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Confidential and Privileged
On instruction of Coomber Rich Solicitors
Yard House, Basingstoke, RG21 7NX

Re: Seema Misra

**5th Interim Technical expert's report to the Court prepared by
Charles Alastair McLachlan, a Director of Amsphere Consulting
Ltd.**

90 Fenchurch Street
London EC3M 4BY
England

This report contains 16 pages

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1 Review of progress as of 25th February 2010

1.1 Introduction

This report has been prepared to describe the progress made by myself, the IT Expert instructed by the Defence since first instructed in September 2009. This has been offered as a simple table to provide clarity as to the development of hypotheses of time, the work still required to conduct a proper investigation and the implications of the witness statement of and interview with Gareth Jenkins in February 2010

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Hypothesis	1st Raised	Investigation Required	Progress to date	Expected time required to complete investigation	Implications of most recent information
The User Interface gives rise to incorrect data entry: poor user experience design can give rise to poor data entry quality.	21 September 2009	User interface design audit	It has not been possible to arrange for access to a branch terminal system under conditions that would permit a user interface design audit or the implications of a need for screen recalibration	Six weeks from the time that a date is offered for access to a branch system for the purpose of a user interface design audit	Gareth Jenkins, in a telephone interview on 12th February 2010 confirmed the evidence in his witness statement dated 2nd February that use of the Fast Cash button could result in rejected card payment being treated as over the counter cash. Further, he said that there was a possibility that when the touch screen needed recalibrating a user could believe they had pressed one button while the system recorded the pressing of a different button (the call logs to Fujitsu identify that recalibration was necessary on more than one occasion). I have now checked all cases of Rejected Card payments and they don't explain the discrepancies so this hypothesis is irrelevant
The User Interface gives rise to incorrect data entry: inadequately user experience testing can give rise to poor data entry quality.	21 September 2009	Review of user experience testing conducted for Horizon	It has not been possible to review the adequacy of the user experience testing in the absence of any details of the user experience testing process and test results from the Post Office or Fujitsu	Two weeks from the time that a complete set of information relating to the user experience testing activities has been provided.	Gareth Jenkins, in a telephone interview on 12th February 2010 confirmed the evidence in his witness statement dated 2nd February that use of the Fast Cash button could result in rejected card payment being treated as over the counter cash. In the absence of test information it has not been possible to determine whether other similar issues were identified during user experience testing. I have now checked all cases of Rejected Card payments and they don't explain the discrepancies so this hypothesis is irrelevant

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Hypothesis	1st Raised	Investigation Required	Progress to date	Expected time required to complete investigation	Implications of most recent information
The User Interface gives rise to incorrect data entry: in cases that users are working under pressure the problems of data entry can be exacerbated.	21 September 2009	Electronic Observation of operational post office where discrepancies are continuing to arise	A post office has been identified where the sub post master is suffering from continuing discrepancies, there is currently no suggestion of theft or false accounting and the sub postmaster is prepared to permit electronic observation of the use of the Horizon system. The use of a camera or screen capture tool was proposed in the report dated 19th November 2009. It has not been possible to conduct electronic observation of the use of the Horizon system at the identified post office because the Post Office has not released the sub postmaster from their contractual obligation of confidentiality and the Post Office has not facilitated any arrangements to install the necessary monitoring tool.	Six weeks from the time that a date is offered for access to a branch system for the purpose of electronic monitoring	Gareth Jenkins, in a telephone interview on 12th February 2010 confirmed the evidence in his witness statement dated 2nd February that use of the Fast Cash button could result in rejected card payment being treated as over the counter cash. The Post Office in the Midlands reports that the level of discrepancies appears to have increased as the level of card based transactions has increased. I have now checked all cases of Rejected Card payments and they don't explain the discrepancies so this hypothesis is irrelevant
The User Interface gives rise to incorrect data entry: in cases that users are insufficiently trained the problems of data entry can be exacerbated.	21 September 2009	Detailed review of training both for Seema Misra and, more generally, the training process and outcomes for individuals with a similar profile of experience and English language capability	It has not been possible to review full and complete training records for Seema Misra. It has not been possible to review a complete set of training materials. No log of the calls to the National Business Support Centre has been provided, the original log of calls to the Fujitsu help line has not been provided - such a log of calls would provide evidence as to the extent to which Seema Misra had been sufficiently trained to operate the branch system. Finally, there has been no opportunity to observe the training process for a sub postmaster with a similar level of English capability as Seema Misra.	Two weeks from the time that a complete set of information has been provided and the training process has been observed for an individual with a similar level of English language capability	We have been provided with part of a guide that explains the process for manually dealing with a card payment that fails to be properly recorded due to a system problem. It has not been possible to establish whether the training Seema Misra received ensured that she was competent to deal with this kind of problem. No comment

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Hypothesis	1st Raised	Investigation Required	Progress to date	Expected time required to complete investigation	Implications of most recent information
The User Interface gives rise to incorrect data entry: in cases that users are using a system presented in a language different from their first language the problems of data entry can be exacerbated.	21 September 2009	Detailed review of training both for Seema Misra and, more generally, the training process and outcomes for individuals with a similar profile of experience and English language capability	It has not been possible to review full and complete training records for Seema Misra. Nor has it been possible to review a complete set of training materials. Finally, to observe the training process for a sub postmaster with a similar level of English capability as Seema Misra.	Two weeks from the time that a complete set of information has been provided and the training process has been observed for an individual with a similar level of English language capability	We have been provided with part of a guide that explains the process for manually dealing with a card payment that fails to be properly recorded due to a system problem. It has not been possible to establish whether the training Seema Misra received ensured that she was competent to deal with this kind of problem. No comment
The Horizon System fails to properly process transactions	21 September 2009	In order to identify whether this is a possible cause, it would be necessary in the first instance examine the operations in normal Post Office conditions where there is an experience by the branch manager of what they believe to be incorrect transaction processing.	A post office has been identified where the sub post master is suffering from continuing discrepancies, there is currently no suggestion of theft or false accounting and the sub postmaster is prepared to permit electronic observation of the use of the Horizon system. The use of a camera or screen capture tool was proposed in the report dated 19th November 2009. It has not been possible to conduct electronic observation of the use of the Horizon system at the identified post office because the Post Office has not released the sub postmaster from their contractual obligation of confidentiality and the Post Office has not facilitated any arrangements to install the necessary monitoring tool.	Six weeks from the time that a date is offered for access to a branch system for the purpose of electronic monitoring	Gareth Jenkins, in a telephone interview on 12th February 2010 explained that the Horizon system managed by Fujitsu is only part of a much larger of integrated systems used by the Post Office to manage their counters business. In particular, SAP, a data warehouse and technology connecting to a merchant service provider for card payment services is involved. The scope of any systems audit will need to ensure that any issue relating to these other systems can be excluded. I don't see the relevance of such a statement to this observation. What happens in the Branch is recorded in the local branch logs and we now have these for the 13 moth period of Dec 06 to Dec 07. Clearly we can't prove that nothing is missing from the logs, but there is no evidence to indicate any system faults that result in missing transactions

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The Horizon System fails to properly process transactions	21 September 2009	If there is prima facie evidence of incorrect transaction processing, it would be necessary to review the technical documentation of the Horizon system and interview key individuals responsible for the system within the Fujitsu team in order to understand the potential source of the incorrect transaction processing.	It has not been possible to conduct a detailed interviews with members of the Fujitsu team although a preliminary conversation with Gareth Jenkins occurred on 12th February 2010	Two weeks from the time that the interviews are completed	Gareth Jenkins, in a telephone interview on 12th February 2010 explained that the Horizon system managed by Fujitsu is only part of a much larger of integrated systems used by the Post Office to manage their counters business. In particular, SAP, a data warehouse and technology connecting to a merchant service provider for card payment services is involved. The scope of the interviews will need to engage managers and technical experts so that any possible issues relating to these other systems can be understood. I don't see the relevance of such a statement to this observation. What happens in the Branch is recorded in the local branch logs and we now have these for the 13 moth period of Dec 06 to Dec 07. Clearly we can't prove that nothing is missing from the logs, but there is no evidence to indicate any system faults that result in missing transactions. The back end systems are relevant to POL's overall accounting, but not to what is recorded and reported in the Branch accounts which is what is indicating the losses which the defendant is being accused of.

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The Horizon System fails to properly process transactions	21 September 2009	If the potential source of the incorrect transaction processing can be identified then it would be helpful to be able to reproduce the problems under controlled test conditions in a consistent and reproducible manner. This would require the assistance of Fujitsu in providing access to the test environments maintained in support of the Horizon system.	A number of hypotheses relating to incorrect transaction processing have been identified but it has not been possible to conduct any testing in a controlled environment.	Six to twelve weeks from the time that a test environment is made available.	Gareth Jenkins, in a telephone interview on 12th February 2010 explained that the Horizon system managed by Fujitsu is only part of a much larger of integrated systems used by the Post Office to manage their counters business. In particular, SAP, a data warehouse and technology connecting to a merchant service provider for card payment services is involved. The scope of testing process will need to ensure that end to end testing across these other environments is possible if the problems cannot be reproduced in the Fujitsu environment alone. I don't see the relevance of such a statement to this observation. What happens in the Branch is recorded in the local branch logs and we now have these for the 13 month period of Dec 06 to Dec 07. Clearly we can't prove that nothing is missing from the logs, but there is no evidence to indicate any system faults that result in missing transactions. The back end systems are relevant to POL's overall accounting, but not to what is recorded and reported in the Branch accounts which is what is indicating the losses which the defendant is being accused of. I'm not clear exactly what test scenarios are proposed. Given that the system has now moved on, there are no longer any test facilities for the system as it operated in 2006 2007.
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Hypothesis	1st Raised	Investigation Required	Progress to date	Expected time required to complete investigation	Implications of most recent information
Incorrect data entry is not resolved by sub post office reconciliation and relies on the consistent, accurate and timely resolution of discrepancies by the Post Office and operators of the Horizon system	19 November 2009	System audit of branch transaction logs and the Post Office reconciliation system	It has not been possible to conduct a systems audit - indeed no branch transaction logs have been provided	Six to twelve weeks from the time the system audit commences	Gareth Jenkins, in a telephone interview on 12th February 2010 explained that branch transaction logs are extremely detailed records of all branch actions as well as any branch system exceptions (e.g. network failure). They are routinely archived for 7 years and a Fujitsu employee is engaged full-time to provide recovery of logs from the archive in a routine batch process which, he said, has been forensically examined to demonstrate a full chain of evidence necessary for the logs to be used in court. In addition, he explained that software is provided by Fujitsu for converting the logs into a readily accessible spreadsheet format for system and accounting audit purposes. The logs are now available and I have started looking in them. NB there are 431,490 transactions in the 13 month period!
The Horizon system does not appear to be a single monolithic mainframe based system with computer terminals with no independent processing capability: each of these components could give rise to faults that result in discrepancies.	19 November 2009	System audit of branch transaction logs and the Post Office reconciliation system	It has not been possible to conduct a systems audit - indeed no branch transaction logs have been provided	Six to twelve weeks from the time the system audit commences	Gareth Jenkins, in a telephone interview on 12th February 2010 explained that the Horizon system managed by Fujitsu is only part of a much larger set of integrated systems used by the Post Office to manage their counters business. In particular, SAP, a data warehouse and technology connecting to a merchant service provider for card payment services is involved. The scope of systems audit process will need to ensure that end to end audit of transaction records is conducted if

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					the issue cannot be identified in the Fujitsu systems alone. The back end systems are irrelevant for problems in the branch accounts. The logs are now available
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Hypothesis	1st Raised	Investigation Required	Progress to date	Expected time required to complete investigation	Implications of most recent information
The end to end dialogue between the counter terminal, the card authorisation terminal, the network, the core Horizon system, the electronic funds transfer component, the authorising merchant service and the central post office branch accounting system is a long running transaction with multiple points of possible failure.	19 November 2009	System audit of branch transaction logs and the Post Office reconciliation system	It has not been possible to conduct a systems audit - indeed no branch transaction logs have been provided	Six to twelve weeks from the time the system audit commences	Gareth Jenkins, in a telephone interview on 12th February 2010 explained that the Horizon system managed by Fujitsu is only part of a much larger set of integrated systems used by the Post Office to manage their counters business. In particular, SAP, a data warehouse and technology connecting to a merchant service provider for card payment services is involved. The scope of systems audit process will need to ensure that end to end audit of transaction records is conducted if the issue cannot be identified in the Fujitsu systems alone. This is not relevant. The Branch accounts are based purely on whether the Branch thinks the Debit Card was authorized or not. Any subsequent failures are irrelevant to the branch accounts.
Complex systems rarely have sufficient capability built in to deal with all possible failure points and discrepancies are very likely to arise which require manual intervention based on the reconciliation of paper and electronic logs at different points in the system.	19 November 2009	Based on the review of the technical documentation, it should be possible to identify and examine the various electronic log files maintained by different components of the systems architecture that are required by the Electronic Mastercard Visa (EMV) standard or for Payment Card Industry (PCI) compliance.	It has not been possible to proceed with this review because no technical documentation has been provided	Six to ten weeks from the time the technical documentation is provided	Gareth Jenkins, in a telephone interview on 12th February 2010 explained that the Horizon system managed by Fujitsu is only part of a much larger set of integrated systems used by the Post Office to manage their counters business. In particular, SAP, a data warehouse and technology connecting to a merchant service provider for card payment services is involved. The scope of the technical documentation will need to cover all of these systems. This is not relevant. The Branch accounts are based purely on whether the Branch thinks the

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					Debit Card was authorized or not. Any subsequent failures are irrelevant to the branch accounts.
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2 Instructions etc.

2.1 Instructions

2.1.1 I am Charles Alastair McLachlan, a Director of Amsphere Consulting Limited, London, England specialising in information technology consulting. I have been instructed in this matter by Coomber Rich Solicitors, on behalf of their client, Seema Misra, (“the Defendant”) to assist the court in this matter of alleged fraudulent accounting in providing expert evidence on the questions posed at 1.1.3 hereunder.

2.1.2 I have been instructed to review progress on my investigation to date and the expected time required to complete a full report.

2.2 My qualifications have been itemised in the previous two interim reports.

2.3 Confidentiality

2.3.1 This report is strictly private and confidential and has been prepared at the request of Coomber Rich Solicitors on behalf of their client, for the Court.

2.4 Legal and factual issues

2.4.1 This report should not be read as expressing any opinion on factual matters which depend on disputed testimony of the witnesses of fact, or legal issues. It, however, inevitably reflects my understanding of the position.

2.5 Sources of information

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2.5.1 In preparing my report, I have considered the documents used for my previous reports

2.6 The scope of my work

2.6.1 I report as an expert witness, not as a witness of fact. I have reviewed the documentation provided to me.

2.7 Independence

2.7.1 I have prepared an independent and objective report addressed to the Court. I have had no previous involvement with the Defendant. I have no previous involvement with Coomber Rich Solicitors.

2.7.2 Amsphere's fees in this case are not dependent on the result of the proceedings in this matter.

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3 My duties to the Court

- 3.1 I understand that my overriding duty is to the Court, both in preparing reports and in giving oral evidence. I have complied and will continue to comply with that duty.
- 3.2 I have set out in my report what I understand from those instructing me to be the questions in respect of which my opinions as an expert are required.
- 3.3 I have done my best, in preparing this report, to be accurate and complete. I have mentioned all matters that I regard as relevant to the opinions I have expressed. All of the matters on which I have expressed an opinion lie within my field of expertise.
- 3.4 I have drawn to the attention of the Court to all matters, of which I am aware, which might adversely affect my opinion.
- 3.5 Wherever I have no personal knowledge, I have indicated the source of factual information.
- 3.6 I have not included anything in this report that has been suggested to me by anyone, including the lawyers instructing me, without forming my own independent view of the matter.
- 3.7 Where in my view, there is a range of reasonable opinion, I have indicated the extent of that range in the report.
- 3.8 At the time of signing the report I consider it to be complete and accurate. I will notify those instructing me if, for any reason, I subsequently consider that the report requires any correction or qualification.

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- 3.9 I understand that this report will be the evidence that I will give under oath, subject to any correction or qualification I may make before swearing to its veracity.
- 3.10 I have included in this report a statement setting out the substance of all facts and instructions given to me, which are material to the opinions expressed in this report or upon which those opinions are based.
- 3.11 I confirm that insofar as the facts stated in my report are within my own knowledge I have made clear which they are, and I believe them to be true, and the opinions that I have expressed represent my true and complete professional opinion.

Charles McLachlan
Amsphere Consulting Ltd
90 Fenchurch Street
London, EC3M 4BY
England

Thursday, 25 February 2010