, I disagree.
76. Mr Gamsa argued that my construction must be wrong because the skilled person would have recognised that it leads to claim 1 lacking novelty over the common general knowledge. He or she would have known that this included arrangements in which the directional coupler could be removed independently of at least one group of signal outputs, but not others. Therefore, urged towards a construction of claim 1 that did not cover the prior art, he or she would construe claim 1 to require that the directional coupler must be independent of all groups of signal outputs. As for evidence of this common general knowledge, Mr Gamsa said that Mr Bailey had agreed with paragraphs 47 and 53 of Mr Bartlett's report and that in those paragraphs Mr Bartlett had asserted that common general knowledge.
77. Mr Bailey's agreement with Mr Bartlett about the common general knowledge came in a very short exchange with Mr Chacksfield in which Mr Bailey accepted that there was not much between him and Mr Bartlett on the common general knowledge. Mr Bailey did not turn his mind at all to the point in question. Even Mr Bartlett did not. I do not read his paragraphs 47 and 53 as drawing the required distinction within the common general knowledge between replacing a directional coupler independently of one, or some, or all groups of signal outputs.
78. Also, as I have indicated, I find claim 1 unambiguous in this regard. Claim 1 lacks novelty over Toner.

Inventive step

79. Teleste's case on obviousness went forward on the assumption that Technetix' construction of claim 1 was correct, i.e. the directional coupler must be replaceable independently of all groups of signal outputs.
80. It was put to Mr Bailey that there could be cable TV signals fed from a tap unit, where one distant property requires a significantly stronger signal than other closer properties. If this were the case, it would have been obvious to adapt Toner to have a directional coupler in one module with a single drop port to feed the distant property. Splitters with a group of signal outputs would be in the next module to feed the closer properties. This arrangement was illustrated as follows:



81. Mr Bailey agreed in cross-examination that it would have been obvious to modify Toner in this way. Mr Chacksfield submitted that the single output of the first module is not a 'group of signal outputs'. Therefore, even on Technetix' construction, the directional coupler would be replaceable independently of the only group of signal outputs present.
82. I agree. '[A]t least one group of signal outputs' in claim 1 would not as a matter of natural language be interpreted to cover a single signal output. Nothing in the specification supports such an interpretation. In the arrangement illustrated, the directional coupler would be separable from and insertable into the base unit independent of the group of signal outputs.
83. On Mr Bailey's evidence claim 1 would lack inventive step over Toner even on Technetix' view that the directional coupler must be replaceable independently of all groups of signal outputs present.

Infringement

The law on the scope of a claim

84. The law on the scope of a patent claim was explained by the Supreme Court in *Actavis UK Ltd v Eli Lilly & Co* [2017] UKSC 48; [2017] RPC 21 and the Court of Appeal in *Icescape Limited v Ice-World International BV* [2018] EWCA Civ 2219; [2019] FSR 5. I discussed those judgments in *Regen Lab SA v Estar Medical Ltd* [2019] EWHC 63 (Pat) at [199]-[224].

A Formstein defence

85. An additional point arose in the present case. Teleste argued that if its product fell within the scope of claim 1, it was entitled to a defence to infringement if the product lacked novelty or inventive step over the prior art. This defence was fully pleaded on both sides and argued at the trial.
86. To explain how such a defence, if it exists, might operate I need to go back to the law as it applied before the judgment of the Supreme Court in *Actavis*.
87. It has long been a basic principle of patent law in the United Kingdom that a patentee should not be able to prevent a person from doing what he or she had lawfully been entitled to do before the patent was granted. Lord Hoffmann put it in this way in *Merrell Dow Pharmaceutical Inc v H. N. Norton & Co Ltd* [1996] RPC 76, at p.83:

“Ever since the power of the Crown to grant monopolies was curbed by parliament and the courts at the beginning of the seventeenth century, it has been a fundamental principle of United Kingdom patent law that the Crown could not grant a patent which would enable the patentee to stop another trader from doing what had been done before.”¹

88. For convenience I will call this ‘the *Merrell Dow* principle’. By way of an earlier example from the House of Lords, in *Gillette Safety Razor Co v Anglo-American Trading Co* (1913) 30 RPC 465, Lord Moulton said (at p.480):

“It is impossible for an ordinary member of the public to keep watch on all the numerous patents which are taken out and to ascertain the validity and scope of their claims. But he is entitled to feel secure if he knows that that which he is doing differs from that which has been done of old only in non-patentable variations ...”

89. Before *Actavis* the *Merrell Dow* principle was reconciled with the law on the construction and infringement of patent claims by the availability of the ‘*Gillette* defence’, the name being taken from the judgment just referred to. In modern practice this is not strictly a standalone defence to infringement. Lord Moulton’s idea was that a defendant should be entitled to prove that the alleged infringement would have lacked novelty or inventive step at the priority date and that this of itself established a defence without the court having to go to the trouble of having to resolve whether the patent was valid or not infringed, see pp.480-1. However, Floyd LJ pointed out in *Fujifilm Kyowa Kirin Biologics Co., Ltd v Abbvie Biotechnology Ltd* [2017] EWCA Civ 1; [2017] RPC 9 that this idea has never been taken up and that the court must primarily consider whether the patent is valid:

“[56] It is, we would accept, still not the practice to adopt Lord Moulton’s approach to deciding conventional patent actions where both validity and infringement are in issue. The court will resolve those issues individually by reference to the claims of the patent, rather than take the short cut of deciding whether the defendant’s product is old or obvious. That is because, as we think Lord Moulton was recognising, the validity of a granted patent involves more

¹ This is subject to the exception of a secret or uninformative use, which can be stopped by the grant of a patent (itself qualified by s.64 of the Patents Act 1977), see *Merrill Dow* at p.86 lines 16-36. Notwithstanding the exception, I do not understand Lord Hoffmann to have meant that the general principle should be abandoned.

than just the private interests of the parties. If the patent is indeed to be impaled on the validity horn of Lord Moulton's dilemma, then it is in the public interest that it be decided and the patent revoked. That same policy is visible in *Traction Corporation v Bennett* (cited above). That consideration does not, however, detract from the potential usefulness of the principle that Lord Moulton was espousing. In a conventional patent action a determination that there is nothing new or inventive about the defendant's product may operate as a cross-check on the outcome of the action as a whole.”

90. I believe that it would be surprising if the Supreme Court in *Actavis* intended to abandon the *Merrell Dow* principle without expressly saying so.

91. Arnold J considered an aspect of this in *Generics (UK) Ltd v Yeda Research and Development Co Ltd* [2017] EWHC 2629; [2018] RPC 2 (at [161]-[167]). He said:

“[163] Counsel for the defendants submitted that it was no longer the law that a claim lacked novelty if the prior publication disclosed subject-matter which, if performed, would necessarily infringe the claim. Rather, the claim would only lack novelty if the prior publication disclosed subject-matter which fell within the claim on its proper interpretation. It was not sufficient that the subject-matter would infringe the claim applying the doctrine of equivalents.

...

[167] The conclusion I have reached is that counsel for the defendants is correct.”

92. Arnold J was apparently not asked to consider a similar question in relation to inventive step. Specifically: if an equivalent within the scope of a claim is obvious over the prior art but nothing within the claim on its normal construction is obvious, does the claim lack inventive step? Nor was he asked to consider a defence to infringement newly arising as a consequence of the change in the law on the scope of claims.

93. The issue raised by Teleste is the relationship between the scope of a claim and prior art which will invalidate the claim, taking into account both novelty and inventive step.

94. One way of reconciling the *Merrell Dow* principle with the doctrine of equivalents would be to say that if an accused product or process is an equivalent and for that reason is nominally within the scope of the claim, but the equivalent would have lacked novelty or inventive step over the prior art at the priority date, then it is deemed to fall outside the scope of the claim, thus providing a defence to infringement.

95. German law provides for such a defence, first stated in the judgment of the Federal Supreme Court in Case X ZR 28/25 *Formstein* GRUR 1986, 803. The defence is explained in *Patent Litigation Proceedings in Germany*, Thomas Kühnen, trans. Frank Peterreins, Carl Heymanns Verlag 2015, 7th ed. (the translator renders Formstein as ‘Formed brick’ in English):

“e) Objection according to the »Formed brick« decision

If it is found that a contested embodiment contains the features of the asserted property right in at least partly equivalent form, the defendant may use what is referred to as the *objection according to the »Formed brick« decision* as a defence.

aa) Conditions

According to this defence, a contested embodiment does not fall within the scope of protection of a patent or utility model if, with its (partly literally realized and partly equivalently realized) features, it is anticipated in the state of the art or is obvious from the state of the art. Background for the objection according to the »Formed brick« decision is the consideration that the patent in suit must not be extended by means of equivalency on a subject matter which is within the known state of the art, and for which the proprietor of the patent in suit could thus not have obtained patent protection in examination proceedings.”

(original italics)

96. To give this type of defence a label I will call it the *Formstein* defence. There is a defence along the same lines under Dutch law, see *Core Distribution Inc v Lidl Nederland GmbH*, District Court of The Hague, 14 March 2012 (Kalden, Hensen and van Peurseem), at para. 4.7, which shows that the *Formstein* defence works in a non-bifurcated system.

97. In the United States there exists the similar principle of ‘ensnarement’: the range of equivalents cannot be so extended as to ensnare the prior art, see *Chisum on Patents*, §18.04[2][d]. The authors refer to several authorities including (at p.18-708) *We Care, Inc. v Ultra-Mark International Corp.* 930 F.2d 1567, 18 USPQ2d 1562 (Fed. Cir. 1991), at 1564-65 (the ellipses and square brackets are those of the *Chisum* authors):

“... [A] determination of infringement based on [the doctrine of equivalents] cannot be made in a vacuum; the prior art must be examined to assure that the range of equivalents asserted by the patent holder does not encroach upon subject-matter in the prior art... This, of course, involves consideration of what the prior art would have anticipated...and what the prior art would have made obvious...when the patentee filed the original application. In this way, the doctrine of equivalents is limited; it may not be used to extend a patent holder’s right to exclude beyond what could lawfully have been obtained in an original application.”

98. More recently, in a judgment dated 29 September 2017 the Court of Appeals of the Federal Circuit said this in *Jang v Boston Scientific Corp*, Opinion no. 16-1275 (Fed. Cir. 2017) at 14-15:

“A doctrine of equivalents theory cannot be asserted if it will encompass or ‘ensnare’ the prior art. [*References given*]. A ‘[h]ypothetical claim analysis is a practical method to determine whether an equivalent would impermissibly ensnare the prior art.’ We have explained:

Hypothetical claim analysis is a two-step process. The first step is ‘to construct a hypothetical claim that literally covers the accused device.’

Next, prior art introduced by the accused infringer is assessed to ‘determine whether the patentee has carried its burden of persuading the court that the hypothetical claim is patentable over the prior art.’ In short [the court] ask[s] if a hypothetical claim can be crafted, which contains both the literal claim scope and the accused device, without ensnaring the prior art.”

99. One route the Supreme Court or the Court of Appeal may take in due course, regarding the interplay between the scope of a claim on the one hand and novelty and inventive step on the other, is the introduction into English law of a *Formstein* defence.
100. I cannot rule out such a possibility. I will therefore consider the facts also on the hypothesis that such a defence exists.

Whether Teleste’s tap unit falls within claim 1 on a normal construction

101. Teleste’s tap unit was generally referred to as ‘the Tap Bank’. Teleste said that the Tap Bank lacked three integers of claim 1.

Base unit with an input for a signal from a cable network

102. To satisfy integer (2) the base unit must have an input for a signal from a cable network. The base unit in the Tap Bank is a simple metal sheet with no circuitry and no input for a signal. Teleste argued that the Tap Bank therefore had no base unit within the meaning of claim 1. It also argued that since the input is located in the directional coupler array the Tap Bank did not have a base unit with an input.
103. Technetix’ response was that claim 1 did not require the base unit to have circuitry. It was also sufficient that the input was into Tap Bank’s directional coupler array, with the array to be mounted on to the base unit. For the reasons stated in the section on construction I disagree on both counts.

The group of signal outputs

104. For this part of its case on infringement Teleste assumed against itself that Technetix was correct on a point of construction: the directional couplers must be replaceable without physically disturbing any group of signal outputs, i.e. they are in that sense independent of all groups of signal outputs. I have found that this interpretation of independence is not correct, but I will make the same assumption to consider a rather convoluted further argument on infringement.
105. It was common ground that if Technetix’ interpretation of ‘independent’ were right, the directional couplers in the Tap Bank are not replaceable independently of some putative groups of signal outputs. I call them that because Technetix argued that these putative groups of signal outputs were in fact not signal outputs within the meaning of claim 1. This was because they did not transmit a signal at a level suitable for a subscriber drop connection. It followed that the directional couplers in the Tap Bank are replaceable independently of all ‘genuine’ groups of signal outputs. Integer (7) is satisfied.
106. I have rejected this meaning of a ‘signal output’, so I find that Technetix’ argument is not correct. But the short point is that since Technetix were also wrong about their

broad meaning of ‘independent’ (an interpretation pursued in support of an argument on validity), the Tap Bank does in fact comply with integer (7).

Conclusion

107. The Tap Unit does not have integer (2) of claim 1. Nor, as was common ground, does it have integer (4) (receptor means positioned in the base unit in a signal path between input and outputs) on the construction agreed by the parties at the hearing on 17 July 2018. The Tap Unit does not fall within claim 1 on a normal construction.

Whether each equivalent feature must be identified

108. Mr Chacksfield submitted that Technetix had not even asserted that the Tap Bank had features equivalent to integers (2) and (4) of claim 1. He said that Technetix’ failure to identify the necessary equivalents to those two integers meant that their case on equivalence was bound to fail.

109. To establish infringement as explained in *Actavis* a patentee must show that the accused product or process either (i) has all the integers of the claim on a normal construction or alternatively (ii) taking all the equivalent features of the accused product or process in sum, that it satisfies the three revised *Improver* questions.

110. I do not accept Mr Chacksfield’s implied submission that a patentee must always go through each integer of his claim and the corresponding features of the accused product or process, and wherever an integer of the claim is missing from the accused product or process (or arguably missing), identify its equivalent. The *Improver* questions address the variant product or process as a whole. Mr Gamsa’s point was simply that if I found that the Tap Bank fell outside claim 1 on a normal construction, it was nonetheless a variant which satisfied the three revised *Improver* questions.

111. All integers of a claim missing from the variant will be relevant to, for instance, whether the inventive concept has been exploited by the variant in substantially the same way to achieve substantially the same result. No integer can be ignored. But since it is the variant as a whole that is considered, I do not see that a patentee is invariably required expressly to assert equivalence in relation to each integer of the claim, one by one. An accurate identification of the inventive concept may be enough to focus attention on the integers that matter.

Equivalence

112. As I have said, Technetix’ argument on equivalence had to take into account missing integers (2) and (4) of claim 1. They came to the same thing: the Tap Bank has no base unit with circuitry. Consequently there is no receptor means positioned in the base unit in a signal path between the input and the group of outputs. Teleste’s argument on integer (2) also relied on the absence of an input in the base unit. But this again boiled down to the base unit of the Tap Bank lacking circuitry. The Tap Bank’s base unit is just a metal sheet to which the directional couplers and the signal outputs are attached, replaceably attached according to Mr Bailey (which I accept).

113. The starting point for an argument of equivalence is the identification of the inventive concept or core. Mr Gamsa said that it was encapsulated by integer (7): the new

technical insight conveyed by the invention of claim 1 is that the directional coupler in a tap unit may be separable from and insertable into the base unit independently of the group of signal outputs.

114. Mr Chacksfield sought to put more features into the inventive concept:

“Having a tap with an electrical base unit into which the trunk cable is plugged, the base unit also carrying the signal to receptors into which modular directional couplers can be inserted (and potentially with other receptors for splitter units).”

115. Characterising the inventive concept or core accurately is liable to be important to the scope of a claim. From a patentee’s perspective, the simpler the inventive concept, the more likely it is that the concept has been exploited in substantially the same way to achieve substantially the same result. From an alleged infringer’s point of view, the more detailed the inventive concept, the less likely it is that the concept has been so exploited.

116. In the present case I think Mr Gamsa was right. It was common ground that claim 1, if valid at all, depended on integer (7) for its validity. Integer (7) set out the new technical insight, if there was one. The inventive concept or core was that a directional coupler in a cable tap unit may be separable from and insertable into the base unit independently of the group of signal outputs.

117. In my view, although the base unit must contain circuitry on a normal construction of claim 1, this forms no part of the inventive concept. Putting it another way, the inventive concept may be exploited in substantially the same way to achieve substantially the same result if the base unit is a metal or wooden plate containing no circuitry. A cable tap unit is required, and it must function as such – there must be circuitry somewhere to achieve this – and of course the directional coupler must be replaceable independently of the signal outputs. But the location of the circuitry is a peripheral matter, outside the inventive concept or core.

Improver question 1

118. The first question is whether the Tap Bank achieves substantially the same result in substantially the same way as the inventive concept.

119. Teleste argued that the Tap Bank may achieve substantially the same result but it does not do so in substantially the same way. This was because there was no circuitry in the Tap Bank base unit. As I have said, in my view this is not relevant to how the result of the inventive concept is achieved.

120. The Tap Bank exploits the inventive concept in the same way, by allowing at least the directional coupler (in fact several) to be added and removed without physically disturbing the group of signal outputs. It achieves substantially the same result in that maintenance is made easier and cheaper. I accept that the fact that a variant provides the advantage promised by the patent in suit cannot by itself be decisive because it might do so without exploiting the inventive concept in substantially the same way, or even at all. But in this case the advantage is achieved by using the inventive concept in substantially the same way as revealed in the Patent. The answer to the first question is yes.

Improver question 2

121. Would it have been obvious to the skilled person at the priority date, knowing that the Tap Bank achieves substantially the same result as the invention, that it does so in substantially the same way as the invention?
122. No separate argument was made by Teleste in relation to the second question. I find that the answer is yes.

Improver question 3

123. Would the skilled person reading the Patent have concluded that the patentee nonetheless intended that a base unit containing circuitry was an essential requirement of the invention? Reflecting what Lord Neuberger said in *Actavis* (at [65]), this is an inquiry into whether the skilled person would have concluded that a base unit containing circuitry is essential to the inventive concept, or inventive core, of the Patent.
124. In my view not. For reasons already discussed, the skilled person reading the Patent would think that the location of the relevant circuitry is irrelevant to the inventive concept. Nothing in the specification or the common general knowledge would steer the skilled person away from that view.

Conclusion on infringement

125. The Tap Bank falls within the scope of claim 1 pursuant to the doctrine of equivalents.

Formstein defence

126. This case provides an example of how a *Formstein* defence, if it exists, provides a squeeze on infringement. I have found that the Tap Bank falls within claim 1 partly because the inventive concept is relatively simple. Where, as here, the simplicity of the inventive concept or core tends to make the scope of the claim broader, this will also increase the likelihood that a *Formstein* defence will apply.
127. In cross-examination Mr Bailey accepted that it was part of the common general knowledge to fix one or more directional couplers and one or more splitter units (which would have signal outputs) to a wooden or metal board and install that in a street cabinet as a tap unit. He accepted that this would allow faulty splitter units and/or groups of directional couplers to be replaced individually, which I take to mean independently of each other. Mr Bailey also said that this old type of tap unit had all the advantages of the Tap Bank.
128. Mr Chacksfield submitted that the Tap Bank would therefore at the priority date have lacked inventive step over the common general knowledge.
129. Aside from asserting that a *Formstein* defence does not exist in English law, Mr Gamsa's only answer to this was that the units of the common general knowledge discussed by Mr Bailey (I will call them 'CGK Tap Units') were not 'cable tap units' because (a) the components were connected by coaxial cable and (b) they had no sealing to protect the units from RF interference and moisture.

130. On my findings on the construction of claim 1, only (a) could be relevant. But anyway, the correct construction of claim 1 was not to the point. The question was whether it would have been obvious at the priority date to adapt the CGK Tap Unit, with components connected by coaxial cables, to create a unit the same as the Tap Bank. Does the extension of claim 1 by the doctrine of equivalence mean that the claim embraces a tap unit, namely the Tap Bank, which was obvious over the CGK Tap Unit at the priority date?
131. Teleste's Defence and Counterclaim asserted that it was obvious. Technetix' Reply put Teleste to proof. Mr Bartlett's evidence fell away. Mr Bailey said that the two had all the same advantages and Mr Gamsa only felt able to deal with this allegation by falling back on definitions, which had no real bearing.
132. This was just about a different means to connect the components electrically. I believe it is likely, in fact very likely, that at the priority date the skilled person would have thought it obvious to adapt the CGK Tap Unit to create a unit like the Tap Bank.
133. I think that Mr Chacksfield was right about this: if a *Formstein* defence exists in English law, Teleste is entitled to the defence.

Amendment

134. In closing Mr Chacksfield did not pursue any objection to the amendment of the patent as granted, save that it would remain invalid. I have found that it would.

Exclusive licence

135. Paragraph 2 of the Re-Amended Particulars of Claim included the following:
- “During the period 23 May 2006 to 19 December 2016 the Second Claimant was the sole legal entity with the authority of the proprietor of the Patent to manufacture products falling within the scope of the claims of the Patent in the jurisdiction. In the premises the Claimants contend that the Second Claimant was the exclusive licensee of the Patent under an implied licence.”
136. On 19 December 2016 the proprietor of the Patent, the First Claimant ('BV'), granted an exclusive licence in writing to the Second Claimant ('Limited').
137. Technetix argued that on the facts stated in paragraph 2 of the Re-Amended Particulars of Claim and also because all three claimants are part of the same group, I should infer on the balance of probabilities that there was an exclusive licence granted to Limited in the relevant period.
138. There are two problems with this. First, paragraph 2 of the Re-Amended Particulars of Claim does not assert as a fact that there was an exclusive licence, only that there was a sole licence. Secondly, I was shown a written assignment dated 8 August 2016. I understand that prior to that date the Third Claimant ('Group') owned the Patent. The assignment identifies Group as the proprietor of the Patent and assigns “the full and exclusive benefit thereof and all rights privileges and advantages appertaining thereto” to BV. This suggests that in the period 23 May 2006 to 19 December 2016 Group, and

after 8 August 2016 BV, held the total and exclusive benefit of the Patent. That is not consistent with an exclusive licence having been granted to Limited.

139. I see no basis for inferring an exclusive licence granted to Limited in the period in question. I find that no such licence existed.

Conclusion

140. The patent as granted is invalid and it would remain invalid as proposed to be amended. Had it been valid it would have been infringed, unless there exists in English law a *Formstein* defence, in which case Teleste has a *Formstein* defence to infringement.
141. There was no exclusive licence granted to Limited under the patent in the period 23 May 2006 to 19 December 2016.