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LIME

Our Ref: GRCR/GR 15.19

31st May 2010

Mr. David Archbold
Managing Director
Information, Communication & Technology Authority
P.O. Box 2502
3rd Floor Alissta Towers
Grand Cayman

Dear Mr. Archbold,

Re: 13th May 2010 FLLRIC Interrogatories

Cable and Wireless (Cayman Islands) Limited, trading as LIME (“**LIME**”) thanks the Authority for the opportunity to review the above-noted interrogatories. Of these, LIME requests that the Authority accord confidential treatment to the following. Proposed redactions (shaded in gray and marked by “#”) are included in the attachment to this letter, for which LIME also requests confidential treatment.

Interrogatory 35

This interrogatory references specific figures in “09_04_08 Appendix I Part I – Radial Distances Between Cellsites – CONFIDENTIAL.xls”, which was filed in confidence with the Authority on 9 April 2010. At the time, LIME noted that this Appendix contains confidential information about LIME’s network design. This information is not made available to the public, and LIME consistently treats it as confidential. Its disclosure to the public, in particular to its competitors, can reasonably be expected to cause LIME financial and competitive harm, as LIME’s competitors would gain a more detailed understanding of its network and costs, and be able to prepare targeted and more effective competitive responses

to LIME's initiatives, which would be to LIME's financial and competitive detriment.

Yours faithfully,

'Signed'

Anthony Ritch
General Manager

c.c. Donald Austin, EVP Legal, Regulatory & Corporate Affairs, LIME
FLLRIC distribution list (cover letter only)

Fixed Module

Cost Assumptions

1. In the first round interrogatory no. 1 the Authority noted that the Duct Unit Cost section of the 'Cost Assumptions' sheet (cells A16:I78) contained various jointing box input costs, but that none of these costs were used in the costing of duct. In its response LIME acknowledged this omission and that it had included Jointing Box costs in its calculation of the cost of duct. The Authority has reviewed the relevant section of the 'Cost Assumptions' sheet and the 'Duct Calculations' sheet and has been unable to identify how Jointing Box costs have been included in the fixed module ('CYM fixed - updated 09_11_16 Conf.xls'). Provide a detailed explanation including cell references of how Jointing Box costs have been included.
2. In the Access Cost part of the 'Cost Assumptions' sheet, Aerial Copper wire 1200 pair (cell C109) is more costly than 1800 pair (cell C110). Confirm the accuracy of these inputs.
3. LIME has provided an input for the island-wide media mix and an entrant specific media mix in the 'Cost Assumptions' sheet (cells C136:C138 and C142:C144 respectively). Only the island-wide media mix is used. Explain the relevance and purpose of the entrant specific mix.
4. In response to first round interrogatory no. 18 LIME noted that the cost of payphones (cell E281 of the 'Cost Assumptions' sheet) was obtained from the Company's fixed asset register 2008 (recently purchased and installed) which was submitted to the Authority under Appendix III of LIME's response to the ICT Decision 2008-2. The Authority notes that Appendix III part 1 sheet 'Assumptions and Drivers' and 'Cay assets up to 3yrs old v3' contains numerous costs related to payphones. However, the Authority has not been able to identify how the cost in the 'Other Cost Assumptions' section of the 'Cost Assumptions' sheet (cell E281) has been developed based on the data in Appendix III part 1. Provide a detailed explanation of the of how the payphone cost estimate in cell E281 of the 'Cost Assumptions' sheet was developed using the information available in Appendix III part 1.
5. In the 'Cost Assumptions' sheet, the Authority notes that duty is not consistently applied to spares. For example, no duty is applied to E87 and H87 while duty is applied to E192 and E285. Review the calculations in 'Cost Assumptions' sheet to ensure that duty on spares is included where this is relevant. Provide a detailed rationale for why duty is sometimes applied to only equipment purchase price and other times to equipment purchase price and spares.

Reval_Assets

6. The 'Reval_Assets' sheet would appear to contain links to an older version of the 2G module, see for example cell AU1. Ensure all links are appropriately updated.

FAC_Input

7. The 'FAC_Input' sheet contains links to Appendix IV whose full worksheet name does not match the one submitted on 16 November 2009. Update the link to refer to the most recently submitted version of the Appendix and ensure all links work as intended.

International TX Costs

8. The 'International TX Costs' sheet contains links to a version of the mobile module named '06-11-09-CYM Mobile 07-04-09 conf.xls' in cell C36. The Authority has not received a version of the mobile module named as stated. Ensure all links are appropriately updated.

Access Cost

9. In cable cost section of the 'Access Cost' sheet LIME relies on a trend calculation using cable size 25, 50 and 100 pair and their respective costs. The Excel TREND function is used to perform Linear Regression. A least squares criterion is used and TREND tries to find the best fit under that criterion. Provide a justification for this approach, specifically why it is appropriate to use three data points to estimate cable size costs not included in the model. In addition, confirm the technical availability of cable sizes used in those cases where cost are estimated using the TREND function.
10. In the 'Access Cost' sheet, LIME calculates a weighted average cost of drop wire using the km length of 5 pair UG D-side wire and 6 pair Aerial D-side wire. Explain the adequacy of this approach considering the model also includes 2 and 6 pair UG D-side wire and 5 pair Aerial D-side wire.

Core Fibre Costs

11. During the first round of interrogatories, the Authority queried the calculation of the number of joints for various fibre sizes and types in the 'Core Fibre Costs' sheet (interrogatory no. 50). In particular, the Authority asked LIME to explain the addition of 0.5 in the formula. LIME responded that the intention of adding 0.5 to the calculation is to round to the nearest whole number, noting however, that the formula was missing a key component, namely the Excel 'ROUND' formula. The Authority notes that by using the ROUND formula and adding 0.5, LIME is always rounding up to the nearest integer except in the cases where the number to be rounded itself is a whole number. For example, the LIME methodology will round

the number 1 up to 2 or the number 0 up to 1. This is contrary to the purpose expressed by LIME. An alternative to LIME's approach would be to use the Excel formula ROUNDUP without adding 0.5. If LIME agrees with this alternative approach, provide a revised module with the appropriate changes or provide comments on why the alternative approach would not be suitable.

Cost Summary & Mapping

12. In LIME's response to the Authority's first round interrogatory no. 59: *"The allocation in the 'Cost Summary & Mapping' sheet of annualized duct cost to 'Host-Host' and 'Host-Remote' (cells F33:G33) is a pro-rata allocation based upon the annualized cost of fibre and joints. The costs assigned to 'Host-Remote' include the pole costs. Explain why the rental costs of poles should be included when estimating an allocation key for splitting the annualized cost of duct into 'Host-Host' and 'Host-Remote'"*, it explains that it has been unable to find the reference to the application of pole cost to Host-Remote annualized cost. In the Authority's letter for the first round of interrogatories, it was indicated that LIME should contact Authority staff if it had any questions about the contents of the interrogatories. To ensure a swift and efficient interrogatory process the Authority continues to encourage LIME to contact the Authority should it have difficulty in the interpretation of any interrogatory. With regard to first round interrogatory no. 59 the Authority refers LIME to cell E21 in the 'Cost Summary & Mapping' sheet where the following formula is used:
$$=(1-'Access Costs'!\$1\$109)*'Access Costs'!\$N\$107+(C21*3/4)$$
, where 'Access Costs'!\\$1\\$109 is the percentage of pole costs allocated to Access and 'Access Costs'!\\$N\\$107 is the annualized cost of poles. The formula calculates the total annual cost allocated to Host-Remote transmission (fibre and joints) in the core network. This includes the cost of fibre and joints in ducts and fibre and joints on poles. Given the above, explain why the rental costs of poles should be included when estimating an allocation key for splitting the annualized cost of duct into 'Host-Host' and 'Host-Remote'.

Volume Input for TD

13. During the first round of interrogatories, the Authority asked LIME to provide a detailed description of how the fixed network module accounts for foreseeable future growth beyond the base year to which it relates (interrogatory no. 63). LIME replied: *"LIME understands that the model was not intended to be a multi horizon model but rather a single horizon model. Therefore, the values in cells L1:T37, growth factors, may represent growth over any number of years and as such is left up to the user to input its own growth assumptions beyond the base year assumptions used."* The Authority agrees that the model is a single horizon model in the sense that it models the cost of building a network today (not over several future periods). Growth and demand was dealt with in ICTA Decision 2008-2 paragraph 119 where the Authority directed LIME to *"explicitly show existing demand and forecasted demand for each service in both the fixed and mobile*

modules, i.e. a growth rate should be shown to each service and the relevant planning horizon provided." While the module may allow users to input their own growth assumptions, growth factors used in the module should reflect LIME's view over an appropriate planning horizon. Confirm the appropriateness of the growth factors used or provide a revised model that uses appropriate levels of forecasted demand.

Fixed Service Costs

14. The 'Fixed Service Costs' sheet contains links to '09_04_08 Appendix V-TD LRIC Input 07-04-09 conf_v1.xls!ret_val' both with regards to wholesale bad debt (E46:P46) and retail costs (T46:AQ46). The latest version of Appendix V submitted to the Authority is named '09_11_16 Appendix V-TD LRIC Input 07-04-09 conf_revised [int 120]'. Ensure the latest version of Appendix V is used.

Mobile Model (2G)

Cost Assumptions

15. In response to the Authority's first round interrogatory no. 91, LIME has made numerous changes to the latest version of the 2G mobile module ('CYM Mobile 2G - updated 09_11_16 conf.xls'). However, the network components defined in the 'Cost Assumptions' sheet do not flow through to the 'Network Costs' and 'Mobile Network Costs' sheets. In ICTA Decision 2008-2 paragraph 247 LIME was directed to reduce the amount of duplication by eliminating excessive or unnecessary entries. A further update to the modules is therefore required so that the allocation definitions input into the 'Cost Assumptions' sheet are used consistently throughout the modules. If the allocation definitions are used consistently through the modules they can be defined once in a primary location (as with the network element and services list) and all other references can be linked back the primary location. In this way changes need only be made once and they will automatically flow to all other references through-out the modules. As the modules stand now, changes would potentially have to be made in multiple locations throughout the modules, greatly increasing the chances of an error. Update the module to use the allocation definitions consistently throughout the sheets.
16. The 'Cost Assumptions' sheet contains links to a version of the mobile module named '06-11-09-CYM Fixed 07-04-09 conf.xls' in cell E58. The Authority has not received a version of the fixed module named as stated. Ensure all links are appropriately updated.
17. In the Authority's first round interrogatory no. 147, where LIME was required to provide detailed additional documentation to justify combining the HLR and VLR or alternatively revise the model to capture the cost of the VLR and HLR separately, LIME noted that it does not have the cost of the VLR separately identified as its supplier does not provide such for a single switch network. Further, LIME emphasized that splitting the cost of VLR and HLR is difficult given its single switch network and that any attempt to do so would be arbitrary at best and of immaterial benefit. Finally, LIME acknowledged that VLR processing takes place during an intra MSC cellsite hand-over.
 - a. Provide detailed documentation (for example an invoice) to show the cost of the HLR cost element as indicated in cell E27 of the 'Cost assumptions' sheet. The Authority notes that it in ICTA Decision 2008-2 paragraph 361 directed LIME to document this and other cost inputs. LIME's response to this direction was to provide Appendix XVI, as well as Appendix X Part I. The Authority has reviewed this documentation and has been unable to derive the cost of the HLR as shown in the 2G module.

- b. The Authority notes that the same or similar cost items would appear to be labeled differently in the 2G and 3G module. In the 2G module reference is only made to HLR in the 'Cost Assumptions' sheet, while the 3G module refers to a combination of HLR/VLR. Clarify the use of terms and update the module if relevant.
 - c. Given that all the routing factors associated with the network element 'HLR/VLR -traffic sensitive' in the 2G module are 1, explain in detail how the need for additional VLR processing during intra MSC cell-site handover is taken into account. Alternatively, update the routing factors to recognize the need for additional VLR processing during intra MSC cell-site handover.
18. In the Authority's first round interrogatory no. 148, LIME was required to provide documentation to support the spares used in the mobile module. LIME noted that it was unable to obtain internally supporting documentation for some equipment and therefore relied upon an international benchmark of 5%. Provide documentation for the international benchmark.

Reval_Assets

19. The 'Reval_Assets' sheet appears to contain links to an older version of the fixed module, see for example cell G1. Ensure all links are appropriately updated.

FAC_Input

20. The 'FAC_Input' sheet contains links to Appendix IV whose full worksheet name does not match the one submitted on 16 November 2009. Update the link to refer to the most recently submitted version of the Appendix and ensure all links work as intended.

Demand Calculations

21. During the first round of interrogatories, the Authority asked LIME to explain the use of cell C41 in the 'Demand Calculations' sheet and use of VBA code (interrogatory no. 75). Based on the Authority's interrogatory LIME revised the VBA code to update the correct cell. LIME's answer indicates that the macro based process is required to update this input. In order to test that macros are required the Authority replaced the pasted value in C41 with the adjacent formula (in cell D41) where it sources its value. The result appeared to be that the module continued to function as intended. In ICTA Decision 2008-2 paragraph 246 LIME was directed to eliminate the use of macros where possible. Remove the macro from the module or provide a detailed explanation for why it is needed for a correct functioning of the model.

Expense Factors

22. The total Gross Replacement Value (based on a revaluation of the FAC) of the mobile network elements (sum of G4:V4 in the 'Expense Factors' sheet) is substantially less than the total Gross Replacement Cost based on the modeled forward-looking assets (sum of G5:V5 in the 'Expense Factors' sheet). Confirm the accuracy of the FAC revaluation exercise.

Transmission Links

23. Provide the derivation of and supporting documentation for, the labour cost of a 'Mini Link MLE 6 GHz Radio System' in cell E42 in the 'Transmissions Links' sheet.
24. The 'Transmission Links' sheet contains links to a version of the mobile module named '06-11-09-CYM Fixed 07-04-09 conf.xls' in cell J56. The Authority has not received a version of the mobile module named as stated. Ensure all links are appropriately updated.

Network Costs

25. During the first round of interrogatories, the Authority asked LIME to explain the use of copying and pasting of values using VBA code from cells F55:Q55 of the 'Network Costs' sheet to cells F56:Q56 (interrogatory no. 84). LIME submitted that this process is needed to avoid circular errors appearing in the module. To verify this statement the Authority linked cells F55:Q55 and F56:Q56 by replacing the values in F56:Q56 with formulas making them equal to F55:Q55 (e.g. by inserting "=F55" in F56 and "=G55" in G56 etc.) and manually forced the module to re-calculate. The result appeared to be that the model continued to function as intended without any circular errors. In ICTA Decision 2008-2 paragraph 246 LIME was directed to eliminate the use of macros where possible. Remove the macro from the module or provide a detailed explanation for why it is needed for a correct functioning of the model.
26. During the first round of interrogatories, the Authority asked LIME to explain the relevance of cells G105, G110 and G115 in the 'Network Costs' sheet showing FAC operating costs for SMS platform, Prepay platform and roaming, respectively (interrogatory no. 86). In response, LIME submitted that it was confused by this query. In the letter for the first round of interrogatories, the Authority indicated that LIME should contact Authority staff if it had any questions about the contents of the interrogatories. To ensure a swift and efficient interrogatory process the Authority continues to encourage LIME to contact the Authority should it have difficulty in the interpretation of any interrogatory. Regarding interrogatory no. 86, the Authority notes that the labeling of otherwise identical cost items with FAC (cells G105, G110 and G115) and LRIC (cells G106, G111 and G116) would appear to be a left-over from previous versions of the module and no longer needed.

Specifically, in ICTA Decision 2008-2 paragraph 94 LIME was directed to remove calculations related to zeroing out of demand in both fixed and mobile modules. Provide a detailed explanation for why the adjustment in cells G106, G111 and G116 is not redundant or provide a revised version of the module with the calculations removed and costs items labeled appropriately.

Mobile Service Costs

27. The 'Mobile Service Costs' sheet contains links to '09_04_08 Appendix V-TD LRIC Input 07-04-09 conf_v1.xls'!ret_val' both with regards to wholesale bad debt (E47:H47) and retail costs (I39:P39). The latest version of Appendix V submitted to the Authority is named '09_11_16 Appendix V-TD LRIC Input 07-04-09 conf_revised [int 120]'. Ensure the latest version of Appendix V is used.

3G Mobile Module

Cost Assumptions

28. Cells E31 and E33 of the 'Cost Assumptions' sheet contains a reference to a spreadsheet 'Capex for model.xls'. Provide the spreadsheet.
29. During the first round of interrogatories, the Authority asked LIME to explain the use of volume and wholesale discounts (cell K54 and K55 of the 'Cost Assumptions' sheet) to estimate the leased line costs, when no discounts are used in the 2G module (interrogatory no. 89). LIME submitted that the Leased Line costs used in Cells E51:E62 are taken from the LIME retail pricelist. LIME in effect buys from itself at wholesale prices with discount; hence price assumptions are modeled to reflect the actual situation faced by LIME. Provide an explanation for why the same approach was not used in the 2G module or revise the 2G module to accommodate this approach.
30. In response to the Authority's first round interrogatory no. 91, LIME has made numerous changes to the latest version of the 3G mobile module ('CYM Mobile 3G - updated 10_03_11 conf.xls'). However, the network components defined in the 'Cost Assumptions' sheet do not flow through to the 'Network Costs' and 'Mobile Network Costs' sheets. In ICTA Decision 2008-2 paragraph 247 LIME was directed to reduce the amount of duplication by eliminating excessive or unnecessary entries. A further update to the modules is therefore required so that the allocation definitions input into the 'Cost Assumptions' sheet are used consistently throughout the modules. If the allocation definitions are used consistently through the modules they can be defined once in a primary location (as with the network element and services list) and all other references can be linked back the primary location. In this way changes need only be made once and they will automatically flow to all other references through out the modules. As the modules stand now, changes would potentially have to be made in multiple locations throughout the modules, greatly increasing the chances of an error. Update the module to use the allocation definitions consistently throughout the sheets.
31. In the 'Cost Assumptions' sheet cells C115:E136 spares as a percentage of total CAPEX are shown along with an indication of source. For each spare percentage LIME identifies the 2G module as the source. Explain the adequacy of 2G spare percentages for the 3G module. Further, explain the apparent discrepancy between the 2G module and 3G module (for example, HLR is 6.8% in the 2G module, while HLR/VLR/AUC is 5% in the 3G module).
32. In the Authority's first round interrogatory no. 147, where LIME was required to provide detailed additional documentation to justify combining the HLR and VLR or alternatively revise the model to capture the cost of the VLR and HLR separately, LIME noted that it does not have the cost of the VLR separately identified as its

supplier does not provide such for a single switch network. Further, LIME emphasized that splitting the cost of VLR and HLR is difficult given its single switch network and that any attempt to do so would be arbitrary at best and of immaterial benefit. Finally, LIME acknowledged that VLR processing takes place during an intra MSC cellsite hand-over.

- a. Provide detailed documentation (for example an invoice) to show the cost of the HLR/VLR cost element as indicated in cell E30 of the 'Cost assumptions' sheet.
- b. The Authority notes that the same or similar cost items would appear to be labeled differently in the 2G and 3G module. In the 2G module reference is only made to HLR in the 'Cost Assumptions' sheet, while the 3G module refers to a combination of HLR/VLR. Clarify the use of terms and update the module if relevant.

Demand Assumptions

33. In response to first round interrogatory no. 94, LIME updated the module to account for 'Total Annual Calls' rather than 'Annual Successful Calls'. However, the Authority's inspection of the module shows that the module applies the ratio of total/successful calls to minutes (cells F13:F43). Correct the module or provide a detailed explanation to justify the approach.
34. Cell E135 of the 'Demand Assumptions' sheet shows the demand in number of minutes for the MSC. However, the driver for the MSC as indicated in cell E133 is number of calls. Provide a detailed explanation of this apparent mismatch or make the appropriate corrections to the module.

Technical Assumptions

35. In response to first round interrogatory no. 97, dealing the mismatch between the Max 3G cell radius in the 'Technical Assumptions' sheet, and the distances reported in Appendix I, Part I, LIME responded that the Appendix dealt specifically with the current LIME network, which is 2G, and that the 2G averages are used within the module to approximate the expected 3G cell radius given the same frequency. The Authority has reviewed Appendix, Part I and notes that some of the calculated averages appear to be incorrect. For example, the value in cell E18 (in 'Sheet1') is ### whereas the average of the referenced cells is actually ###. Other cells that appear to be incorrect include G18, M18, D32, K32 and L38. These apparent errors arise where LIME has inputted a number value as a text value and the 'average' function cannot correctly calculate averages for values entered in text format. As a result, cells C101:103 which show GSM cell radii in the 'Technical Assumptions' sheet are inaccurate and, because they are also used to estimate 3G cell radii,

these values are inaccurate as well. Correct the calculations or provide a detailed explanation to justify the existing approach.

36. In the 'Technical Assumptions' sheet LIME lists an 850 MHz 3G data cell radius factor of 25% (cell C105). Explain the purpose of this assumption and provide supporting documentation for its value.

Routing Factors Input

37. The routing factors for network element '400-3G: HLR/VLR/AUC' (cells M5:M35) are zero. This contrasts the routings found in the routing factor documentation 'CYM 3G Routing Factors 20091012.xls' where the element '400-3G: HLR/VLR/AUC' is split into a traffic and subscriber sensitive part with corresponding non-zero routing values for the relevant services. Provide a detailed explanation to justify the existing approach or align the documentation and module. The Authority notes that the 2G module splits the cost of the HLR/VLR into a traffic and subscriber sensitive part.

Demand Calculations

38. During the first round of interrogatories, the Authority asked LIME to explain the use of cell C42 in the 'Demand Calculations' sheet and use of VBA code (interrogatory no. 103). Based on the Authority's interrogatory LIME revised the VBA code to update the correct cell. LIME's answer indicates that the macro based process is required to update this input. In order to test this dependence on the macro the Authority replaced the pasted value in C42 with the adjacent formula (in cell D41) where it sources its value. The result appeared to be that the model continued to function as intended. In ICTA Decision 2008-2 paragraph 246 LIME was directed to eliminate the use of macros where possible. Remove the macro from the module or provide a detailed explanation for why it is needed for a correct functioning of the module.

Network Costs

39. During the first round of interrogatories, the Authority asked LIME to explain the use of pasted values in cells F69:V69 in the 'Network Costs' sheet (interrogatory no. 111). LIME noted that the model was constructed to not fully update the outputs with assumption changes unless the macro 'update_fac()' is run and that this was developed during an earlier iteration of the model to prevent circular errors from occurring. In ICTA Decision 2008-2 paragraph 246 LIME was directed to eliminate the use of macros where possible. Remove the macro from the module or provide a detailed explanation for why any redundant calculations and code should be included in the module.
40. During the first round of interrogatories, the Authority asked LIME to explain the relevance of cells G105, G110 and G115 in the 'Network Costs' sheet (interrogatory

no. 113) showing FAC operating costs for SMS platform, Prepay platform and roaming, respectively. In response, LIME submitted that it was unsure what was meant by the question. The Authority, in the letter for the first round of interrogatories, indicated that LIME should contact Authority staff if it had any questions about the contents of the interrogatories. To ensure a swift and efficient interrogatory process the Authority continues to encourage LIME to contact the Authority should it have difficulty in the interpretation of any interrogatory. Regarding interrogatory no. 113, the Authority notes that use of the term FAC suggests that the costs are from the FAC model. It is unclear to the Authority whether this is the case. Further, an adjustment is made in the cells below each "FAC" value which is termed "LRIC". This adjustment would appear to be redundant. Clarify the source of the cells and relevance of the adjustment. If the adjustment is not needed it should be removed.

Appendices

Appendix V

41. The Authority has compared the volumes in the 'drivers' sheet of '09_11_16 Appendix V-TD LRIC Input 07-04-09 conf_revised (int 120).xls' with those used in the FLLRIC model and notes a number of discrepancies. These include:
- differences in the reported traffic for dialup internet usage in the Fixed module (C2 in the 'drivers' sheet versus X5 in the 'Volume input for TD' sheet in 'CYM fixed - updated 09_11_16 Conf.xls');
 - the lack of Fixed call to OLO traffic in the fixed module;
 - differences in the reported the number of national call retail calls in the fixed module (C27 in the 'drivers' sheet versus X33 in the 'Volume input for TD' sheet in 'CYM fixed - updated 09_11_16 Conf.xls'); and
 - differences in the reported the number of mobile on-net calls (C22 in the 'drivers' sheet versus X5 in the 'Volume input for TD' sheet in 'CYM Mobile 2G - updated 09_11_16 conf.xls' and X5 in the 'Volume input for TD' sheet in 'CYM Mobile 3G - updated 09_11_16 conf.xls').

Explain the differences or make the appropriate corrections.

CYM 3G Routing Factors 20091012.xls

42. The spreadsheet 'CYM 3G Routing Factors 20091012.xls' contains separate routing factors for MSC call and duration sensitive costs, while the 3G module only contains routing factors for a single MSC network element. Revise the documentation and 3G module to reflect the correct elements or provide a detailed explanation to justify the existing approach.
43. The spreadsheet 'CYM 3G Routing Factors 20091012.xls' column G shows routings for network element '400-3G: Data Tx' which are blank. Further, this element is not used in the 3G module. Rather the 3G module contains a network element termed '400-3G: IP Core Network' (column I on the 'Routing Factors Input' sheet). However, the routings for this element are not shown in spreadsheet 'CYM 3G Routing Factors 20091012.xls' and hence are not documented. Revise the documentation and 3G module to reflect the correct elements or provide a detailed explanation to justify the existing approach.
44. In the spreadsheet 'CYM 3G Routing Factors 20091012.xls' the routing factor indicating the Mobile Data service's use of the '400-3G:MSC-call sensitive' element is 0. The explanation given is *"3G data will not pass through the MSC, it will be*

handled by the MGW". Provide an explanation of how the 3G data is delivered to the MGW and how associated expenses are accounted for.

45. In the spreadsheet 'CYM 3G Routing Factors 20091012.xls' the routing factors for indicating the use of Mobile On Net Call services use of network elements '400-3G:RNC' and '400-3G:MSC-call sensitive' are 1.5 and 1 respectively. The explanation given refers to the documentation in the 2G model. The 2G model has factors of 2 for both the BSC and the MSC-Call Sensitive network elements and provides explanations for both values reproduced below:

BSC: Mobile to Mobile on net calls utilise BSC resources twice that of an outgoing/incoming only call, one for the call originator and another for call termination. Therefore a routing of 2 is appropriate

MSC-call sensitive: Mobile to Mobile on net calls consumes MSC call sensitive resources two times that of an outgoing/incoming only call as the switch processor has to monitor and control the activities of two handsets, one for the call originator and another for call termination. Therefore a routing of 2 is appropriate)

Explain why the 3G routing factors related to the Mobile On Net Call service for network elements '400-3G:RNC' and '400-3G:MSC-call sensitive' are different from the equivalent 2G BSC and MSC-call sensitive routing factors.

46. In the spreadsheet 'CYM 3G Routing Factors 20091012.xls' all the routing factors associated with the network element 'HLR/VLR/AUC -traffic sensitive' are 1. Explain in detail how the need for additional VLR processing during intra MSC cell-site handover is taken into account. Alternatively, update the routing factors to recognize the need for additional VLR processing during intra MSC cell-site handover.
47. In the spreadsheet 'CYM 3G Routing Factors 20091012.xls' the routing factor for 'Video Calling – 400-3G:RNC' is 1.25. However, the routing factor for 'Video Calling – 400-3G: MSC-call sensitive' is 1.5. The explanations given for these two factors merely refer to the calculations on the 3G model 'Routing Factors Input' sheet. Provide an explanation for the difference in these two values.
48. In the spreadsheet 'CYM 3G Routing Factors 20091012.xls' the routing factor for 'Inbound Data Roaming – 400-3G:Roaming Platform' is 0 (zero) with no explanation provided. Provide an explanation for this value.

The MTR Cost Study

49. During the first set of interrogatory responses LIME provided different versions of the 2G and 3G cost modules. In the first batch received on 15 October 2009, LIME provided the following confidential versions of the modules:

- 3G Module: 09_10_15 CYM 3G Mobile Model 20091014 1432 (confidential).xls
- 2G Module: 09_10_15 -CYM Mobile 07-04-09 (confidential).xls

In the second batch received on 16 November 2009, LIME provided the following confidential versions of the modules:

- 3G Module: CYM Mobile 3G - updated 09_11_16 conf.xls
- 2G Module: CYM Mobile 2G - updated 09_11_16 conf.xls

While the later submissions were related to the update of previously submitted modules, LIME has also in parallel submitted separate MTR cost study modules where a number of assumptions regarding a sustainable forward-looking competitive mobile market in the Cayman Islands are made. As explained in ICTA Decision 2008-2 paragraph 77 LIME is directed to provide proposed MTRs using each of a 2G/2.5G module and 3G module. The Authority will select the technology to be used in the FLLRIC model based on which technology provides the lowest MTR. Provide one 2G/2.5G module and one 3G module or explain in detail the need for separate versions of the cost modules.

50. During the first round of interrogatories, the Authority asked LIME to identify any assumptions of fixed line subscribers moving completely to 3G wireless service for voice and how any such assumption has been reflected in the cost module (interrogatory no. 134). LIME responded (answer to interrogatory no. 131b) that this assumption was not separately modeled from the general growth that was incorporated into the 2G and 3G modules. This suggests that the impact of substitution must somehow already taken into account in the demand projections, but not explicitly modeled. Provide the underlying assumptions used to take substitution into account.

Retail Costs

51. In the latest version of the 3G module ('CYM Mobile 3G - updated 09_11_16 conf.xls') LIME provides retail costs in the 'Mobile Service Costs' sheet in cells L72:S72. These cells refer back to data range in 'C:\Transaction Services\Client Work\FY'09 Clients\71002000_TS\71002230_CWI Caribbean Limited\71002230_F001_Cayman 3G\Working Papers\Appendix V.xls!ret_val. This data range would appear to be from a version of Appendix V not previously submitted to the Authority. Provide the relevant appendix or update the reference appropriately.
52. In all the modules LIME has replicated the FAC Input sheet. This sheet contains expense information related to all modules and includes overheads and retail costs. The sheet also contains an adjustment factor in row C which is colour coded blue to indicate a parameter that may be changed. For the model user wishing to adjust expense values related to wholesale services, changes flow through to the expense factor calculations and on to the final service costs. For retail costs, however, this is not the case as the apportionment of retail costs is performed in a separate spreadsheet and subsequently referenced in each module. Therefore, the replication of the retail costs components in the modules seems to be redundant. To improve transparency and functioning of the model, LIME is requested to either include the retail calculations directly in each module or alternatively provide a separate retail spreadsheet or module with consistent links between each module. Make the appropriate changes to the FLLRIC model or explain why the current information flow and linkages are appropriate.
53. The retail cost input in each module excludes the following retail cost categories: Fixed Retail Capital Cost of Support Assets, Mobile Retail Capital Cost of Support Assets, Fixed Retail Cost of Working Capital, Mobile Retail Cost of Working Capital. These categories and the underlying sub-categories are shown in 'Appendix V-TD LRIC Input 07-04-09 conf_revised [int 120].xls' row 76 to 117 and in each cost module. Explain the exclusion of these categories of retail cost.
54. The retail cost category '100-Retail Billing' (row 26 of 'Appendix V-TD LRIC Input 07-04-09 conf_revised [int 120].xls') is allocated to all retail services with volume as driver, i.e. costs are allocated in proportion to the calls made by each retail service. According to LIME this cost category contains the "*expenses associated with the collection and collating, printing and posting of all call data records for fixed voice and mobile retail customers including Prepaid Mobile calls which are captured on a different system called the COMverse system. No bills are generated for Prepaid customers however.*" Provide a detailed rationale for why none of these costs should be allocated to non-call related services like, for example, retail ADSL, line rentals and other subscription services.

55. The retail cost category 'Respond to Customer Queries' (row 31 of 'Appendix V-TD LRIC Input 07-04-09 conf_revised [int 120].xls') is allocated to all retail services with volume as driver, i.e. costs are allocated in proportion to the calls made by each retail service. According to LIME this cost category contains the *"The initial response provided to customers in dealing with queries made by fixed and mobile retail customers"*. Provide a detailed rationale for why none of these costs should be allocated to non-call related services like, for example, retail ADSL, line rentals and other subscription services.
56. The retail cost categories 'Retail Sales' and 'Prepare Quotations for Retail Sales' (row 33 and row 34 respectively of 'Appendix V-TD LRIC Input 07-04-09 conf_revised [int 120].xls') are allocated to what is termed "new customer sales" which includes the following services: 900-CPE, 900-PSTN ACCESS BUS, 900-PSTN ACCESS RES, 900-VOIP, 900-MOBILE DATA, 900-Mobile Subscriber. LIME provides the following description of the cost categories: *"Actual sale activities for fixed and mobile retail products"* and *"Preparing customer quotations"*. Confirm the accuracy of the allocation to before mentioned services considering that other services such as 900-CARDS, 900-DOMESTIC LEASED CIRCUITS RETAIL, 900-INTERNATIONAL LEASED CIRCUITS RETAIL and 900-ISDN ACCESS RETAIL may consume sales activities.

Other

57. On 4 November 2009, the Authority received a letter from Digicel concerning an Interconnect Billing System and MTR. In that letter Digicel claimed, among other things, that the cost of inter-operator billing has to be included in the FLLRIC model and that the Authority must reassess the model to ensure that it includes an inter-operator billing system. Taking into consideration that this cost item may have a material affect on the mobile termination cost, the Authority consented to making the 4 November 2009 letter part of the record of the proceeding. The Authority has reviewed the cost items and asks LIME to respond to the following interrogatories:
- a. Provide a detailed explanation of, and provide detailed calculations and supporting documentation for the amounts shown for the costs (both one-off and / or re-occurring) of each of the following items included in the (Budgetary) Mobile to Mobile Costing for Digicel Cayman:
 - Omnil.inc SS ADM,
 - E1 Ports,
 - IRM,
 - Nokia Signalling Ports,
 - Billing upgrade, and
 - IT service costs.
 - b. For each cost item identified above explain whether it is incurred as a result of upgrading or expanding LIME's existing network and / or whether it would be incurred by a hypothetical efficient entrant to the Cayman market with a market share equivalent to that assumed by LIME in its MTR study.
 - c. For each cost item listed above, identify whether or not LIME's proposed FLLRIC model includes such costs. If it doesn't, provide a detail rationale for the exclusion of such costs. If such costs are included, provide cell references and a detailed explanation of how each cost item included in the budgetary offer is reflected in the MTR study.