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Case No: A3 2016 0157

IN THE COURT OF APPEAL (CIVIL DIVISION)
ON APPEAL FROM THE HIGH COURT OF JUSTICE
CHANCERY DIVISION
PATENTS COURT
The Hon Mr Justice Birss
[2015] EWHC 3366 (Pat)

Royal Courts of Justice
Strand, London, WC2A 2LL

Date: 12/04/2017

Before :

LORD JUSTICE GROSS
LORD JUSTICE FLOYD
and
MR JUSTICE ARNOLD

Between:

UNWIRED PLANET INTERNATIONAL LIMITED

**Claimant/
Respondent**

- and -

(1) HUAWEI TECHNOLOGIES CO. LIMITED
(2) HUAWEI TECHNOLOGIES (UK) CO. LIMITED

**Defendants/
Appellants**

(10) UNWIRED PLANET LLC

Tenth Party

Andrew Lykiardopoulos QC and Ben Longstaff (instructed by **Powell Gilbert LLP**) for the
Appellants

Adrian Speck QC, Mark Chacksfield and Thomas Jones (instructed by **EIP Legal**) for the
Respondent

Hearing dates: 28-29 March 2017

Approved Judgment

Lord Justice Floyd:

Introduction

1. The appellants (“Huawei”) appeal from the judgment and order of Birss J refusing to revoke the respondent’s (“Unwired Planet’s”) patent EP (UK) 2 229 744 (“the patent”). Other original defendants to the action, Samsung and Google, have settled. The appeal is in part with permission granted by the judge, and in part with the permission of Kitchin LJ granted on the papers.
2. The patent is one in a portfolio of patents which originally belonged to the telecoms company Ericsson, but which has now been acquired from Ericsson by Unwired Planet. The patent is concerned with a polling system for use in a wireless communication network. A poll is a message sent by a transmitter to a receiver to ask the receiver to tell the transmitter what data it has received. The poll message asks the receiver to send a status report. On receipt of a status report the transmitter works out whether the data which it has sent has been satisfactorily received, or whether it requires re-sending.
3. Many of the points which were run before the judge have fallen away. There are now essentially three issues:
 - Issue 1: Whether claims 1 and/or 9 of the patent are disentitled to priority because there is no disclosure in the priority document of polling “upon assembly”.
 - Issue 2: Whether claims 1 and 9 lack inventive step over a standards proposal referred to as “Motorola TDoc”.
 - Issue 3: Whether claims 1 and 9 lack novelty because Ericsson’s own TDoc, which is admitted to be novelty destroying, was made available to the public before the priority date.
4. Issue 3 raises a short but interesting point of law concerned with whether a prior publication is available before the priority date when it was made available, in some time zones but not in the time zone of filing, on a date before that date. Issues 1 and 2, on the other hand, raise issues which involve some understanding of the technical background. I must therefore start by setting out the background which is necessary to understand those two issues. I have adapted much of what follows, with gratitude, from the judge’s lucid summary. I will then need to summarise the disclosure of the priority document and the patent, before going on to address the first of the issues.
5. On the appeal Mr Andrew Lykiardopoulos QC argued the case for the Huawei with Mr Ben Longstaff. Mr Adrian Speck QC, Mr Mark Chacksfield and Mr Thomas Jones argued the case for Unwired Planet. I am very grateful to all of them for the clear and economical presentation of their respective cases.

Technical Background

Introduction

6. By the priority date mobile networks were digital. At least some types of information sent via the networks were in “packets” – that is groups of bits. In general a packet may comprise payload data (that is content which the transmitting entity is to send to a receiving entity) and control data (that is data which enables the transmitting entity, receiving entity and mobile network to operate efficiently and process the packets). The control data is usually included in a packet as a header.
7. In order to operate by sending and receiving packets, each data stream has to be split up into packets for transmission. Once received, the packets must be reassembled into the data stream. To recreate the data stream with complete fidelity the receiver has to reassemble all the right packets, necessarily, in the right order. The packets must therefore be stored temporarily at the transmitter and the receiver. The receiver must store the packets because they have to be received in their entirety before they can be processed properly. The transmitter must store packets because there is a possibility that the packet may be required to be retransmitted if it was not received.

UMTS

8. Digital mobile telephony has proceeded through a series of successive international standards and generations. The generation currently in use at the priority date was a 3G system known as the Universal Mobile Telecommunications System (UMTS).
9. The various generations of mobile networks had to accommodate increasing consumer demand for access to the internet. The backbone of the internet is a wired network where transmission errors are relatively rare. In contrast, the error rates over the air (or radio) interface in a mobile network are much higher.
10. In order for two devices to communicate they need a set of rules which defines the semantics, syntax and sequencing of messages passing between them. That is a communications protocol. A very familiar idea in 2008 was a protocol layer stack. A protocol layer stack allows different types of protocols to be used concurrently yet independently. Entities at the same layer in the stack communicate with each other with a defined protocol without having to be concerned about the protocols between entities at lower layers in the stack.
11. From the point of view of an entity at a given layer in the stack, a packet of data received from a higher layer is called an SDU (service data unit) while the data sent down to a lower layer is called a PDU (protocol data unit). In general an entity which receives an SDU from a higher layer which is to be transmitted on to a lower layer adds its own control information to the packet in the form of a header. The SDU is untouched and treated as payload. The layer of relevance for the present case is the Radio Link Control or RLC. An important point is that in UMTS the PDUs in the RLC layer were of a fixed size in bytes.
12. The RLC protocol in UMTS employed an automatic repeat request protocol. When PDUs are sent from the transmitting entity, the receiving entity acknowledges PDUs that have been received correctly. The acknowledgement is referred to as an “ACK”. The receiver may also send a negative acknowledgement message for missing or erroneous PDUs to the extent that it can detect that this has happened called a “NACK”. An arrangement in which each PDU has to be acknowledged before the

next is sent would cause the transmission channel to remain idle in the meantime. This is inefficient and introduces a high overhead.

13. Accordingly, more sophisticated systems use a sliding “window”. The system allows for the ability to transmit a limited number of new PDUs without having to wait for an acknowledgement of the last PDU. Each PDU is assigned a “sequence number”. This allows the receiver to know which PDUs have been received and which are missing. It also allows the status report to identify which PDUs are being acknowledged as received (“ACKed”) and which are missing and are being “NACKed”. The sequence number also allows the receiver to reform the data stream into the correct order. There is a “transmitter window” of the number of PDUs which can be transmitted but not yet acknowledged. When the oldest PDU in the transmitter window is acknowledged, it is removed and the window slides along.
14. Sequence numbers are a finite resource. If 9 bits are allocated for sequence numbers there are 512 possible values. New numbers cannot be released until status reports on unacknowledged numbers are received. The numbers are cyclic and recommence at zero after number 511. If all the available sequence numbers are used up a “stall” occurs.
15. Using this method, once a PDU has been sent, the transmitter has to keep it in case it needs to be retransmitted. The data is stored in the “retransmission buffer” and a given PDU has to be preserved until that PDU has been acknowledged. Thus a status report frees up two resources, sequence numbers and buffer memory. Once a PDU has been ACKed, it can be deleted from the retransmission buffer.
16. A system would advantageously be designed so that status reports are obtained sufficiently often to prevent the system stalling. One way in which status reports are generated is called “gap detection”. If a PDU is missing from the sequence, the receiver can tell that this has happened from the sequence numbers and send a status report. The report will NACK the missing PDU and ACK the PDUs which have been received.
17. When the system is operating well with few errors (and therefore no status reports generated by gap detection) the transmitter may need to be able to poll the receiver to request a status report so that it can move the window forward. The different polls are characterised by what triggers them. The relevant polls in this case are those which apply in the course of continuous, as opposed to “bursty” transmission, in which, as I understand it, there are breaks in transmission during which status reports can be obtained. A poll is requested by setting a bit in the header of a PDU. When the receiver receives that PDU and finds the poll bit set, it knows to send a status report. One of the factors which has to be taken into account is that, given the errors on the air interface, the PDU which contains the set poll bit might be lost in transmission and not received by the receiver and conversely, a status report sent by the receiver may not be received by the transmitter.
18. The UMTS standard defined a series of possible poll triggers which the implementer could use. The poll triggers in UMTS also included the following:
 - i) “Poll timer”. A timer is set when a poll is triggered and stopped in certain circumstances (such as when the right status report is received). If no status

report appears before the timer runs out a further poll is sent. This aims to ensure that when a poll is sent, it is answered correctly.

- ii) “Every Poll_PDU PDU”. This is a PDU counter. The system counts the number of PDUs sent and when that number reaches the value in the field “Poll_PDU” a poll is triggered.
 - iii) “Every Poll_SDU SDU”. This is an SDU counter. The system counts the number of SDUs received and when that number reaches the value in the field “Poll_SDU” a poll is triggered.
 - iv) “Window based”. This poll trigger works by following the sequence number window at the transmitter. The poll is triggered when an AMD PDU is sent which represents a given percentage of the transmission window given by a formula. In other words when occupancy of the sequence number resource reaches a predetermined threshold the poll is triggered.
 - v) “Timer based”. This triggers a poll periodically based on a timer.
19. The window based approach (iv) keeps track of the amount of the sequence number resource which has actually been used and therefore what is available. This is more complicated to implement but more accurate than a PDU counter (iii). A counter is simply an indication of the rate at which the resource is being used up.
20. The purpose of these triggers, particularly the counters (ii) and (iii) and the window based and timer based triggers (iv) and (v), is to poll periodically so as to avoid stalling. The efficiency of the system involves a balance. Too few polls increase the risk of a stall, which is very inefficient. Too many polls will use up bandwidth, which is also inefficient. The problem of too many polls was known as “superfluous polling”. A Poll Prohibit function can mitigate the problem of superfluous polling. The function works using a Poll Prohibit Timer which is a timer which starts counting time when a poll is sent. Until the set period has expired any further polls are prohibited.

LTE

21. At the priority date, although the UMTS was the system in actual use, work on 4G had already commenced. That standard under discussion was known as Long Term Evolution (LTE). LTE was to be the first fully “packet switched” network. The development of LTE took UMTS as its starting point.
22. A significant change from UMTS was to provide for the RLC to use variable size PDUs, depending on how much capacity was available for that particular RLC process in the current transmission interval. This was a fundamental difference from UMTS where the RLC PDU was a fixed number of bytes.
23. A problem created by variable sized PDUs in LTE is that the storage space (in bytes) needed in the retransmission buffer for unacknowledged PDUs is no longer directly related to the *number* of unacknowledged variable sized PDUs. A stall could now be caused by two distinct phenomena: the transmitter could run out of sequence numbers

for PDUs and, separately, it could run out of storage space in the retransmission buffer.

24. The other significant feature of LTE which was common general knowledge at the priority date was the desire to simplify the system as compared to UMTS. UMTS was regarded as complex and those working on LTE were aiming to produce a simpler system. The toolbox of polling triggers in UMTS was one aspect which the skilled person wanted to simplify.
25. Version 8.0.0 of the Technical Specification for LTE stated that the triggers to initiate polling were to include (a) a “transmission of last data in buffer” trigger and (b) an “expiry of poll retransmit timer”. An editor’s note on version 8.0.0 said:

“It has been decided to support either PDU count based polling trigger or Window based polling trigger in addition to the polling triggers indicated above”.
26. In summary, therefore, the art was faced with how to design a set of polling triggers which accommodated the variable size of PDUs. There were demands for simplicity, which militated towards using as few triggers as possible. There was also a recognition that a windows based system would be technically superior to counters, but would be more complicated.

The priority document

27. The patent claims priority from application No 61/019,746 made in the United States Patent and Trademark Office on January 8 2008 (“the priority document”). The priority document is entitled “Method and Arrangement in a Telecommunication System”. It has four sections: Field of the Invention, Background, Summary and Detailed Description. There are no claims.
28. The first section, Field of the Invention, notes that the invention relates in particular to RLC polling for continuous transmission. As I have mentioned in dealing with the technical background, the skilled person would be aware that continuous transmission raised different issues to those which are raised by “bursty” transmission.
29. The second section, the Background, begins by noting that the draft LTE standard includes a polling procedure that triggers the poll by setting a poll bit in the RLC header. The setting of the poll bit serves as a request to be sent a status report. The “currently agreed criteria” for setting the poll bit were (a) the transmission of the last PDU in a buffer and (b) the expiry of a poll retransmission timer. These criteria are said to work well for bursty traffic, where the poll will be sent for the last PDU in each burst.
30. At page 1 line 27 to page 2 line 6, the priority document acknowledges that continuous transmission requires additional triggers to be considered and that a properly designed polling procedure can be used to limit the number of “outstanding PDUs (or bytes)” to avoid stalling. Counter-based and window-based mechanisms are identified as examples of polling procedures. The procedure can operate “either on transmitted RLC PDUs or on transmitted bytes”.

31. At page 2 lines 7 to 9 the priority document explains:

“A counter-based mechanism counts the amount of transmitted PDUs (or bytes) and sets the poll bit when a configured number of PDUs (or bytes) have been transmitted.”

32. The priority document also explains how window-based mechanisms work, namely by transmitting the poll only when the amount of outstanding (i.e. transmitted but not acknowledged) data exceeds a certain number of PDUs (or bytes).

33. The third section, the Summary, explains that counter-based and window-based mechanisms do not take into account the fact that stalling may sometimes occur due to sequence number limitations and sometimes due to memory limitations. This is a recognition of the fact that, in LTE, the PDUs are not of a fixed size in bytes, and so counting PDUs or bytes alone will no longer be good enough.

34. The “present invention” is then described. I set out below the remainder of the Summary section:

“The present invention intends to define two triggering mechanisms; one mechanism that counts the number of PDUs and one mechanism that counts the number of transmitted bytes. In particular, as those mechanisms would be independent of each other, according to one embodiment of the present invention the criteria “transmitted number of PDUs” and “transmitted number of bytes” are combined into one single mechanism.

It is then an advantage of the present invention that the mechanism operates on both bytes and PDUs and thus avoids stalling due to both sequence number limitations and memory limitations. This is advantageously achieved by a single mechanism coordinating the polling by two criteria leading to an efficient polling mechanism.

Other objects, advantages and novel features of the invention will become apparent from the following detailed description of the invention.”

35. The reference to the two criteria being combined into one single mechanism is the first, albeit very general reference to a combined mechanism which is explained, as the reader would expect, in the Detailed Description.

36. The priority document then proceeds to the fourth section, the Detailed Description. The description starts, at page 4 lines 2 to 18, by explaining, in essence, how the problem of protocol stalling due to either sequence number or memory limitations arises from the fact that PDUs can vary in size. The passage also highlights the fact that the memory capabilities of user equipment (i.e. the mobile phone) are likely to be limited.

37. At page 4 lines 19 to 21 the priority document says this:

“A combination of the criteria “transmitted number of PDUs” and “transmitted number of bytes” into one single mechanism can be achieved by a method described in the following:”

38. A passage beginning at page 4 line 22 describes how two counters are first initialised to starting values, e.g. zero. There then follows a sentence which gave rise to some argument at the trial:

“After *that data* has been transmitted the actual values of said counters are each compared to appropriate and pre-defined threshold values “PDU_threshold” and “ByteThreshold” for the respective counter.” (emphasis supplied)

39. The words “that data” do not appear to have any direct antecedent. Unwired Planet suggested at the trial that the sense conveyed by this sentence was as if there was a comma inserted, so that it read “After that, data has been transmitted...”. The judge rejected that argument, and Mr Speck did not seek to resurrect it on appeal. Nevertheless, as a matter of grammar, the word “that” remains puzzling, and could either be treated as surplusage or as a mistake for the definite article. Huawei favoured the latter, but was still unable to identify any precedent for what the words referred to.

40. The document continues by explaining that if either counter equals or exceeds the threshold value, the poll is triggered and *both* counters reset to their starting values. This is the combined mechanism flagged in the Summary. The document then sets out the mechanism in pseudocode, a form of code which is not in a formal computer programming language, but explains the logical steps which it is suggested be incorporated into the mechanism:

“Initialise PDU_Counter and ByteCounter to their starting values;

[transmit data];

IF (PDU_Counter \geq PDU_Threshold) OR
(ByteCounter \geq ByteThreshold) THEN

- Trigger a poll;

- Reset PDU_Counter AND ByteCounter;

END IF.”

41. The priority document continues by explaining the benefit of the procedure, namely that:

“... stalling due to both sequence number limitation and memory limitation can be avoided by help of one single mechanism. By combining the two criteria into one mechanism it is avoided that a poll is unnecessarily sent when a first criteri[on] is fulfilled while such a poll has already recently been triggered due to another criteri[on]”.

The patent

42. The judge summarised the disclosure of the patent at paragraphs 53 to 61 of his judgment. It is not necessary to recite it all here. Significant points are:

- i) The currently agreed RLC poll triggers are outlined at paragraphs [0005] to [0007]. It is acknowledged that while these criteria can work well for “bursty” traffic, additional triggers may be required to facilitate continuous transmission. Polling procedures can be used to limit the number of outstanding (i.e. transmitted but not acknowledged) PDUs or bytes to avoid protocol stalling.
- ii) Two mechanisms are identified to avoid protocol stalling: counter-based and window-based mechanisms. Paragraph [0012] suggests that no existing mechanisms take into account the fact that stalling may sometimes take place because of sequence number limitations or sometimes due to memory limitations.
- iii) After setting out a number of consistory clauses, paragraph [0017] states that “superfluous polling” is avoided by combining the counting of data units and the counting of bytes into one mechanism.
- iv) The patent includes four figures which illustrate both a wireless communication network and the operation of the invention in the first node. The first node comprises a data unit counter and a byte counter which are initialised to zero in the first step. As data is transmitted, the data unit counter is increased for each transmitted data unit and the byte counter is increased for every byte sent. The counters are then compared to see if either of the counters has reached or exceeded its threshold. A poll is triggered if any of the first or the second threshold limit values is reached or exceeded. The poll is generated at the first node and sent to the second node, both counters are reset and, on receipt of the poll, the second node generates and sends a status report to the first node.
- v) Paragraph [0045] explains that this method may be denoted “in a compressed way of writing” by using the pseudocode which we saw in the priority document, and which I will therefore not set out again.
- vi) The examples in the specification are expressed, in an emphatic manner, to be non-limiting. In addition, at paragraph [0058] one finds this paragraph, not present in the priority document:

“To appropriately request a status report from the second node 120, the method may comprise a number of method steps 301-312. It is however to be noted that some of the described method steps are optional and only comprised within some examples. Further, it is to be noted that the method steps 301-312 may be performed in any arbitrary chronological order and that some of them, e.g. step 304 and step 305, or even all steps may be performed simultaneously

or in an altered, arbitrarily arranged, decomposed or even completely reversed chronological order.”

The claims

43. The relevant claims are 1 and 9, and are as follows (omitting reference numerals):

Claim 1: Method in a first node for requesting a status report from a second node, the first node and the second node both being comprised within a wireless communication network, the status report comprising positive and/or negative acknowledgement of data sent from the first node to be received by the second node, wherein the method comprises the steps of:

transmitting a sequence of data units or data unit segments to be received by the second node, the method further comprises the steps of:

counting the number of transmitted data units and the number of transmitted data bytes of the transmitted data units, and,

requesting a status report from the second node if the counted number of transmitted data units exceeds or equals a first predefined value, or the counted number of transmitted data bytes of the transmitted data units exceeds or equals a second predefined value.

Claim 9: Method according to any of the previous claims 6-8, wherein the steps of resetting the first counter and the second counter is performed when the first predefined value is reached or exceeded by the first counter or when the second predefined value is reached or exceeded by the second counter.

44. Claim 9 is dependent on claims 6-8 rather than being directly dependent on claim 1, but nothing turns on this.

Issue 1

45. There was a debate at the trial as to whether the claims, on their proper construction extended to cover the case where the counters counted the PDU “upon assembly”, i.e. just before the PDU was transmitted, as opposed to when it had been transmitted. The narrower construction would have meant that the claims did not read on to the LTE standard, and the patent would not have been “essential” to its operation. The judge resolved that issue in favour of Unwired Planet, and Huawei does not appeal from that aspect of the judgment. Huawei submits (see their skeleton argument at paragraph 36) that there is no support in the priority document for claims which cover polling upon assembly. Its case is that the priority document only discloses counting, comparing and polling after the PDU has been transmitted. If Huawei is right, there

is then no dispute that claims 1 and 9 would be invalid for lack novelty through the intermediate publication of the draft LTE standard.

The judgment on Issue 1

46. Although the judge's judgment on the issue of construction of claim 1 is not in issue on this appeal, it is important to have in mind certain of the findings which he made in that section of his judgment. Thus, at paragraph 87 he explained the process of assembly, in which a PDU is taken from a higher level in the protocol stack, is formatted and has a header added to create a PDU. He explained that this assembly process "*is part and parcel of the transmission process*".

47. The judge went on to explain that, in UMTS, counting of the PDU takes place in the assembly process, i.e. that in UMTS counting is "upon assembly". He said:

"The skilled person knew, as a matter of common general knowledge, that the UMTS system worked this way. It would be regarded as a conventional approach."

48. The judge also explained the advantage of the "upon assembly" approach, compared to the "after transmission" approach namely:

"[The "after transmission" approach] involves the poll bit being set in the header of the next PDU sent, not the one which caused the threshold(s) to be satisfied. I find that the skilled person thought it was better to set the poll upon assembly because that means it was being set when it was needed".

49. The judge's conclusions on construction are also of significance:

"94. Turning to the claim, it seems to me that with the relevant background the skilled reader would not understand the language as seeking to exclude the possibility of polling (and therefore counting) upon assembly. It is true that in the claim the step of transmitting a sequence of data units is mentioned first and then the claim refers to the step of counting the two values and finally to requesting a status report. However the language is not descending into the level of detail required to distinguish between the different ways of counting and polling. What really matters is counting both numbers. *The counting and the poll requesting steps are part of the overall process of transmission of the sequence of PDUs.* The fact that the count and the setting of a poll bit might occur upon assembly of a given PDU which is transmitted does not mean the method ceases to be a way of counting transmitted PDUs or transmitted bytes. A system which counts upon assembly of a PDU and sets the poll bit upon assembly of that PDU is covered." (emphasis added)

50. The judge dealt with Issue 1 at paragraphs 130 to 137 of his judgment. He commenced his analysis again by saying that the skilled person's common general

knowledge included the knowledge that, in UMTS, counting and setting the poll bit (polling) took place upon assembly. He summarised the passages from the priority document relied upon by Huawei in support of its case that the disclosure of the priority document was limited to counting and polling after transmission. Huawei focused on the use of the past tense “transmitted” in relation to the data. The key passages in the judgment are at paragraphs 134-136:

“134. Read pedantically and without any context, these words can be said to exclude the idea of counting and polling upon the assembly of a PDU for transmission. But reading a document that way is not the right approach. The skilled person is aware of the conventional approach to counting and polling in UMTS as a matter of common general knowledge. The question is what would that skilled person understand the inventor to mean by the language which has been used (cf *Kirin Amgen*). In my judgment the skilled person would not think this language was being used to address that issue at all.

135. One of the clearer passages in the defendant’s favour is the reference on page 2 to setting a poll bit when a set number of PDUs or bytes “have been” transmitted. However this is actually in the Background section and would be understood to refer to known counter mechanisms. The most relevant counter mechanism in the common general knowledge which is actually in use is the one in UMTS which polls upon assembly. Therefore the reader would realise that the priority document was using language loosely.

136. Since the Detailed Description would be understood as illustrative, I place less weight on the passage on p4. In the Summary section the point turns on the word “transmitted”. Read on its own or as part of the document as a whole, it is not a statement which would be understood to exclude counting or polling upon assembly. A method in the transmitter which counts and polls upon assembly does count the number of PDUs which are transmitted to the receiver and does set the poll bit based on the number of PDUs which are transmitted to the receiver. The meaning of the word “transmitted” has not changed between the priority document and the patent claim.”

51. Accordingly the judge held that claim 1 was “clearly and unambiguously derivable from the priority document”.
52. The judge also had to deal with separate arguments on claim 9. The first argument was related to a corresponding point on construction, namely that the dual reset feature of claim 9 was to be construed so as not to encompass resetting for additional, non-specified reasons (a so-called global reset). The judge rejected this argument and there is no appeal from his conclusion. Huawei’s priority argument was that the skilled person would not understand the disclosure of the priority document to encompass global reset. The judge rejected that argument, taking the view that the skilled person would not read the priority document as limited in that way.

53. Huawei advanced a second, unpleaded argument that global reset could not obtain priority from the Summary Section of the priority document, but only conceivably from the Detailed Description. Since the Detailed Description only provided priority for dual and not global reset, priority was lost. The judge also rejected this argument.
54. Neither of these arguments is advanced on this appeal. Instead Mr Lykiardopoulos argues a variation on the theme of the second argument, which I will deal with below.

The law on entitlement to priority

55. In *MedImmune and others v Novartis Pharmaceuticals UK Limited* [2012] EWCA Civ 1234 at paragraphs 151 to 154, Kitchin LJ, with the agreement of Moore-Bick and Lewison LJ, summarised the law on entitlement to priority in the following way:

“151. Section 5(2)(a) of the Patents Act 1977 provides that an invention is entitled to priority if it is supported by matter disclosed in the priority document. By section 130(7) of the Act, section 5 is to be interpreted as having the same effect as the corresponding provisions of Article 87(1) of the European Patent Convention. Article 87(1) says that priority may be derived from an earlier application in respect of the "same invention".

152. The requirement that the earlier application must be in respect of the same invention was explained by the enlarged Board of Appeal of the EPO in G02/98 *Same Invention*, [2001] OJ EPO 413; [2002] EPOR 167:

"The requirement for claiming priority of 'the same invention', referred to in Article 87(1) EPC, means that priority of a previous application in respect of a claim in a European patent application in accordance with Article 88 EPC is to be acknowledged only if the skilled person can derive the subject-matter of the claim directly and unambiguously, using common general knowledge, from the previous application as a whole."

153. The approach to be adopted was elaborated by this court in *Unilin Beheer v Berry Floor* [2004] EWCA (Civ) 1021; [2005] FSR 6 at [48]:

"48.The approach is not formulaic: priority is a question about technical disclosure, explicit or implicit. Is there enough in the priority document to give the skilled man essentially the same information as forms the subject of the claim and enables him to work the invention in accordance with that claim."

154. In *Abbott Laboratories Ltd v Evysio Medical Devices plc* [2008] EWHC 800 (Pat), I added this:

"228. So the important thing is not the consistory clause or the claims of the priority document but whether the disclosure as a whole is enabling and effectively gives the skilled person what is in the claim whose priority is in question. I would add that it must "give" it directly and unambiguously. It is not sufficient that it may be an obvious development of what is disclosed."

56. In *Samsung Electronics Co. Ltd v Apple Retail UK and another* [2013] EWHC 467 (Pat), I endeavoured to set out a structured approach to the consideration of questions of entitlement to priority which I believe to be correct:

"106. If I may summarise, the task for the court is therefore:

- (a) to read and understand, through the eyes of the skilled person, the disclosure of the priority document as a whole;
- (b) to determine the subject matter of the relevant claim;
- (c) to decide whether, as a matter of substance not of form, the subject matter of the claim can be derived directly and unambiguously from the disclosure of the priority document."

57. The advantage of approaching the matter in that way is that it avoids the danger of approaching the priority document with a preconception of what one may expect to find there. That is why, in this case, I have set out the disclosure of the priority document and the patent and its claims in that sequence above.

Huawei's submissions on Issue 1

58. In relation to claim 1, Mr Lykiardopoulos reprised the arguments he had advanced before the judge. He submitted that the invention had changed between the priority document and the patent. The priority document only disclosed counting, comparing and polling *after* transmission, whereas the patent disclosed and claimed a different invention, namely one where you could count, compare and poll *before or after* transmission.
59. The priority document was clear and consistent in referring to counting and polling *transmitted* PDUs and bytes. The pseudocode was exactly what the skilled person would expect, coming after a clear description of counting and polling after transmission. The words "transmit data" in square brackets meant that all the data was transmitted before the poll was triggered. Whilst the document must be read from the perspective of someone who has the common general knowledge in mind, the common general knowledge did not enable one to override a positive teaching of this kind. Whilst the common general knowledge might make it obvious to poll upon assembly, where priority was concerned, that was not good enough: the invention must be derivable directly and unambiguously from the disclosure of the priority document.

60. The judge, submitted Mr Lykiardopoulos, had also misinterpreted the latter part of the Background section in the priority document to be referring to UMTS, when in fact it was referring to what had currently been agreed within LTE. Thus the judge had said that this passage would be read as referring to known counter mechanisms, the most relevant of which was the PDU counter in UMTS. In fact the passage refers to both PDU counters and byte counters, and there was no evidence of any byte counter in UMTS. The skilled person would therefore read this passage as referring to what had been discussed in the LTE committee, which the earlier part of the Background section was plainly referring to.
61. Finally, on the priority document, the judge had been wrong to ask himself whether it “excluded” the concept of polling upon assembly. He should have asked whether that concept was disclosed.
62. Turning to the patent, Mr Lykiardopoulos pointed to important changes from the priority document. Thus the passage beginning “After that data has been transmitted...”, which appeared in the priority document just before the pseudocode, had now been omitted. The judge had failed to see the significance of the fact that the context of the pseudocode was different as between the priority document and the patent. Because he had read the patent first and then the priority document he had wrongly imported his reading of the patent, which was based on altered wording, into the priority document.
63. In addition the patent contained broadening statements, of which paragraph [0058] was perhaps the most important. By saying that the order of steps did not matter, the patentee was teaching the reverse of what the skilled person would understand from the priority document: in the priority document you are taught to count and compare after transmission. Against that background, although claim 1 still used the word “transmitted”, the patentee had now given it a broader meaning, so that it could cover polling upon assembly as well as after transmission. The invention so described and claimed was different from that in the priority document and was not entitled to priority.
64. A subsidiary point arose on claim 9. The dual reset feature of claim 9 was only properly described in the Detailed Description section of the priority document. If recourse is to be had to that section, then the patentee was not entitled to cherry-pick features. The Detailed Description section made it as clear as possible that counting and polling came after transmission. There was no disclosure of a dual reset feature absent counting and polling after transmission.

Unwired Planet’s submissions on Issue 1

65. Mr Speck supported the reasoning of the judge on Issue 1. He emphasised the judge’s finding at paragraph 88 of the judgment that counting upon assembly was regarded as the conventional approach for a PDU counter mechanism, as well as being the method employed in UMTS. It was also known to be a technically better solution than counting after transmission. This formed a crucial part of the background against which the priority document would be read. Huawei had not put forward any technical (as opposed to semantic) reason why the skilled person would consider that the patentee was limiting his invention to details about precisely which PDU carried the poll bit.

66. Mr Speck submitted that neither the priority document nor the claim were concerned with the level of detail which Huawei's priority arguments assumed. Huawei's argument assumed that the skilled person reading either document would be concerned with the precise PDU which the poll bit gets set in, that is to say whether it was set in the PDU which caused the threshold to be met, or in the next PDU. The claimed invention was not concerned with that level of detail at all. The key concept which the skilled person would take from the priority document was the adoption of two counter mechanisms, one for the PDUs and one for the bytes. That was how the expert for Samsung, one of the defendants at trial, had described the key concept of claim 1. He had adopted similarly general language for the key concept of claim 9. Huawei's expert Mr Wickins had also accepted, as the judge had recorded at paragraph 142, that a system where you set the poll bit in the PDU which causes the threshold to be reached was making use of the key concept of the priority document and using it for the same purpose. Thus, viewed at the appropriate level of generality, the concepts of claim 1 were clearly to be found in both the priority document and the patent.
67. Mr Speck further submitted that the use of the past tense "transmitted" in the priority document was perfectly apt language to describe what was going on. Even on the Huawei's interpretation of the priority document the vast majority of the PDUs will have been transmitted. The only issue was whether the PDUs counted as "transmitted" just before or just after they went, as he put it, "out of the door".
68. The passage in the Background section of the priority document which the judge had relied on in paragraph 135 was concerned with what counter-based and window-based mechanisms were and how they worked. This would be understood as including those already known, in particular the known UMTS PDU counter which counted upon assembly. It was irrelevant that there was no common general knowledge byte counter. The passage was in fact a strong indication that the priority document was using the word "transmitted" in a sense which included counting upon assembly.
69. As to the pseudocode, Mr Speck submitted that the judge had come to a view on what the pseudocode would disclose absent the changes brought about in the patent specification. He made three further points about the pseudocode and its preamble. Firstly, the focus was entirely on how one combined the two counters, and not on which precise PDU the poll bit was set in. Secondly, the section was introduced, as the judge had observed, by a statement of how the two criteria "can" be combined, so it was clearly to be read as non-limiting. Thirdly, the pseudocode's square brackets did no more than indicate in the most general possible terms that data has been transmitted, not that all transmission must be over before the counting and polling takes place.
70. The claim 9 argument which was now advanced was, Mr Speck said, not superior to those which had been advanced at the trial and rejected. If claim 1 was entitled to priority, it followed that the skilled person would see the key concept of the priority document as having two counters, and not being concerned with the precise PDU in which the poll bit was set. With that in mind, the skilled person would not see the dual reset concept of claim 9 as having anything to do with the precise PDU in which the poll bit was set either. The more refined concept of claim 9, the dual reset, was clearly disclosed in the priority document as something which could be added to the

first concept, and not as something which could only be added provided that the poll bit was set after transmission.

Discussion of Issue 1

71. A first, preliminary point concerns the correct approach to determination of priority. I have set out the law above. There was some discussion in argument about analogies between the law on entitlement to priority and the law of novelty. Although the law entitlement to priority shares with the law of novelty the common feature of assessing the disclosure of a document, it is important to recognise that that is where the analogy stops. A published document (or one treated as part of the state of the art for novelty purposes under Article 54(3)) will deprive a later claim of novelty if it hits the target, in the sense that something clearly disclosed by the document falls within scope of the claim: see *Synthon v SmithKline Beecham* [2005] UKHL 59; [2006] RPC 10. To put it another way, everything which falls within the claim must be novel. One does not assess priority, however, by asking whether everything which falls within the claim is clearly and unambiguously taught by the priority document. A test of that kind would make claiming priority impossibly hard. The exercise of determining priority involves asking whether the *invention* is directly and unambiguously derivable from the priority document, not whether every possible embodiment of the invention is so derivable.
72. A second preliminary point is that the priority document must not be read in a vacuum, but with the benefit of the common general knowledge which forms the factual matrix against which the technical disclosure is assessed. Viewed with that knowledge, the disclosure may mean something different to a skilled person than it does to someone reading the document without that knowledge. That observation has particular traction in a case where one is concerned not merely with what is made explicit by the document, but also with what is implicit in it, because both explicit and implicit disclosure may be taken into account for priority. None of that is the same thing as adding to the disclosure something which is obvious in the light of it, although the difference between the two may sometimes be difficult to pick apart on the facts. It follows that an appellate court must exercise caution when differing from a trial judge on the interpretation of a priority document where its meaning may be coloured by the common general knowledge. An alternative construction may seem more plausible in the drier atmosphere which prevails on appeal, than it did to a judge who has been soaked in the evidence of those skilled in the art.
73. With those observations in mind, I turn to the disclosure of the priority document in this case. I deal first with the passage in the Background section which refers to counter-based mechanisms “set[ting] the poll bit when a configured number of PDUs (or bytes) have been transmitted”. I do not think the judge made any error in assessing what this passage told the skilled person. It would immediately bring to mind the PDU counter in the UMTS standard, which counts upon assembly. To read it otherwise would be to do so in a vacuum. Counting upon assembly was the conventional approach to a PDU counter. The skilled person would understand that the patentee was using the word “transmitted” in relation to PDUs in a very slightly expanded sense to include not merely those PDUs which were on their way across the air interface, but also the PDU which was being assembled for transmission. The contrary interpretation, that the language was being used to require actual

transmission on the air interface, if it occurred to the skilled person at all, would be rejected.

74. In this connection, the judge's conclusions about the common general knowledge are of particular significance. Thus the interpretation which the skilled person would give to the word "transmitted", at least in this Background passage, is not a forced or artificial one. It is one which chimes perfectly with his common general knowledge, particularly as assembly was regarded as part and parcel of the process of transmission.
75. I do not think that any different conclusion would be reached on the basis of the Summary section. That section is, as one would expect from a summary, a clear description of the two key concepts of the priority document, namely the use of two counters, and their combination into a single mechanism. The skilled person would see no reason in this section to depart from his understanding of "transmitted bytes". The advance was not put in terms of the precise point at which counting and polling takes place, but in terms of what is counted in the first place. Those two key concepts are carried forward into the penultimate paragraph, again without condescension to the precise point at which counting and polling take place.
76. It is, at least in theory, possible that the Detailed Description section might dislodge the very clear impression gained by the skilled person thus far as to what the invention or inventions were concerned with. However, I agree with the judge that there is nothing in the Detailed Description which leads to that conclusion. Firstly, the weight of what is said in this section is clearly reduced by the fact that it is plainly exemplary and non-limiting, as shown by the words "can be achieved by a method described in the following". Secondly, Huawei's argument places more weight on the words "[a]fter that data has been transmitted..." than they are capable of bearing. Even after rejecting Unwired Planet's suggested comma insertion between the first two words, "[a]fter that data" does not teach that all the data one is interested in must have been transmitted over the air interface. The absence of any antecedent for "that data" is telling. The passage would not be read as requiring that all the data has been transmitted. The pseudocode, which does not in any event deal with counting, would not be read in any more prescriptive sense.
77. Turning to the subject matter of the invention claimed in the patent, my task here is made simpler by the fact that there is no challenge to the judge's construction. However, it is necessary to bear in mind that the true construction of the patent may have been arrived at by reliance on passages, such as paragraph [0058], which might be said to provide more support for the interpretation of "transmitted" than was the case with the priority document. This point is particularly important when considering the pseudocode, as the now familiar "[a]fter that data ..." sentence has been omitted.
78. There is, in my judgment, nothing in Huawei's criticism of the judge in this respect. Firstly, interpreting the priority document as a whole, as I have done, the "[a]fter that data..." sentence does not have the impact for which Huawei contend. Read as a whole, and without knowledge of what is said in the patent, the skilled person would arrive at the conclusion that "transmitted" is not to be read in Huawei's limited sense. Secondly, the judge expressly warned himself at paragraph 93, when considering the pseudocode disclosure, about the dangers of taking into account passages such as

paragraph [0058]. I am also completely satisfied that he did not overlook the difference in context in which the pseudocode appears.

79. It is not without significance that the judge had expert evidence from Mr Wickins, Huawei's witness, and Dr Irvine, Samsung's witness, to the effect that a method which counted and set the poll bit upon assembly made use of the key concepts in the priority document and for the same purpose. It was evidence to which he was entitled to have regard. Although ultimately the interpretation of the language of the priority document is for the court, the actual disclosure of a document, what it conveys to the skilled person, is a matter on which expert evidence is admissible.
80. I am therefore satisfied, contrary to Huawei's case, that the priority document does directly and unambiguously convey to the skilled person an invention of sufficient breadth to encompass counting and polling upon assembly. The fact that it is necessary to consider the disclosure of the priority document in the light of the background common general knowledge to arrive at that conclusion does not in any sense preclude it.
81. I am therefore of the view that claim 1 is entitled to priority.
82. The priority of claim 9 is of importance to Huawei if it succeeds in its obviousness attack against claim 1 but fails against claim 9. However, there is nothing in Huawei's priority attack on claim 9 as it is now formulated. It is again necessary to understand the disclosure of the priority document as a whole. It is true that when reading the Summary section, the skilled person is not told how it is proposed that the two mechanisms are to be combined into one, but he will be alerted to the fact that there is said to be a concept of a combined single mechanism in addition to the concept of having two counters. As the document explains "the criteria "transmitted number of PDUs" and "transmitted number of bytes" are combined into one single mechanism".
83. How that is to be achieved is made clear by the Detailed Description. That section picks up the language used in the Summary, and links the two sections together, saying that "A combination of the criteria "transmitted number of PDUs" and "transmitted number of bytes" into one single mechanism" and says that it "can be achieved ... in the following:". In the immediately following paragraph it is explained how that combination takes place, namely by resetting "the counters ... to their respective starting values" when either counter reaches its threshold. There is nothing else which operates to combine the two counters. That is the inventive concept of claim 9.
84. Huawei's argument is again based on the contention that the "[a]fter that data ..." sentence, coupled with pseudocode, and a further reference to bytes having been transmitted limits the disclosure by reference to the point at which counting and polling takes place. I have, however, explained why I reject that argument. It seems to me to be clear that the use of the word "transmitted" is consistent throughout the document, and not limited in the way Huawei suggests.
85. It follows that I consider that claim 9 is entitled to priority as well.

86. This issue concerns whether claims 1 and/or 9 are obvious in the light of the disclosure of the Motorola TDoc. I will first summarise the disclosure of that document, before turning to the judgment on the issue and the parties' submissions.

The disclosure of the Motorola TDoc

87. The Motorola TDoc is a short document headed "RLC Polling Related Issues". It was presented to a meeting of the relevant 3GPP committee in Athens in August 2007. Section 2 is headed "Triggers of Polling". There are five triggers mentioned altogether. The first is "Transmission of the last data in the buffer", which is stated to have been already defined. Two further triggers are of importance:
- i) "Transmission of every N bytes data". Although there was a dispute about this at the trial, it is now accepted by Unwired Planet that this describes a byte counter, and not a window-based trigger. It is explained in terms that the counter is aimed at avoiding buffer overflows. The reason for including it is that the size of PDUs in the LTE system is variable, and so a byte counter is more accurate than a PDU or SDU counter.
 - ii) "Transmission of every K TTIs". This proposes that a poll is sent after a fixed number of TTIs or Transmit Time Intervals. Subject to an exception, only one PDU can be sent in a TTI. There may not be a PDU in every TTI, but subject to the exception, there will be no more than one PDU per TTI. One can view this trigger as a TTI counter, or as a timer-based poll. I will refer to it as a TTI counter.
88. Section 4 of Motorola's TDoc discusses polling timers and proposes two such timers: a poll prohibit timer and a poll retransmission timer. The document presents its conclusions in section 5. Such timers would be understood to be concerned with superfluous polling. In total four polling triggers (one of which is a byte counter) and two polling timers are proposed.

The judgment on Issue 2

89. The judge considered that, as compared with claim 1 of the patent, the Motorola TDoc disclosed the idea of a poll trigger based on a byte counter but did not propose counting PDUs as well. The step between this and claim 1 is to have a second poll trigger which counts PDUs alongside the byte counter.
90. Huawei's case of obviousness over the Motorola TDoc appears to have been advanced in two ways. Both started from the proposition that, in addition to counting bytes to cope with the buffer overflow, the skilled person would be concerned about the sequence number limitation. Accordingly, one argument (espoused by Huawei's expert Mr Wickins) was that it would be obvious to combine Motorola's byte counter with a PDU counter known from the common general knowledge, and which was being actively considered for LTE. A second argument, put to Unwired Planet's expert Dr Cooper, was that the TTI counter taught in Motorola was an approximation to a PDU counter. A PDU counter was argued to be a more accurate alternative to a TTI counter, and an obvious one.

91. The judge first addressed the expert evidence of Mr Wickins for Huawei and Dr Cooper for Unwired Planet. Mr Wickins supported the line that it was obvious to combine Motorola's byte counter with the common general knowledge of PDU counters. He had not suggested that it be used in substitution for the TTI counter actually disclosed in Motorola's TDoc. Mr Wickins' personal view was not in favour of window-based polling, which he regarded as misguided. At paragraph 189 the judge summarised Mr Wickins' explanation, given in cross-examination, as to why nobody had spotted the advantageous combination of the patent. This was that people at the time had not considered the full breadth of options and considerations and that maybe, given more time, they would have come up with similar ideas. Whether they would have done so would be commensurate with how much work and analysis they put in and the results they got.
92. The position adopted by Dr Cooper in his report was that the invention was not obvious. The judge summarised the propositions which Dr Cooper accepted in cross-examination in paragraph 190:
- i) the skilled person knew that in LTE, PDUs were going to vary in size;
 - ii) the skilled person therefore had in mind both resources, i.e. bytes in the transmission buffer and sequence numbers;
 - iii) the skilled person knew as a matter of common general knowledge that there was a potential for stall due to the two separate limitations;
 - iv) a counter was simpler than a window based trigger;
 - v) both options (window-based and counter-based) had pros and cons;
 - vi) it was within the ability of the skilled person to assess the pros and cons of the two approaches;
 - vii) a counter-based solution was a reasonable one;
 - viii) a PDU counter was an alternative to the counting of TTIs suggested by the Motorola T Doc which the skilled person would have in mind;
 - ix) a PDU counter would be an attractive option if you wanted a more accurate PDU count than came from a TTI counter.
93. Dr Cooper's cross-examination then ended up:
- "Q. ... It is perfectly within his skill and knowledge when reading Motorola to think, I like the idea of the transmission of N bytes data which helps my buffer problem and I will use the N PDU for the sequence number problem.
- A. That is a perfectly plausible train of thought, yes.
- Q. And it is one that is within the skill and knowledge of a skilled person reading Motorola at the priority date?

A. That is correct.

Q. If he does that, he will then have two counters, which is correct, is it not? He would then have two counters.

A. Yes, he will have two counters."

94. The judge identified Huawei's strongest argument as being the following. The skilled person would realise from common general knowledge that, given the change from UMTS to LTE, it was necessary to have regard to two possible sources of stalling during continuous transmission. Counters were an obvious way of tracking the rate at which resources were being used. UMTS used a PDU counter as one of the available triggers. The Motorola TDoc proposes a byte counter expressly and proposes two counters side-by-side. It could be argued that it was obvious to take up the byte counter proposal and to use a PDU counter as well as or instead of the TTI counter.
95. On the other hand the judge identified Unwired Planet's strongest argument as being based on what actually happened in the 3GPP committee dealing with this issue in 2007. The vast majority of the proposals were for window-based approaches. There was only one byte counter proposal or possibly two. By the priority date the proposals in Motorola's TDoc had been rejected. The editor's note in the draft standard proposed a single trigger, based on sequence numbers, either a PDU counter or window. That reflected the common general knowledge that it was important to simplify. Against that background Mr Wickins' answers in cross-examination were indicative of inventiveness.
96. The judge recognised that these two arguments did not meet head-on. Huawei's argument was based on the technical simplicity of the step to be taken whilst Unwired Planet's argument relied on secondary evidence. The judge had expressly in mind the warnings that secondary evidence, whilst having a role to play, must be kept in its place: see *Mölnlycke v Procter & Gamble* [1994] RPC 49 at [113] and *Schlumberger v EMGS* [2010] RPC 33 at [77]. He also warned himself against the possibility that commercial organisations engaged in the standard-setting process might have different agendas, driven by commercial considerations. Nevertheless he considered that what happened in the 3GPP committee in 2007 was good evidence of how the skilled person would approach and think about the problem in this case.
97. The judge thought there were six important factors which determined the outcome of the case:
- i) The real system in which the invention had to play a part had a number of facets which were part of a fairly complicated arrangement. The judge gave an example which demonstrated, in his view, that the skilled person would understand that there was a series of factors to balance and that there were some trade-offs to make.
 - ii) The reaction to Motorola's byte counter proposal was not indicative that it was an obvious approach to use either on its own or together with any other triggers.

- iii) The common general knowledge included knowledge that variable- sized PDUs in LTE made for a problem with two aspects, bytes and sequence numbers. Despite that fact, and despite the fact that the relevant committee had considered the issue in detail for many months, the thinking at the priority date was still that a single mechanism might well be all that was needed. Viewed with hindsight, that might seem illogical, but it was not. A single mechanism such as a PDU counter could be used even though the two resources were more or less independent. Such a proposal might require testing, but that simply illustrated that the impact of these proposals was not trivial to predict and that this was known. The judge added “an aspect of this case which came across most clearly from the evidence of all three experts was the multifactorial nature of the issue under consideration and the subtlety of the thought processes required of those working in this field.”
 - iv) If the skilled person was considering a single poll trigger mechanism, he would more or less inevitably have to have in mind the alternative of two trigger mechanisms, one for each resource. However that was not enough to take the skilled person into claim 1. Claim 1 was limited to counters, and so this part of the skilled person’s thinking did not make the claim obvious.
 - v) There was a prevailing view that a window-based trigger mechanism was likely to be the right way forward.
 - vi) Dr Cooper’s evidence showed that the invention is based on a step which could well have been taken, but his evidence was extracted by a step-by-step analysis. The judge was struck by Mr Wickins’ evidence. Those actually working on the problem at the time did not propose the invention because they missed it.
98. Accordingly the judge concluded that the invention was not obvious over the Motorola TDoc.
99. As the judge had concluded that claim 1 was not obvious, claim 9 was not obvious either. However, the judge declared himself wholly unpersuaded by the obviousness case against claim 9 over any of the prior art, even on the footing that claim 1 was obvious. His reasons for this conclusion were the following:
- i) The argument that claim 9 was obvious involved changing tack completely. Too many polls would be triggered by these two counters. The problem is one of superfluous polling. So one should have one mechanism.
 - ii) Secondly, although Dr Cooper had explained that there were advantages to counting both bytes and PDUs and using the claim 9 approach of resetting both counters when one is triggered, the fact that those advantages could be seen did not mean that the claim was obvious. It was true that receipt of a status report triggered by one trigger (say PDUs) will free up both types of resource, and so in a sense it could be said that one might not need to maintain the un-triggered count after the first counter had triggered. However the idea represented the product of careful insight by the skilled person, not uninventive reasoning. There was no precedent for the idea of two counters being reset at the same time by the triggering of one of them. The defendants

had referred to the common general knowledge that a poll trigger such as a poll retransmission timer could be reset on the occurrence of another poll so as to avoid a further irrelevant poll. That example made the point. It was only with hindsight that any similarity between that and the invention could be seen.

Obviousness, and the approach to findings of obviousness on appeal

100. In *Generics v Lundbeck* [2007] RPC 32 at [72] Kitchin J (as he then was) explained, in a passage subsequently approved by the House of Lords in *Conor v Angiotech* [2008] UKHL 49 at [42], how the issue of obviousness is to be addressed:

"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."

101. In *MedImmune v Novartis* [2012] EWCA Civ 1234, Kitchin LJ said at [93] that the task for the court was, ultimately:

"to evaluate all the relevant circumstances in order to answer a single and relatively simple question of fact: was it obvious to the skilled but unimaginative addressee to make a product or carry out a process falling within the claim."

102. At paragraph 94 Kitchin LJ went on to say:

"It is the nature of this multi factorial evaluation of evidence against a simple statutory test which underpins the reluctance of an appeal court to interfere with a trial judge's decision on an issue of obviousness unless he has erred in principle. Lord Hoffmann put it this way in *Biogen v Medeva* [1997] RPC 1:

"The question of whether an invention was obvious had been called "a kind of jury question" (see Jenkins L.J. in *Allmanna Svenska Elektriska A/B v. The Burntisland Shipbuilding Co. Ltd.* (1952) 69 R.P.C. 63, 70) and should be treated with appropriate respect by an appellate court. It is true that in *Benmax v. Austin Motor Co. Ltd.* [1955] A.C. 370 this House decided that, while the judge's findings of primary fact, particularly if founded upon an assessment of the credibility of witnesses, were virtually unassailable, an appellate court would be more ready to differ from the judge's evaluation of those facts by reference to some legal standard such as negligence or obviousness. In drawing this distinction, however, Viscount Simonds went on to observe, at page 374, that it was "subject only to the weight which should, as a matter of course, be given to the opinion of the

learned judge". The need for appellate caution in reversing the judge's evaluation of the facts is based upon much more solid grounds than professional courtesy. It is because specific findings of fact, even by the most meticulous judge, are inherently an incomplete statement of the impression which was made upon him by the primary evidence. His expressed findings are always surrounded by a penumbra of imprecision as to emphasis, relative weight, minor qualification and nuance (as Renan said, *la vérité est dans une nuance*), of which time and language do not permit exact expression, but which may play an important part in the judge's overall evaluation. It would in my view be wrong to treat *Benmax* as authorising or requiring an appellate court to undertake a *de novo* evaluation of the facts in all cases in which no question of the credibility of witnesses is involved. Where the application of a legal standard such as negligence or obviousness involves no question of principle but is simply a matter of degree, an appellate court should be very cautious in differing from the judge's evaluation."

103. In *Fage v Chobani* [2014] EWCA Civ 5 at [114] Lewison LJ summarised and explained the main reasons for this approach to challenging a trial judge's findings of fact on appeal, in terms which bear repetition:

"i) The expertise of a trial judge is in determining what facts are relevant to the legal issues to be decided, and what those facts are if they are disputed

ii) The trial is not a dress rehearsal. It is the first and last night of the show

iii) Duplication of the trial judge's role on appeal is a disproportionate use of the limited resources of an appellate court, and will seldom lead to a different outcome in an individual case

iv) In making his decisions the trial judge will have regard to the whole of the sea of evidence presented to him, whereas an appellate court will only be island hopping

v) The atmosphere of the courtroom cannot, in any event, be recreated by reference to documents (including transcripts of evidence)

vi) Thus even if it were possible to duplicate the role of the trial judge, it cannot in practice be done."

104. That is not to say that obviousness is an appeal-free zone. As Jacob LJ said in *Teva v Leo* [2015] EWCA Civ 779 at [4]:

“For an appeal to succeed, an appellant must identify at least one point of principle in respect of which the Judge erred. If that can be done, then the question is open to independent evaluation by this Court.”

105. One factor which may have a role to play in the overall evaluation of obviousness is how people in the art behaved and reacted at the time. This is sometimes referred to as “secondary evidence”, so named by Sir Donald Nicholls, giving the judgment of this court in *Mölnlycke (supra)*. As he emphasised, it must be kept in its place, but that is not the same thing as saying that it is irrelevant.

Huawei’s submissions on Issue 2

106. Mr Lykiardopoulos maintained the obviousness argument that Huawei had run before the judge. All a skilled person had to do to fall within the claim was to implement the idea in the Motorola TDoc with a PDU counter either in addition to or in substitution for the TTI counter which it proposed. This did not involve an inventive step.
107. Mr Lykiardopoulos realistically recognised the task which he faced in seeking to upset the judge’s evaluation of the issue of obviousness. However he submitted that the judge’s approach had become confused by the documents and minutes from the various meetings of the 3GPP committee. These had come into the case via a search conducted by Dr Cooper of the proposals to the 3GPP committee which concerned RLC polling. He had simply exhibited these to his report as Exhibit DC4, although neither he nor any other witness had attended the meetings so as to be able to give first hand evidence of what happened. Exhibit DC4 had led the judge to think that the invention had been missed, despite its apparent simplicity, by those in the art. The outcome of the case had become more about what might or might not have been obvious to people who attended the 3GPP meetings as opposed to the teaching of the prior art and the technical evidence of the experts.
108. In a standards essential telecommunications case, a patentee is always likely to be able to point to a large body of alternative proposals. To view these as evidence of non-obviousness could lead to error. The judge had wrongly allowed these documents to become the touchstone of obviousness.
109. We were taken by Mr Lykiardopoulos through some of the documents in Exhibit DC4 to illustrate the points he made. The relevant 3GPP committee met in August 2007 in Athens, in October 2007 in Shanghai, in November 2007 in South Korea and in January 2008 in Seville. He made three overarching points on the documents. The first was that the documents were not part of the common general knowledge. The second was they did not necessarily reflect the approach of the skilled person to the technical problem of the patent. A standards committee is not just seeking to solve a particular problem, but has to proceed by consensus. Proposals could be motivated by considerations other than technical ones, such as lobbying for particular intellectual property to be included in the specifications. Both experts noted that it was necessary to be cautious about drawing conclusions from these documents. The third point was that it was wrong to draw firm conclusions on the question of obviousness from the documents as it was not sufficiently clear from them, as a matter of evidence, what people were thinking.

110. Mr Lykiardopoulos submitted that the “primary” evidence of the expert witnesses effectively compelled a finding of obviousness. The judge had more or less recognised this in his fourth reason which I have set out in paragraph [97(iv)] above. There was no evidence upon which the judge could reasonably have found the invention to be non-obvious on this evidence alone. What had made the difference, and the reason why Huawei’s attack had failed, was Exhibit DC4. However the documents in Exhibit DC4 were not capable of amounting to persuasive evidence of non-obviousness.

Unwired Planet’s submissions on Issue 2

111. Mr Speck supported the judge’s evaluation of the issue of obviousness. He relied in particular on the complex environment in which the skilled person was working at the priority date. There were a number of factors to be balanced, and it was easy to pick out one possible arrangement with hindsight and deem it to be obvious. The judge had made an express reference to the fact that a feature of the case which came across from the evidence of all three experts was the multifactorial nature of the issue under consideration and the subtlety of the thought processes required of those working in this field. He had also found that the impact of proposals such as these was not trivial to predict and that this was known. The witnesses had all spoken about the need for simulations and modelling of whatever triggers were proposed. Looking at what happened in real life (i.e. in the relevant 3GPP committee) injected reality into what otherwise could be a dangerously simplistic view of what was necessary to come up with the invention.
112. The judge had in any event made no error of principle. The primary evidence did not establish obviousness, and Exhibit DC4 provided vivid confirmation that it was not in fact obvious to take the steps involved in claims 1 or 9. Despite a period of intense focus by those skilled in the art, during which they were provided with the prior art Motorola TDoc relied on in this case, the solution was missed. This showed that the hindsight focus on Motorola as providing the impetus to the invention was misplaced.

Discussion of Issue 2

113. As Mr Lykiardopoulos did not go as far as to suggest that the evidence of what happened in the 3GPP committee was irrelevant, his argument that we should embark on a re-evaluation of the issue of obviousness turned on his submission that the primary evidence of the experts absent the secondary evidence about the committee compelled a finding that the invention was obvious.
114. I have to confess that I found the surgical division of the evidence into “primary” and “secondary” a rather unreal one on the facts of this case. The judge found that the relevant skilled person or team was a telecoms systems engineer who would be interested in the work of the standards body in the context of designing or implementing the RLC for the developing LTE system and would be interested in the inputs to standardisation meetings. An expert witness seeking to assist the court on the issue of obviousness would, as it seems to me, not be doing his duty if he did not make himself aware in general terms of the work of the standards body and, in particular, the technical discussions which were taking place. Failure to do so would leave him exposed to the accusation that the evidence he was giving was divorced from reality. In the present case it was not possible to insulate the primary expert

evidence from the secondary evidence of what occurred in the standardisation meetings. The experts were bound to rely on, or be asked to explain, the technical discussions which were going on at the priority date. Both the evidence in chief of Dr Cooper and the cross-examination of Mr Wickins deployed the evidence of what happened in the committee to test the suggestion that the idea of the patent was obvious. To try and discern what their evidence might have been absent those discussions is a difficult, and in my view essentially artificial task.

115. The other difficulty which I would note at this stage is that Mr Lykiardopoulos' main submission effectively requires the court to conduct a detailed review of the expert evidence to see whether it did indeed compel a finding of obviousness (absent the evidence about the 3GPP Committee), and then turn to the evidence of what happened in the committee to decide whether it could, on its own, support a finding of non-obviousness. If Mr Lykiardopoulos is correct in describing his argument as establishing an error of principle, then it would seem to require an almost complete review of the evidence by this court in every case where secondary evidence is relied on. That would be a serious inroad into the approach identified to appeals on obviousness in the authorities I have referred to. Nevertheless, I will not leave the matter there, but go on to consider whether the evidence of the two experts, viewed so far as possible without reliance on the events in the 3GPP committee, compelled a finding of obviousness.
116. Mr Lykiardopoulos took us first to the evidence of Dr Cooper for Unwired Planet. However, given that the burden of establishing obviousness lay on Huawei, the starting point for the analysis of his submission should be the evidence of Mr Wickins.
117. The evidence Mr Wickins gave in his first report about the Motorola TDoc correctly identified the "Transmission of every N bytes" trigger as a byte counter. In relation to the next trigger, "Transmission of every K TTIs", his evidence was that it would be seen as "very similar to an equivalent UMTS trigger", namely the timer-based poll he had described earlier in his report. He then went on to say that, although Motorola "principally discloses a byte counter rather than a PDU counter" it would be obvious "to implement a polling mechanism which implemented both types of counter". He does not explain why this would be a necessary addition to the existing TTI counter. He thought that the skilled person "would not assume that the polling triggers outlined would necessarily constitute a definitive solution." He went on to explain that the editorial note had indicated that either a PDU counter or a window based polling mechanism would be introduced. "It would therefore be natural for the Skilled Person to consider a combination of approaches from their common general knowledge to yield a workable solution". Finally he explained why a window-based mechanism would be "more cumbersome" and "would also necessitate a poll prohibit timer", and would not be best suited to avoid "excessive retransmission latency".
118. In cross-examination Mr Wickins gave a somewhat elaborate explanation of why counters would have been preferred:

"I think they would arrive at this as a solution on the basis of weighing pros and cons of different approaches, and also realising that in a user equipment whether memory is clearly constrained that the only sensible way you can mitigate over

memory usage is to proactively poll. You can only proactively poll in my view using a counter-based system. You can therefore only proactively address memory limitation by accounting for the bytes that are being used in that memory, given the variable nature of the PDU sizes. I only say it is obvious from the perspective that it is just considering all of those factors that were known at the time in terms of the attributes of the LTE standard.”

119. It was put to Mr Wickins that the skilled person would want to keep it simple and not introduce multiple triggers. He responded that that was a motivation, but one did not consider simplicity as the only goal. One considered both the efficiency and the performance in addition to simplicity: it was a trade-off.

120. We were shown a quite lengthy passage of the cross-examination of Mr Wickins which culminated with the passage which the judge summarised at paragraph 189 of his judgment and which he found to be striking. That passage was of course, to some extent, the result of pressing Mr Wickins for an explanation of why the documents submitted to the 3GPP committee did not include the combination of the invention, or indeed include much in the way of counter-based proposals at all. However, in the course of this cross-examination, Mr Wickins explained why he considered a windows-based approach to be misguided, despite the number of proposals which pursued it. There was no explanation in the course of it of why he would want to add a PDU counter to Motorola’s TTI counter, given such a counter is said, on Huawei’s case, to be a reasonable approximation to a PDU counter. There was a strong emphasis on a need to consider all options and undertake modelling. His opinion was based on “his own insight as to the likely pros and cons”.

121. We were also shown Mr Wickins’ evidence, earlier in his cross-examination, albeit not by specific reference to the Motorola TDoc:

“Q. I think the thrust of it is this, that what you are saying is that you believe the component parts of the invention were all around and the skilled person could have come up with it. It is no more than that, is it?

A. Yes, I think that is -- I believe that is what I am saying. They are looking at the utility of different -- a range of polling solutions based on the range of submissions and ----

Q. I mean, looking back, you think that the skilled person should have come up with it because it is a good idea.

A. I am not saying that they should have come up with it. I am saying that it was certainly, you know a possible solution they could arrive at and there are advantages to that solution versus the other one.”

122. The fact that individual components of an invention can be identified with hindsight from the prior art and advantageously combined together does not amount to a case of obviousness. It is notable that Mr Wickins only wanted to take the idea of the byte

counter from Motorola and to combine it with other ideas from elsewhere. That approach is redolent of hindsight. Mr Wickins' evidence takes no account of a number of technical facts. Firstly, it ignores the fact that the byte counter in Motorola is expressly said to be better than a PDU counter (because of the variable size). Secondly, it ignores the fact that Motorola proposes a TTI counter which, if Huawei is right, is a good approximation for a PDU counter, and renders it unnecessary. Thirdly, Mr Wickins' evidence that he would want to pursue a proposal for a counter-based system involves discarding the known technical advantages of the windows-based system. Finally, it involves two counters, when the art was seeking simpler solutions such as a single trigger.

123. In summary, as it seems to me, at least one tenable view of Mr Wickins' evidence was that it made clear that the problem faced by the skilled person was a complex one, with various factors pulling the skilled person in one direction and another. His evidence did not show that the Motorola TDoc pointed the skilled person at all clearly towards the patented solution. It did not compel a conclusion of obviousness.
124. Dr Cooper's evidence in chief on the issue of obviousness made a number of points in relation to Motorola. The first was that the document was intended by Motorola to be a complete proposal, and that it was not envisaged that the polling triggers which it suggested were to be included with triggers put forward in other proposals. This point was based on his own experience of how the documents were presented and on the drafting of the proposal. In his view it would not occur to the skilled addressee to add further triggers. He would be disinclined to do so given that he would want to keep the system simple. One further point which he advanced was the one, rejected by the judge, that there was no byte counter disclosed.
125. In cross-examination Dr Cooper accepted that it was "reasonable" to take individual triggers from the Motorola proposal for further study, as certain companies had done. That of course does not carry Huawei very far. In fact, to my mind, it simply served to emphasise the large range of possible combinations for further study which existed, if individual triggers from different documents were to be selected. Mr Wickins later accepted that the skilled reader of Motorola would see the proposal advanced in it as Motorola's complete solution for polling.
126. In addition, as I have indicated, Dr Cooper produced Exhibit DC4. He pointed out that of the 45 proposals made, the propensity was towards a window-based approach. He only found one byte counter, but noted that this was not coupled with a PDU counter. The people attending the meetings were, in his view, highly skilled and focused, yet none had proposed combining a trigger based on sequence numbers and a trigger based on bytes. He pointed out that when Ericsson made the proposal which corresponds to the patent, it was not immediately apparent to the attendees that a byte counter was needed in addition to a PDU counter. LG had pointed out that in some situations unnecessary polls would be transmitted. Samsung questioned whether it was necessary to have a byte count in addition to a PDU count. They said that sequence number stalling would "virtually never happen". The meeting thus provisionally rejected the idea, but if severe problems were shown with this solution then counting the number of bytes could be reconsidered in the future.
127. Dr Cooper's cross-examination established the points which the judge identified in paragraph 190 of his judgment. In the end he accepted, as the judge recorded, that the

obviousness case advanced by Huawei based on a substitution of a PDU counter for the TTI counter in Motorola was “a perfectly plausible train of thought”.

128. In my judgment the primary evidence of the experts did not, contrary to Mr Lykiardopoulos’ submission, compel the conclusion that the invention of claim 1 was obvious. Mr Wickins’ evidence, did not reach that threshold in relation to the addition of a PDU trigger to Motorola. The multiple steps in the cross-examination of Dr Cooper aimed at establishing the case for substitution of the TTI counter in Motorola did not get there either. A TTI counter may be an approximation to a PDU counter, but they are not the same thing. Mr Wickins, for example, just saw it as timer-based poll. Moreover, as Mr Speck explained, the windows-based approach was not just a simple matter of choice. There were technical reasons why it was better, because it responded to the status reports received from the receiver’s gap detection mechanism, and therefore was sensitive to the actual availability of resources, something which a transmission counter is not.
129. I do not think that the judge’s fourth reason shows that he thought that the primary evidence showed that the invention was obvious. The judge recognised that those seeking a single trigger mechanism would necessarily have in mind a dual trigger. That does not mean that the invention of claim 1 is obvious, as it still requires the skilled person to take the additional step of employing two counters. Whether he would do so depends on the other factors which the judge properly evaluated.
130. In the circumstances the judge was entitled to turn to the secondary evidence to see what assistance it provided him with in reaching his conclusion. I do not think the judge made any error of principle in placing such reliance as he did on Exhibit DC4. As to Mr Lykiardopoulos’ overarching points, I accept that the documents are not common general knowledge, but that does not prevent them from providing a useful injection of reality into the obviousness analysis. As to the motivations behind the proposals, I again accept that the motivation behind them may be partly commercial. However the discussions are, in the main technical, and proposals must be, and were, defended on credible technical grounds. Finally, I accept that such documents must be treated with caution. But Dr Cooper made clear the purpose for which the documents were being produced, and it was open to Huawei to seek to adduce evidence to rebut the inferences which he sought to draw from them.
131. The judge was plainly aware of the evidential limitations of Exhibit DC4, and of the place which secondary material such as this had in his overall assessment of obviousness. He expressly warned himself against placing too much weight on it. On any view, it was not the only material which favoured a conclusion of inventiveness. It is not for this court to re-evaluate the weight which a trial judge gives to any individual factor in his overall evaluation, in the absence of an error of principle. I would therefore reject the attack on claim 1 based on obviousness over the Motorola TDoc.
132. Claim 9 involves a further step away (in addition to the step defined by claim 1) from anything disclosed in the Motorola TDoc. It follows that it is not established that it was obvious either. It is not necessary, therefore to analyse the separate arguments about the additional inventiveness of this claim. It is sufficient to say that the idea of linking the reset of two counters in the way required by the claim was entirely novel, and the application of that idea to the counters in question may have turned what

looked like an unnecessarily complex combination of counters, and one likely to produce superfluous polling, into a simpler and more attractive one. That is not a promising background to a case of lack of inventive step.

133. Pulling this together, the judge made no error of principle in placing reliance on what the documents showed as to what occurred in the relevant standards-setting committee. There was ample material before him on which he was entitled to rely to reject the allegation of lack of inventive step.

Issue 3

134. I should start by setting out Article 54 of the European Patent Convention (EPC):

Article 54

Novelty

- (1) An invention shall be considered to be new if it does not form part of the state of the art.
 - (2) The state of the art shall be held to comprise everything made available to the public by means of a written or oral description, by use, or in any other way, before the date of filing of the European patent application.
 - (3) Additionally, the content of European patent applications as filed, the dates of filing of which are prior to the date referred to in paragraph 2 and which were published on or after that date, shall be considered as comprised in the state of the art.
135. The provisions of Article 54 are given effect in domestic law of the UK by sections 1(1)(a), 2(1) and 2(2) of the Patents Act 1977. Article 89 EPC provides that where the applicant enjoys a right of priority from an earlier application, the right of priority has the effect that the date of priority counts as the date of filing of the European patent application for the purposes of Article 54. That provision is given effect in our law in section 5 of the Act. It is sufficient to have regard to the provisions of the EPC, given that the national provisions are designed to have the same effect.
136. Issue 3 raises a novel point of law concerning the limitation of the state of the art to matter made available to the public “before the date of filing” in Article 54(2) or “before the priority date” (in the latter case if one makes the substitution authorised by Article 89). The issue arises because at any one point in time the date in different parts of the world is different.
137. The priority document was filed in the United States Patent and Trademark Office and received a filing date of 8 January 2008. The prior art which Huawei relies on as forming part of the state of the art before the priority date of the patent is the Ericsson TDoc. This document was uploaded to a publicly accessible server for consideration at an ETSI Working Group Meeting. It is not in dispute that the Ericsson TDoc amounts to a disclosure of the invention, the issue is whether it formed part of the state of the art.

138. The Ericsson TDoc was uploaded by Ericsson (in Europe) onto the ETSI file server. This occurred when the date in Europe was 8th January 2008, and was in preparation for the meeting due to take place on 14-18th January 2008. As soon as the document was uploaded, it was freely available on the internet to anyone anywhere in the world.
139. The timings of the relevant events were as follows. The Ericsson document was uploaded to the server at 08.36 on 8 January. That time corresponded to 02.36 on the same date at the USPTO. The priority document was filed at 22.59 on 8 January, when it was 16.59 at the USPTO. On the basis of these timings, the priority date would appear to be 8 January, and the document was not made available “before the priority date”. However the date in some parts of the world at the moment when the Ericsson document was made available was 7 January. That was the case in Hawaii and in California. There is no reason to suppose that they would not have been available to anyone with an internet connection in either of those places. That is why there is an issue.
140. The judge set out the timings in a helpful table which I reproduce in somewhat cut down form below:

	CET (GMT + 1)	GMT	EST (GMT -5)	Hawaii (GMT-10)
Ericsson TDoc uploaded to ETSI server	8 Jan 08:36	8 Jan 07:36	8 Jan 02:36	7 Jan 21:36
Priority Doc filed at USPTO	8 Jan 22:59	8 Jan 21:59	8 Jan 16:59	8 Jan 11:59

141. The table shows that the Ericsson document was uploaded to the ETSI server some 14 hours before the priority document was filed. As one travels to the west (to the right in the table) the time of uploading gets earlier. When one gets to Hawaii, it is the previous day. The same would be true in California.

The judgment on Issue 3

142. The judge held that it was necessary to answer two questions, firstly what was the priority date and secondly whether the document was available before that date. To answer the first question it was necessary to adopt a frame of reference, and the only sensible frame of reference was that of the patent office where the priority document was filed. That meant that the priority date was the whole of 8 January in the time frame of the USPTO. One then answered the second question by reference to that day, in that time frame, as well. On that basis, the Ericsson document was made available within that day, not before that date, and was therefore not part of the state of the art.

143. The judge considered and reviewed two cases from the EPO, one a decision of an Examining Division and one a decision of an Opposition Division. The first was an application by Huawei *Application Number 09 733 661.4*, and the second a decision of the Opposition Division dated 31 July 2013 in *Application Number 03 012 734.4* in an opposition between Innovative Sonic Ltd. and Ericsson. The conclusions were not consistent, and neither side placed any reliance on them before us.
144. The judge recognised that the approach he was adopting was not the exclusively date-based approach of Article 54(3). Article 54(3) was a deeming provision, however, and its policy considerations were different. Using a date-based approach in that context was simpler, and workable. Article 54(3) did not therefore inform the construction of Article 54(2).

Huawei's submissions on Issue 3

145. Mr Lykiardopoulos accepts that the first step is to determine the filing date or priority date. In most if not all cases that will be straightforward, as the date will appear on the document as filed. The second step is to decide whether the prior disclosure was made before the filing or priority date. For that purpose one needed to know when the prior art was disclosed. In a date-based system, one did not ask at what time the disclosure occurred, but on what date. The EPC was only concerned with dates.
146. As to how one determined the date of the prior publication, Mr Lykiardopoulos submitted that it was the place where the event of disclosure occurred. So if a company in California issues a press release in the evening of 1 January, and it gets picked up and published on the internet, then it has a publication date of 1 January, even though in some parts of the world where it is made available to the public it is already 2 January. Where there was simultaneous publication in two different places at the same time, one takes the earliest date. In practice that will be the date closest to the international date line.
147. Mr Lykiardopoulos submitted that the advantage of the date-based system which he was propounding was that one simply had to look at the date of publication and not enquire into its timing. It was also consistent with Article 54(3) which was plainly date-based. He recognised that there were anomalies with his approach, but that could also be said for the approach arrived at by the judge.
148. Mr Lykiardopoulos gave some examples of what he submitted were anomalies with a time-based system. The first example was of a filing under the Patent Cooperation Treaty (PCT). Under the PCT, a patent application received at a receiving office is given an international date of filing. When the application is passed into the national phase that date will be the national filing or priority date for those national patent applications. On the judge's analysis, the frame of reference for prior publications will be that of the receiving office. So for a patent filed in Tokyo which gives rise to a UK national patent application, the filing or priority date will be the Tokyo day.
149. A second example was a case where simultaneous patent applications were made in the US and Japan. The US application was made at 09.00 EST and the Japanese application made at 10 pm Tokyo time, both on January 2. A prior publication took place in San Francisco at 8 pm on January 1. Using a date-based approach, the San Francisco publication would be prior art to both patent applications. However, on the

time-based approach, the San Francisco publication would be prior art to the US application (because it would be published at 11 pm EST on 1 January) but would not be prior art to the Japanese application (because the publication time would be 12 noon on 2 January).

Unwired Planet's submissions on Issue 3

150. Mr Speck submitted that although the system for filing of patent documents was date-based, the same did not apply to prior publications (other than deemed publications under Article 54(3)). The date-based system for patent filings was well-established, and had built into it that one could make a disclosure in London in the morning and file a patent application in the UK later on the same day, because that publication was not “before the filing/priority date”. In that context, time of day was irrelevant.
151. In the present case, the publication took place 14 hours before the patent was filed. There was, however, nothing anomalous about that. The system recognised that the applicant might publish at 00.01 in the morning and later file his patent at 23.59 that night without jeopardising his patent.
152. Huawei’s time-based approach would have the consequence that one would not be protected against prior publication if the publication took place on the same day as filing. One would have to delay publishing until it was clear that it was not still the previous day in any country where the publication might be made available. That was the major anomaly with Huawei’s approach.
153. The date-based system for publications would not, Mr Speck submitted, have the advantages for which Huawei contends. Unlike a patent document which would receive a date of filing on receipt at a particular patent office, a prior publication did not necessarily bear a date, or the date of its actual publication. A publication date-stamped 8 January which was made available on the internet may have been published somewhere else on 7 January. Moreover the date-based system did not eliminate the need to look at times. If one has a publication which one knows to have been uploaded to the internet on a particular day in Europe, one needed to know the time of publication there in order to calculate whether it had been published in another time zone where it is still the previous day.
154. The answer to Huawei’s point on the PCT was that the PCT simply provided a filing date for use in several countries. It was no different from the non-PCT system of filing as regards how one assessed the filing date or priority date. It was a date-based system.
155. Huawei’s example of simultaneous filings in the US and Japan was simply an illustration of the fact that the two filings give different windows of protection against prior publication. It is inevitable with such a system that a given prior publication may fall outside the window in one country but inside it in another.

Discussion of Issue 3

156. I start with language of Article 54 itself. Article 54 takes as the state of the art everything made available to the public before a date. It is common ground that the date in question is the date on which the document was filed at the patent office. The

conclusion that the date is determined in the time reference of that patent office is in any event inescapable. It follows that the filing/priority date is the 24 hour period in that time zone during which the filing occurred.

157. Article 54(2) does not in terms refer to any other date. In that connection it is different from Article 54(3) which refers to the two filing dates of the competing applications. Article 54(2) simply asks whether the prior publication occurred before the filing/priority date. As a matter of language, it would seem to me to follow that the prior publication must occur at a time which falls outside and before the commencement of the 24 hour period which constitutes the priority date.
158. I can see no justification in the language of Article 54(2) for introducing a concept of publication date. If that had been the intention of the authors of the EPC, they could easily have expressed themselves by saying that the document must be made available “on a date which is earlier than the date of filing”. That would have at least opened the door to the argument based on local time zones which Huawei now advances. The contrast with Article 54(3) which uses exclusively date-based language, is telling.
159. I agree with the judge that the policy considerations behind Article 54(3) are different. An exclusively date-based system makes sense and is workable where every document will bear a date and a record of where it was filed. Article 54(3) is dealing with deemed publication, so no question of it being made available in fact in different time zones can arise. A date-based system is much more troublesome in the context of actual prior publications which will bear one date but which may have been made available elsewhere on another.
160. I think the drafting of Article 54(2) provides a clear answer. The various examples discussed in argument are no more than the consequences of adopting one scheme or the other. If one is to have regard to consequences, I think Mr Speck is right that the most serious consequence is that of Huawei’s construction. If it were right it would be possible for a patent to be prior published by something which happened after filing.
161. In summary, a publication is not part of the state of the art unless it was published before the priority date. The priority date is the 24 hour period of the day on which filing took place, in the time zone of the patent office where it was filed. The publication must occur before that day, on a time basis, by reference to the time zone of the patent office of filing.
162. It follows that allegation of lack of novelty was correctly rejected by the judge.

Overall conclusion

163. For the reasons I have given I would dismiss the appeal in relation to all three issues.

Mr Justice Arnold

164. I agree with both judgments.

Lord Justice Gross

165. I also agree and add only a few observations of my own, on Issue 3, from the perspective of an outsider to this specialist area.
166. As it seems to me, the nature of the inquiry under this heading ultimately illuminates the answer to be given to this question. As the Judge observed (at [144] of the judgment), a “patentable invention must be new”; the “invention must not form part of the state of the art, which includes all matter made available to the public before the priority date”.
167. Floyd LJ has already set out the provisions of Art. 54 EPC and those of domestic law: [134] – [135] above. He has also set out the sequence of events, together with the relevant times and dates, including a most helpful table, at [138] – [140] above.
168. The point is a short one. The solution must work in practice. The way to do so is to treat the governing date as the date when and where the Priority Document was filed. At that moment and in that same time zone – the relevant frame of reference - the inquiry must be made as to whether the invention formed part of the state of the art before the date of the filing. There is no other way in which to prevent something published or uploaded later in some different time zone appearing to be earlier in date than the Priority Document. The table (at [140] above) well illustrates this difficulty. Mr Lykiardopoulos QC accepted this concern but submitted that there were anomalies with any proposed solution. Although there may be anomalies with any solution, that which flows from his approach is unacceptable: it would be treating as state of the art something which was not made available to the public when the Priority Document was filed. That simply cannot be right. It follows that I am unable to accept Mr Lykiardopoulos’s submission.
169. I am not at all swayed from this conclusion by the terms of Art 54(3). That is an express deeming provision, specifically focused on the date/s of filing of European patent applications. As the Judge observed (at [167] of the judgment), the policy considerations governing Art. 54(3) are different from those relevant to Art. 54(2).
170. For these reasons and in agreement with those given by Floyd LJ, the Judge was right in the conclusion he expressed at [171] of the judgment and I would uphold it.