



## PATENTS ACT 1977

APPLICANT                      Sunwave Communications Co., Ltd.

ISSUE                              Whether a request to correct patent application  
GB2008679.9 under section 117 should be allowed,  
and whether the invention has been sufficiently  
disclosed in accordance with the requirements of  
section 14(3)

HEARING OFFICER                      B Micklewright

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## DECISION

### Introduction

- 1 Patent application GB 2008679.9 was filed on 9 June 2020 in the name of Sunwave Communications Co., Ltd., claiming a priority date of 11 June 2019 from earlier Chinese application CN201910501515.2. The application was published as GB 2587066 A on 17 March 2021.
- 2 A first search and examination report was issued on 20 November 2020 which included objections relating to lack of sufficiency, clarity and support. There followed several rounds of amendments and correspondence between the examiner and the applicant's attorney without agreement being reached as to allowable amendments to bring the application into order for grant.
- 3 In their examination report of 21 January 2022, the examiner, in explaining how the claimed invention would not achieve the technical result claimed in support of their sufficiency objection, identified a possible error in one of the formulas set out in the specification as fundamental to the working of the invention. The examiner and the applicant agree that, if the formula were to be corrected in the manner identified by the examiner, then the invention would be disclosed in a manner clear and complete enough for a skilled person to perform it, i.e. the sufficiency objection would be overcome.
- 4 The applicant's attorney argues that the formula as originally set out was clearly incorrect, and that it is also clear that it should have been as indicated by the examiner. They therefore requested that the formula in question be corrected under section 117 of the Patents Act 1977 ("the Act"). The examiner however maintained that, whilst it is clear that there must be an error somewhere in the specification as filed, it is not clear that the error is in the identified formula, nor that the proposed correction is clearly what was intended.

- 5 The examiner offered a hearing to resolve the issue, and the applicant requested a decision to be made by a hearing officer based on the papers on file. The matter has accordingly come before me.
- 6 I note that the examiner has deferred updating the search. If I decide to allow the correction, then it will be necessary to remit the application to the examiner to update the search and complete the examination.

### The invention

- 7 The invention relates to digital signal processing means for compensating for lack of gain flatness in a receiver or a transmitter. It addresses the difficulty of maintaining gain flatness across the wide frequency bandwidths over which 4G and 5G mobile communication radio transceivers must operate. Acknowledged prior art digital signal processing solutions require significant computing resource to achieve accurate compensation.
- 8 The latest set of claims was filed on 23 March 2022. Independent method claims 1 and 6 relate to methods of enhancing gain flatness by compensating for a lack of gain flatness in a receiver and a transmitter respectively. The method comprises using a series of single-tone signals at N frequency points, determining the power  $P_n$  at each frequency point, thereby determining a gain flatness across a bandwidth to obtain a sequence  $P'_n$ , and adding linear phase information to this to obtain a complex sequence  $X_n$ . Further processing is performed, and a FIR (finite input response) filter is thereby constructed by which compensation is made for the lack of gain flatness. Claims 1 and 6 read:

1. A method for enhancing gain flatness of a receiver, by compensating for a lack of gain flatness of a receiving channel using a complex-coefficient finite impulse response (FIR) filter in digital domain, the method comprising:

converting, by an analog-to-digital converter (ADC), a signal received by an analog circuit unit, into a digital signal, and converting the digital signal into an IQ signal with zero-intermediate frequency;

constructing a Q-order complex-coefficient FIR filter with a complex sequence  $Z_q$  as a coefficient of the FIR filter in the digital domain, including:

a) setting, by a signal generator,  $f_c - f_s/2$  as a starting frequency point, transmitting single-tone signals at N frequency points with a frequency interval of  $f_s/N$ , and calculating a power  $P_n$  of each frequency point in the digital domain, wherein  $f_c$  represents a center frequency of the receiving channel,  $f_s$  represents a sampling rate of a digital signal, and N takes a value of an integer power of 2;

b) calculating the gain flatness in a whole  $f_s$  bandwidth using a power of the center frequency  $f_c$  of the receiving channel as a reference power, to obtain a sequence  $P'_n$

c) adding linear phase information to the sequence  $P'_n$  to construct a complex sequence  $X_n$  of N points, wherein the complex sequence  $X_n$  is calculated by the following formula:

$$X_n = P'_n * e^{j\pi(N/2-n)(N-1)/N}, n = 0, 1, 2, \dots, N-1;$$

d) performing an inverse fast Fourier transform (IFFT) transformation of N points on the complex sequence  $X_n$  to obtain a transformed result  $Y_n$ ; and

e) approximating the transformed result  $Y_n$  using the complex sequence  $Z_q$  of Q points, wherein Q is chosen from a suitable integer;

filtering the IQ signal with the FIR filter, and obtaining a filtering result as data after compensating the lack of gain flatness;

giving single-tone signals at a plurality of frequency points ( $f_1, f_2, \dots, f_n$ ) with different amplitudes ( $G_1, G_2, \dots, G_n$ ), wherein the single-tone signals at an edge of a frequency band are given an amplitude of a relative large G value, and the single-tone signals at other part of the frequency band are given an amplitude of a relative small G value;

using the single-tone signals at the plurality of frequency points as an excitation source of the FIR filter in the digital domain;

calculating half of the transformed result  $Y_n$  to obtain half of the complex sequence  $Z_q$ ; and

obtaining the complex sequence  $Z_q$  for best approximating the transformed result  $Y_n$  when a mean square error is the smallest or a self-adaptation process converges.

6. A method for enhancing gain flatness of a transmitter, by compensating for a lack of a gain flatness of a transmitting channel using a complex-coefficient finite impulse response (FIR) filter in digital domain, the method comprising:

constructing a Q-order complex-coefficient FIR filter with a complex sequence  $Z_q$  as a coefficient of the FIR filter in the digital domain before a digital signal is transmitted to a digital-to-analog converter (DAC), including:

a) generating, by a numerically controlled oscillator (NCO), single-tone signals at N frequency points with a frequency interval of  $f_s/N$  in a frequency range from  $-f_s/2$  to  $f_s/2$ , and measuring the power  $P_n$  at each frequency point, wherein  $f_s$  represents a sampling rate of the digital signal, and N takes a value of an integer power of 2;

b) calculating the gain flatness of the transmitting channel using a power of a center frequency  $f_c$  of the transmitting channel as a reference power, to obtain a sequence  $P_n'$ ;

c) adding linear phase information to the sequence  $P_n'$  to construct a complex sequence  $X_n$  of N points, wherein the complex sequence  $X_n$  is calculated by the following formula:

$$X_n = P_n' * e^{j\pi(N/2-n)*(N-1)/N}, n = 0, 1, 2, \dots, N-1;$$

d) performing an inverse fast Fourier transform (IFFT) transformation of N point son the complex sequence  $X_n$  to obtain a transformed result  $Y_n$ ; and

e) approximating the transformed result  $Y_n$  using a complex sequence  $Z_q$  of  $Q$  points, wherein  $Q$  is chosen from a suitable integer;

filtering the digital signal with the FIR filter to obtain a filtering result after compensating the lack of gain flatness;

giving single-tone signals at a plurality of frequency points ( $f_1, f_2, \dots, f_n$ ) with different amplitudes ( $G_1, G_2, \dots, G_n$ ), wherein the single-tone signals at an edge of a frequency band are given an amplitude of a relative large  $G$  value, and the single-tone signals at other part of the frequency band are given an amplitude of a relative small  $G$  value;

using the single-tone signals at the plurality of the frequency point as an excitation source of the FIR filter in the digital domain;

calculating half of the transformed result  $Y_n$  to obtain half of the complex sequence  $Z_q$ ;

### **The law**

- 9 The relevant law relating to sufficiency of disclosure is set out in section 14(3) of the Act:

14.-(3) The specification of an application shall disclose the invention in a manner which is clear enough and complete enough for the invention to be performed by a person skilled in the art.

- 10 The law relating to corrections is set out in section 117 of the Act. Section 117(1) states:

117.-(1) The comptroller may, subject to any provision of rules, correct any error of translation or transcription, clerical error or mistake in any specification of a patent or application for a patent or any document filed in connection with a patent or such an application.

- 11 When the request relates to a correction of the specification rule 105(3) of the Patents Rules 2007 states:

(3) Where the request is to correct a specification of a patent or application, the request shall not be granted unless the correction is obvious (meaning that it is immediately evident that nothing else could have been intended in the original specification).

- 12 Helpful commentary on corrections is provided in the Manual of Patent Practice. In particular paragraph 117.03 sets out a useful two-fold test to determine whether a requested correction satisfies the requirements of rule 105(3):

*117.07 No correction may be made in a specification unless the correction is obvious (meaning that it is immediately evident that nothing else could have been intended in the original specification). This is construed as imposing a two-fold test:-*

*(a) is it clear that there is an error, and*

(b) if so, is it clear what is now offered is what was originally intended?

### Background to the request for a correction

- 13 The examiner set out their initial reasons as to why they considered the application to be insufficient in their combined search and examination report of 11 June 2021 in which they stated in paragraph 1:

*“If a receiver with a flat frequency response is desired, it is necessary to determine the actual frequency response of the receiver, calculate the inverse of this frequency response, and use this inverse response as the basis for filtering the receiver signal. If the frequency response (rather than the inverse of the frequency response) is used to determine the FIR filter coefficients then this would magnify (rather than diminish) the un-flatness of the receiver gain. **It therefore seems essential to the invention that the inverse of  $X_n$  is determined**, but this essential step is not claimed. Furthermore, I haven’t been able to identify a disclosure of this crucial step in the description. A similar objection applies to claim 8.”*

- 14 This objection was expanded upon in subsequent reports, addressing various arguments made by the applicant, until, in their examination report of 21 January 2022, the examiner stated in paragraph 9:

*“After studying this application for some considerable time, it eventually occurred to me that the exponent in the equation of paragraph 11 should possibly read “ $(P_{N/2} - P_n)/20$ ”.”*

- 15 The examiner however went on to state that they would be unlikely to accept a request to make a correction to this equation. In their report of 25 April 2022, the examiner advised that *“if  $P'_n$  could be corrected as suggested then  $X_n$  would indeed represent the inverse of the frequency response and the disclosure would be sufficient”* and concluded, in their letter of 6 September 2022, that, *“If the Hearing Officer were to decide that the correction is allowable then, in my view, the corrected application would meet the Sufficiency requirements of the Act”*.

- 16 The applicant confirmed that there was an error in this equation and requested that the error be corrected. The examiner did not accept this request. I need to first consider whether such a correction to the equation in paragraph 11 is allowable. If I decide that it is then the examiner’s sufficiency objection falls away. If I decide that it is not then I will then need to go on to consider whether, in the application as originally filed, the invention has been disclosed clearly and completely enough to be performed by a person skilled in the art.

### Assessment of the request to correct the specification

- 17 The invention was defined in the original claims, and introduced in the original description, as “A method for compensating gain flatness”. In the context of the specification as a whole, including the prior art discussed, it is evident that it relates to a method for achieving gain flatness, or, to put it the other way, for compensating for lack of gain flatness. I note that the examiner has allowed clarifying amendments to the claims, which now define “A method for enhancing gain flatness... by compensating for a lack of gain flatness”. So, there is no question as to what the invention is intended to do.

18 The error identified in the equation of paragraph 11 is not a single typographical error but is repeated in the same form throughout the description and in the claims (dependent claims 3 and 8 of the latest claim set). It is also present in the priority document. It may have arisen from a single typographical error subsequently copied and pasted elsewhere in the specification.

19 Relevant terms, as defined in paragraphs [0004] to [0012] of the description as filed, are:

$f_c$  – centre frequency of a receiving channel

$f_s$  – sampling frequency of a digital signal

$N$  – number of points; an integer power of 2

$P_n$  – power at each frequency

$P_{N/2}$  – power point at the centre frequency,  $f_c$

$P'_n$  – sequence (obtained by calculating the gain flatness of a  $f_s$  bandwidth based on a power of the centre frequency,  $f_c$ )

$X_n$  – complex sequence (obtained by adding linear phase information to  $P'_n$ )

20 The equation for calculating the sequence  $P'_n$ , as presented throughout the original specification, is:

$$P'_n = 10^{(P_n - P_{N/2})/20}, n = 0, 1, 2, \dots, N - 1$$

21 The requested correction is to switch the power terms in the exponent, thus:

$$P'_n = 10^{(P_{N/2} - P_n)/20}, n = 0, 1, 2, \dots, N - 1$$

22 So, in the specification as filed, the exponent includes the term:

$$P_n - P_{N/2}$$

That is, the power at each frequency point less the power at the centre frequency.

23 The requested correction would reverse this, and the term would become:

$$P_{N/2} - P_n$$

That is, the power at the centre frequency, less the power at each frequency point.

24 Paragraph [0009] of the description as filed describes a method for compensating gain flatness, which includes “*setting...  $f_c - f_s/2$  as a starting frequency... and calculating a power  $P_n$  of each frequency*”. Thus, as might be expected, for a bandwidth  $f_s$ , around a centre frequency  $f_c$ , the starting frequency is half the bandwidth below the centre frequency ( $f_c - f_s/2$ ). This paragraph goes on to describe “*calculating the gain flatness in a whole  $f_s$  bandwidth based on a power of the centre frequency  $f_c$  of the receiving channel to obtain a sequence  $P'_n$* ”.

- 25 Paragraph [0010] provides the formula for calculating the power  $P$  at each frequency point. Paragraph [0011] then provides the formula set out above for calculating the sequence  $P'_n$ . This formula, according to paragraph [0034] where the formula is repeated, relates to gain flatness in the whole  $f_s$  bandwidth, and is based on a power of the centre frequency.
- 26 I note that, whilst the reference “based on a power of the centre frequency” might suggest putting the term for power at the centre frequency ( $P_{N/2}$ ) first, as the minuend, as in the corrected formula, it does not preclude it being the subtrahend, as in the original formula.
- 27 Paragraphs 117.08 and 117.09 of the Manual of Patent Practice provide further useful guidance for determining whether a correction to a specification is allowable. They state:

*117.08 In order to pass the first test it must be apparent on the face of the documents that something is amiss. This would clearly be the case if a passage did not read on, or if a page were missing. It is not, however, necessary that the error be as readily apparent as this; the notional addressee of the specification is a person who is reading the document with the intention of extracting all the teaching from it, and who is aware of everything of common knowledge in the art concerned... Likewise if an error is made in giving a known physical parameter, for example a eutectic temperature, the reader may be deemed to recognise this, even if they have to refresh their memory from a reference book... If, however, the specification makes technical and linguistic sense, then it is not immediately evident that this would not have been what was originally intended, so that, irrespective of what is proposed as the correction, it cannot be said that nothing else than what is offered would have been intended. In such a case the matter cannot be dealt with as the correction of an error.*

*117.09 Although it will sometimes be apparent on the face of the documents what the correction should be, this will not generally be the case if for example the error lies in an omission or in an incorrect document reference or numerical data. It is not however necessary that the reader be able to correct the error unaided; in considering an offered correction regard must be had to the view which the fully-informed and inquisitive skilled reader would take of the documents originally filed and the most likely solution to the difficulty apparent to the skilled reader from them. Often the correct version will be unique and will be apparent from the documents filed at the time at which the application was made. Otherwise evidence will be necessary to establish that the correction offered is what was originally intended. In *Dukhovskoi and Others Applications [1985] RPC 8* where it became accepted during the proceedings that the error was apparent, the Patents Court held that the original document which it was asserted has been mistranslated (which was neither the priority document nor one of the documents available to the Office at the date of filing) could be considered when the application for correction was made and, with the aid of a dictionary, could establish that the correct translation was what was suggested by the correction. A priority document filed later than the date on which the declaration of priority was made (see 5.08 to 5.11) may be taken into consideration provided that it can be shown it was intended at the time the declaration of priority was made to claim priority from that document rather than some other application. This will be shown if its file number was included on the date the declaration of priority was made. If however this number is supplied later (as under rule 8(1), it may be) and there is a reasonable doubt as to its veracity, suitable evidence may take the form of a sworn statement from the applicant or an extract*

*from the official Gazette of the country of filing... The expression "immediately evident" is however taken as requiring that, when all the evidence is considered, it is abundantly clear that nothing else other than what is now offered as the correction was originally intended. It is not sufficient merely to show that, on balance of probabilities, the correction offered is the most likely version.*

- 28 The first question to be answered is, '*Is it clear that there is an error?*' This is easily dealt with, both the examiner and the applicant are agreed that it is clear that there is an error in the original specification, and I agree. If a receiver with a flat frequency response is desired, it is necessary to determine the actual frequency response of the receiver, calculate the inverse of this frequency response, and use this inverse response as the basis for filtering the receiver signal. The specification does not calculate the inverse of the frequency response and therefore magnifies the lack of gain flatness rather than compensates for it. I accept that the skilled person would identify this as a clear error in the specification.
- 29 The second question is, '*If so, is it clear what is now offered is what was originally intended?*' The applicant maintained that it is clear that there is an error in the equation for  $P'_n$  and that it is clear that what is offered is what was originally intended.
- 30 The Examiner argued in his report of 25 April 2022 that the formula as filed "*represents frequency response*", and that "*viewed in isolation, the equation makes technical sense*". He notes that it is presented as relating to "*calculating the gain flatness*" (though he argues that to properly represent gain flatness it should be a single value rather than a sequence).
- 31 The Examiner also suggested that there are "*at least two other ways to correct for the failure to disclose the calculation of an inverse frequency response*". They therefore reasoned that it is not clear that what is now offered is what was originally intended but suggested that "*it seems at least as likely that what was intended was to calculate  $Y_n$  from the IFFT of the inverse of  $X_n$* "; or alternatively, that the FIR filters shown in figure 2 might be connected in series rather than in parallel.
- 32 I have already accepted that, in order to enhance gain flatness, the inverse of the frequency response should be the basis for filtering the receiver signal. The application as a whole does not therefore make technical sense in its uncorrected form. If it is clear that the error was in the formula for  $P'_n$  then it seems to me that it is clear that the correction now offered is what was originally intended. I therefore need to answer the question as to whether it is clear that it was originally intended that the formula for  $P'_n$  relate to the inverse of the frequency response rather than to the frequency response itself, as it does in its uncorrected form.
- 33 I agree with the examiner that there are other ways that the application could be corrected so that the process involves an inverse of the frequency response. I note the comments in the Manual of Patent Practice that it is not necessary that the reader be able to correct the error unaided; in considering an offered correction regard must be had to the view which the fully-informed and inquisitive skilled reader would take of the documents originally filed and the most likely solution to the difficulty apparent to the skilled reader from them. Evidence is however necessary to establish that the correction offered is what was originally intended and I must bear in mind that it must



be immediately evident that nothing else was intended. It is not sufficient to find that one solution is more likely than another on the balance of probabilities.

- 34 In the present case, the applicant, in their attorney's letter of 23 March 2022, made the following submissions in relation to the request to correct the specification:

"The applicant respectfully submits that the specification is not meant to be read independent of common generally knowledge of the skilled person. Rather, the skilled person would use his common general knowledge to supplement the information contained in the specification. In the present case, the specification falls short of explicitly stating that the equation of paragraph 11 is for calculating the inverse of the frequency response of the receiver, but the skilled person would nevertheless understand so in view of the disclosure of the present application and his common general knowledge. As the Examiner points out, document US2013/329832 illustrates that it is the common knowledge of the skilled person that the inverse of the frequency response should be calculated to enhance gain flatness of a receiver. This is done by way of the equation of paragraph 11, corrected as  $P'_n = 10^{(P_{N/2} - P_n)/20}$ ,  $n = 0, 1, 2, \dots, N - 1$ .

... Indeed, the equation  $P'_n = 10^{(P_{N/2} - P_n)/20}$ ,  $n = 0, 1, 2, \dots, N - 1$  reflects the calculation of the inverse of the frequency response of the receiver. Furthermore, it should be clear to the skilled person that, in order to calculate the inverse, power  $P_n$  of each frequency point should be subtracted from power  $P_{N/2}$  of centre frequency point  $f_c$ , rather than the other way around, as subtracting the power  $P_{N/2}$  of the centre frequency point  $f_c$  from the power of each frequency point would not make technical sense in the context.

... As set out above, equation  $P'_n = 10^{(P_{N/2} - P_n)/20}$ ,  $n = 0, 1, 2, \dots, N - 1$  provides a specific way for calculating the inverse of the frequency response of the receiver.

Further, as the Examiner correctly indicates in paragraph 7 of the Examination report, frequency response of FIR  $Z_q$  approximates a measured frequency response  $X_n$  of a receiver. As the equation for  $P'_n$  is used to calculate the inverse of the frequency response,  $X_n$  actually represents the inverse of the measured frequency response of the receiver ( $X_n$  is the complex sequence after adding the phase characteristic to  $P'_n$ ). Consequently, in the present invention, the frequency response of FIR  $Z_q$  approximates the inverse of the measured frequency response."

- 35 The applicant therefore asserts that the skilled person would, in view of the present application and their common general knowledge, understand that the equation in paragraph [0011] for  $P'_n$  is for calculating the inverse of the frequency response, highlighting that document US2013/329832 illustrates that it is the common knowledge of the skilled person that the inverse of the frequency response should be calculated to enhance gain flatness of a receiver. They also argue that it should be clear to the skilled person that, in order to calculate the inverse of the frequency response, power  $P_n$  of each frequency point should be subtracted from power  $P_{N/2}$  of centre frequency point  $f_c$ , rather than the other way around, as subtracting the power  $P_{N/2}$  of the centre frequency point  $f_c$  from the power of each frequency point would not make technical sense in the context.

- 36 I have already accepted that the skilled person would understand that the inverse of the frequency response is needed to enhance gain flatness, and I accept the applicant's evidence insofar as it relates to this point.

- 37 The question as to whether it is clear that the error is in the equation for  $P'_n$  set out in paragraph [0011] is more difficult to determine. As the examiner has stated, in isolation the equation makes sense in relating to the frequency response, and the correction offered is not a unique way to correct the problem. The question is, would the skilled person find this the most likely solution, not merely on the basis of it being more likely than other possible solutions on the balance of probabilities, but in the sense that it is immediately evident that this is what was intended?
- 38  $P'_n$  is said, in paragraph [0034] of the description, to relate to gain flatness. It is not entirely clear what this means in practice, but ultimately it is used to enhance claim flatness. I will therefore construe this statement as stating that the equation for  $P'_n$  relates to a means for enhancing claim flatness.
- 39 It is helpful at this point to consider other possible solutions to the error in the specification that the invention does not enhance claim flatness because it is based on the frequency response instead of the inverse of the frequency response.
- 40 One possible solution, as the examiner has identified, would be to arrange the FIR filters shown in figure 2 so that they are connected in series rather than in parallel. It however seems unlikely to me that the skilled reader would consider this to be the solution intended by the applicant. It would be a significant change to the schematic diagram of figure 2 to rearrange the FIR filters in this way. It seems improbable that someone could mistakenly draw these major components in parallel rather than in series, and that any such error would not be identified as part of the drafting process. I do not therefore consider this to be likely to be what was originally intended.
- 41 It would also be possible to amend one of the other equations set out in the specification to fix the error.  $X_n$  is specified as adding the linear phase information to  $P'_n$ , and  $X'_n$  is defined as being obtained by performing a shift processing on  $X_n$  so that it corresponds to the required frequencies from 0 to  $f_s$ . It seems unlikely to me that it was intended to introduce an inverse of the frequency response into these equations given their respective purposes.  $Y_n$  is the Inverse Fast Fourier transform of  $X'_n$ . As the examiner has identified, it is possible that the intention was to take the Inverse Fast Fourier transform of the inverse of  $X'_n$ . I have however construed  $P'_n$  to relate to a means for enhancing gain flatness, and it would seem logical that the inverse of the frequency response would be intended in the first of the equations listed. Moreover, although it would have been preferable if the applicant's submissions were supported with further evidence as to what the skilled person would indeed have understood that  $P'_n$  should relate to, for example in the form of written evidence from an expert in the field, the applicant has nevertheless asserted that the skilled person would understand that equation [0011] is for calculating the inverse of the frequency response of the receiver, in view of the disclosure of the present application and their common general knowledge. As expert evidence would be required to fully determine this factual question, it would seem appropriate to give the benefit of any doubt to the applicant on this point. Furthermore, I note that if I had concluded that there was no other stage in the process at which a correction could be made, and no other formula which could be adapted to determine an inverse, then I would conclude that the error must be in determining  $P'_n$ . It would seem counterintuitive, and unduly harsh to the applicant, to refuse to allow the correction, which the attorney tells us was always intended, just because the error could also be corrected in another equation.

42 Taking all these factors into account, including the submissions made by the applicant, it seems to me that the correction offered, namely that to the equation in paragraph [0011] for  $P'_n$ , would be considered to be the most likely solution to the error identified by the fully-informed and inquisitive skilled reader, in the sense that it is immediately evident that this was what was originally intended. I have not reached this conclusion based on whether one solution is more likely than another based on the balance of probabilities, but on what, to the skilled person, would clearly be the most likely to have been originally intended.

43 Therefore, my decision is that the requested correction should be allowed, and that the formula for  $P'_n$  may be corrected wherever it appears throughout the specification to:

$$P'_n = 10^{(P_{N/2} - P_n)/20}, n = 0, 1, 2 \dots N - 1$$

44 Following this decision, the sufficiency objection falls away and no longer applies to the corrected specification, and I need not consider it any further here.

### **Conclusion**

45 I therefore allow the request to correct to the formula in paragraph [0011] of the description as originally filed, and in the other places this equation is specified in the specification.

46 I note that rules 75 and 105 require corrections to be advertised in the journal unless, according to rule 105(4), "the comptroller determines that no person could reasonably object to the correction". Based on my analysis above the present correction does not seem to me to fall within the provision of rule 105(4). The correction should therefore be advertised in the journal in the usual manner.

47 I have found that, following this correction, the sufficiency objection falls away. I therefore refer the application back to examiner for processing of the correction and for further processing of the application.

### **Appeal**

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

**B MICKLEWRIGHT**

Deputy Director, acting for the Comptroller