

1. In the 'Technical Assumptions' sheet of the file named '2013 01 15 CYM fixed – Conf.xls' (the "Fixed Module"), LIME indicates that the number of core NGN sites in the module should be 2 (cell C17). The source for this assumption is given as "C&W - Obtained from C&W's design Engineers and shown in Appendix XVII - NGN Diagram". Provide a detailed explanation for the continued optimality of having two core NGN sites given the development in technology since the referenced design was made and the size and subscriber numbers of the Cayman Islands.
2. In November 2012, LIME's license was amended to include Television Services. Please provide a detailed explanation of how the Fixed Module accounts for any increased traffic that may result from this service. If the Fixed Module does not account for any increased traffic, provide a revised module that does so along with a list of the specific changes made to accommodate the new service and detailed rationale and documentation supporting those changes.
3. In its 2 October 2012 letter, LIME proposed an FTR of CI\$0.022 per minute and a Transit Rate of CI\$0.0175 per minute.
 - a. Provide a detailed rationale for why the proposed FTR is rounded to three places after the decimal and the proposed Transit Rate is rounded to four places after the decimal.
 - b. Provide LIME's views on the rounding of both per minute rates to four places after the decimal.
4. The interconnection agreements between LIME and the other licensees make references to "PSTN Termination Part" rates for various "Part 2 - Termination Services". Using the LIME/Digicel March 2011 agreement as an example, the "PSTN Termination Part" rates are listed under "PSTN Terminating Access Service" and "Incoming International Call Termination to PSTN Service".
 - a. Identify whether or not the LIME proposed FTR will apply to both of these services. If not, provide a detailed rationale of why the proposed rate would not apply to both of these services.
 - b. Identify whether LIME intends to apply the FTR to any services other than the two identified above. If so, please provide the documents where the use of the FTR is specified.

5. The interconnection agreements between LIME and the other licensees make references to "Transit Part" rates for various "Part 2 - Termination Services" and transit "Usage Charges" for various "Part 4 - PSTN Transit Services". Using the LIME/Digicel March 2011 agreement as an example, transit rates are listed under "PSTN Terminating Access Service", "PLMN Terminating Access Service", "Incoming International Call Termination to PSTN Service", "Incoming International Call Termination to PLMN Service", "PSTN Transit Service", "PLMN Transit Service", and "Volume Discount (Transit Charges only)".
 - a. Identify whether or not the LIME proposed transit rate will apply to each of the above listed services. If not, please provide a detailed rationale of why the proposed rate would not apply to a specific service.
 - b. Identify whether LIME intends to apply the transit rate to any service other than those listed above. If so, please provide the documents where the use of the transit rate is specified.
6. The March 2011 LIME/Digicel interconnection agreement provides for an effective discount of ##% on Transit Charges in the event that a party meets a Minimum Qualifying Volume of calls subject to Transit Charges (including any calls subject to "Transit Part" charges under "Part 2 – Termination Services").
 - a. Please indicate whether or not the discounted rates are reflective of any underlying cost differential that occurs because of an operator reaching the stated volume.
 - b. If the discounted rates do reflect an underlying cost differential, provide a detailed explanation of the change in costs associated with meeting the specified volume and provide the cell reference and details of the mechanism for how the underlying cost differential is reflected in the Fixed Module.
 - c. If the discounted rates do not reflect any underlying cost differential, provide a detailed explanation of the basis on which the discounted rates were determined.
7. The interconnection agreements, among other things, refer to the "PSTN Termination Part" of the "PSTN Terminating Access Service". Provide a network diagram for the "PSTN Termination Part" functionality showing the network components (or elements) and route for terminating traffic used for that service component. In addition provide a detailed description of

the function that is performed by each of the network components as it relates to the "PSTN Termination Part" functionality.

8. Indicate whether or not there are any differences in the routing of the "PSTN Termination Part" of a call under the "PSTN Terminating Access Service" and the "Incoming International Call Termination to PSTN Service". If there are any differences in the routing to the "PSTN Termination Part", provide a detailed explanation along with a network diagram and a detailed description of the functions performed by the network components.
9. For the "Transit Part" of the "PLMN Terminating Access Service", provide a network diagram showing the network components and route for traffic from another local operator's network to LIME's mobile network. In addition provide a detailed description of the function that is performed by each of the network components as it relates to the "Transit Part" functionality.
10. Indicate whether or not there is any difference in the routing of the "Transit Part" of a call under the "PSTN Terminating Access Service" and the "PLMN Terminating Access Service", the "Incoming International Call Termination to PSTN Service", or the "Incoming International Call Termination to PLMN Service". If there are any differences in the routing to the "PSTN Termination Part", provide a detailed explanation along with a network diagram and a detailed description of the functions performed by the network components.
11. For traffic that originates on LIME's fixed network and is routed via that network to LIME's mobile network, provide a diagram showing the network components and routing of such traffic. In addition, provide a detailed description of the function that is performed by each of the network components as it relates to the routing of this traffic. Separately identify the network components that are used for the "origination" part of the call and separately identify the network components involved in transporting the call from the fixed network to the mobile network.
12. Identify whether LIME incurs costs for the functions covered by the "Transit Part" charges for calls from its own fixed network to its own mobile network. If LIME does incur such costs, provide a detailed explanation of how the costs are accounted for in the Fixed Module. If LIME does not incur such costs, provide a detailed explanation of the network connection arrangements it has between its fixed and mobile networks which allow it to avoid such costs including an explanation of how those arrangements differ from the arrangements LIME uses when it applies the transit charges to the traffic of other operators.

13. For traffic that originates on LIME's mobile network and is routed via LIME's fixed network to the network of another local operator, provide a network diagram showing the network components and route of such traffic. In addition, provide a detailed description of the function that is performed by each of the network components as it relates to routing of this traffic.
14. Identify where the demand data/quantities for traffic that originates on LIME's mobile network and is routed via LIME's fixed network to the network of another local operator are included in the Fixed Module. If the traffic volumes are not included, please provide a detailed explanation for such an exclusion.
15. For traffic that originates on LIME's mobile network and is routed via LIME's fixed network to an international carrier, provide a network diagram showing the network components and route of such traffic. In addition, provide a detailed description of the function that is performed by each of the network components as it relates to routing of this traffic.
16. Identify where the demand data/quantities for traffic that originates on LIME's mobile network and is routed via LIME's fixed network to an international carrier is included in the Fixed Module. If the traffic volumes are not included, please provide a detailed explanation for such an exclusion.
17. For the "PSTN Transit Service", provide a network diagram showing the network components and route for traffic. In addition provide a detailed description of the function that is performed by each of the network components as it relates to the transit service.
18. Identify whether or not the routing of traffic under the "PSTN Transit Service" is different from the routing of traffic under the "PLMN Transit Service". If there are any differences in the routing, please provide a detailed explanation along with a network diagram and a detailed description of the functions performed by the network components.
19. In its letter of 2 October 2012, LIME stated with respect to the "Duct Unit Costs" section, that an update has been made to the capital costs. In particular LIME submitted that "*The costs of the ducts (equipment and installation labour) in cell C6:C78 and F6:F78 were introduced to the model in 2009. We have added a cost adjustment factor in E6 reflecting an annual cost increase of 2.5% a year for 3 years*". Provide an explanation for how the introduction date of the cost to the Fixed Module is related to the year from which the cost estimated is sourced (i.e. the vintage of the asset). Confirm for each cost input that is subject to cost change in the 'Cost

Assumptions' sheet the year from which it is sourced and provide detailed documentation to support that information.

20. In Table 1 of its letter of 2 October 2012, LIME provided benchmarks of equipment price trends in fixed LRIC models. The Authority notes that LIME in its the 3 July 2007 Virtual Office service filing, identified that the total "Virtual Office Equipment Costs" was CI\$## and in its 11 March 2011 imputation test showed a significant reduction in total "Virtual Office Equipment Costs" cost to CI\$##. In LIME's 31 March 2011 interrogatory response it explained there were several reasons for the decline in cost, including that IP equipment costs had declined, as the adoption of IP technology had increased and the technology improved significantly. Provide a detailed justification of the adequacy of the benchmarked prices given the developments observable in the Virtual Office service filing.
21. In a 24 May 2011 response to an Authority interrogatory concerning freight, insurance, customs, etc. costs related to certain network equipment identified in its 2011 Virtual Office service filing, in addition to identifying costs related to the ##% duty fees, LIME also indicated that it incurred freight costs of ##% and warehousing costs of ##%. Please indicate whether the freight and warehousing costs are typically incurred when LIME purchases network equipment and, if such costs are not typically incurred, please provide a detailed rationale of how such costs are avoided. If the costs are typically incurred, identify with specific cell references how such costs are included in the Fixed Module.
22. In the "Duct Unit Costs" section of the 'Cost Assumptions' sheet of the Fixed Module various costs of duct and installation are provided in cells C19:C78 and F19:F78. A heading to that section in cell A15 indicates that the source is "C&W carrier services" and "Cayman" is listed in column J. Provide detailed documentation for these cost inputs, for example an invoice or bill of materials. The Authority notes that in paragraph 301 of ICT Decision 2008-2 it directed LIME to provide information explaining in detail the source all assumptions marked as "C&W", "Benchmark" or "Cayman". While LIME in its 8 April 2009 response (ATTACHMENT A, Revisions to FLLRIC Model Ordered by the Authority in ICT Decision 2008-02, submitted by LIME in CD 2009-01, #72) indicated that this direction had been adhered to, the Authority has been unable to find detailed documentation to substantiate that statement.
23. The jointing box costs for both the equipment category and installation category for 3-4-bore (C47:C49 and F47:F49 respectively) in the "Duct Unit Costs" section of the 'Cost Assumptions' sheet in the Fixed Module are only

a small fraction of similar costs for 5-6 bore (C59:C61 and F59:F61).
Confirm the accuracy of these inputs.

24. In its 2 October 2012 letter, LIME submitted that no changes were made to the "Access Network Assumptions" section of the 'Cost Assumptions' sheet in the Fixed Module as it relates to the access network, and access assumptions are assumed to be unchanged for this proceeding. The Authority notes that the cost of fixed termination and transit are influenced by assumptions made for access through the allocations in the overhead expense factors. Provide a detailed explanation for why the cost inputs in the access network assumptions should not be adjusted similar to the other cost inputs (i.e. using a price trend) updated by LIME.
25. In the "Access Network Assumptions" section of the 'Cost Assumptions' sheet in the Fixed Module various equipment and installation costs are provided in cells C87:C181, F87:F181. A heading to the section in cell A82 indicates that the source is "C&W" and "Cayman" is listed in column I. Provide detailed documentation for these cost inputs, for example an invoice or bill of materials (excluding the total pole rental per month in the 'Cost Assumptions' sheet cell F132 that has been confirmed in first round interrogatories in CD2009-1). The Authority notes that in paragraph 301 of ICT Decision 2008-2 it directed LIME to provide information explaining in detail the source all assumptions marked as "C&W", "Benchmark" or "Cayman". While LIME in its 8 April 2009 response (ATTACHMENT A, Revisions to FLLRIC Model Ordered by the Authority in ICT Decision 2008-02, Submitted by LIME in CD 2009-01, #72) indicated that this direction had been adhered to, the Authority has been unable to find detailed documentation to substantiate that statement.
26. In the "Transmission Direct Capex Assumptions" section of the 'Cost Assumptions' sheet in the Fixed Module various equipment and installation costs are provided in cells C192:C205, F192:F205. A heading to the section in cell C188 indicates that the source is "C&W" and "Cayman" is listed in column I. Provide detailed documentation for these cost inputs, for example an invoice or bill of materials. The Authority notes that in paragraph 301 of ICT Decision 2008-2 it directed LIME to provide information explaining in detail the source all assumptions marked as "C&W", "Benchmark" or "Cayman". While LIME in its 8 April 2009 response (ATTACHMENT A, Revisions to FLLRIC Model Ordered by the Authority in ICT Decision 2008-02, Submitted by LIME in CD 2009-01, #72) indicated that this direction had been adhered to, the Authority has been unable to find detailed documentation to substantiate that statement.

27. In the "Transmission Equipment Direct Capex Assumptions" section of the 'Cost Assumptions' sheet in the Fixed Module various equipment and installation costs are provided in cells C212:C226, F212:F226. In column I the source is indicated as "Benchmark". Provide detailed documentation for these cost inputs, for example other model(s) from where these values are sourced. Further, confirm that the equipment purchase prices contain installation costs. The Authority notes that in paragraph 301 of ICT Decision 2008-2 it directed LIME to provide information explaining in detail the source all assumptions marked as "C&W", "Benchmark" or "Cayman". While LIME in its 8 April 2009 response (ATTACHMENT A, Revisions to FLLRIC Model Ordered by the Authority in ICT Decision 2008-02, Submitted by LIME in CD 2009-01, #72) indicated that this direction had been adhered to, the Authority has been unable to find detailed documentation to substantiate that statement.
28. Rows 203 and 204 of the 'Cost Assumptions' sheet in the Fixed Module contain "Cable (24-Fibre) laying cost including sub-duct- underground" costs and "Cable (48-Fibre) laying cost including sub-duct- underground" respectively. These cost inputs are referenced in the 'Core Fibre Calculations' sheet, but would otherwise not appear to be used in the module. Explain the purpose of these inputs.
29. Network Management hardware and Network Management software costs of USD ## (excluding price trend correction) are provided in the 'Cost Assumptions' sheet cells C238 and C239, respectively of the Fixed Module. Provide detailed documentation for these cost inputs, for example an invoice or bill of materials.
30. Network Management hardware cost in KYD are calculated in the 'Cost Assumptions' sheet cell D238 of the Fixed Module using the following formula:

$$'=(C238*\$B\$7*(1+\$B\$11)+B238+C238*\$G\$9*\$B\$7)*(1-SUM(C\$256:C\$269)/SUM(B\$256:C\$269))',$$

where the various cell references denote:

- C238 = the price of Network Management hardware in USD
- \$B\$7 = USD to KYD currency conversion
- \$B\$11 = planning cost (as a percentage of CAPEX)
- B238 = duty on Network Management hardware in KYD
- \$G\$9 = level of spares (as a percentage of CAPEX)

- $\text{SUM}(\text{C\$256:C\$269})$ = sum of installation related materials for a sample of MGW in USD
- $\text{SUM}(\text{B\$256:C\$269})$ = sum of installation related materials and equipment costs for a sample of MGW in USD.

The total formula ' $\text{C238*}\text{B\$7}*(1+\text{B\$11})+\text{B238}+\text{C238*}\text{G\$9*}\text{B\$7}$ ' is therefore the cost of network management hardware in KYD including costs related to planning spares and duty, while the formula $\text{SUM}(\text{C\$256:C\$269})/\text{SUM}(\text{B\$256:C\$269})$ is the installation costs share of the total cost.

Provide an explanation for why the cost of network management hardware should be multiplied by 1 minus the installation cost factor and not 1 plus the installation cost factor. It is noted that the factor ' $1-\text{SUM}(\text{C\$256:C\$269})/\text{SUM}(\text{B\$256:C\$269})$ ' is applied to cells D238:D240, D244:D251, D212:D215, D218:D219 and D222:D226.

31. When calculating the cost of spares in the section "Transmission Equipment Direct Capex Assumptions" in the 'Cost Assumptions' sheet cells D212:D226 of the Fixed Module the factor ' $1-\text{SUM}(\text{C\$256:C\$269})/\text{SUM}(\text{B\$256:C\$269})$ ' is multiplied by the price (cells C212:C226) suggesting that equipment related to installation costs needs to be accounted for in the calculation of spares. Confirm this is correct given that the factor ' $1-\text{SUM}(\text{C\$256:C\$269})/\text{SUM}(\text{B\$256:C\$269})$ ' is not multiplied by the price (cells C212:C226).
32. When calculating the cost of spares for "MSE: Numbers from original contract" in the 'Cost Assumptions' sheet cells D244:D251 of the fixed Module the factor ' $1-\text{SUM}(\text{C\$256:C\$269})/\text{SUM}(\text{B\$256:C\$269})$ ' is multiplied by the price (cells C244:C251) suggesting that equipment related to installation costs needs to be accounted for in the calculation of spares. Confirm this is correct given that the factor ' $1-\text{SUM}(\text{C\$256:C\$269})/\text{SUM}(\text{B\$256:C\$269})$ ' is not multiplied by the price (cells C244:C251).
33. Provide detailed documentation for all the cost elements quoted in the block "MSE: Numbers from original contract" in the 'Cost Assumptions' sheet of the Fixed Module. This should be provided for each of a) CS-2K Compact (2) ETSI Hardware, b) CS-2K Compact (2) ETSI Software, c) Gateway Controller, d) UAS, e) USP, f) PP-8600, g) PP-15K and h) IMS (now called MCS5200). For each cost element provide a detailed description of its function, a justification of it being a modern equivalent

asset, i.e. an asset that would be installed where the network to be built today, and a documented cost (for example an invoice or bill of materials).

34. In the 'Cost Assumptions' sheet of the Fixed Module, the cost of DSLAM Equipment, Broadband Access Server, Core Ethernet Switch, Core Juniper Router, Other Servers & Software and Software items is shown in cells D283:D290. In column I the source is indicated as "C&W". Provide detailed documentation for these cost inputs, for example an invoice or bill of materials. The Authority notes that in paragraph 301 of ICT Decision 2008-2 it directed LIME to provide information explaining in detail the source of all assumptions marked as "C&W", "Benchmark" or "Cayman". While LIME in its 8 April 2009 response (ATTACHMENT A, Revisions to FLLRIC Model Ordered by the Authority in ICT Decision 2008-02, Submitted by LIME in CD 2009-01, #72) indicated that this direction had been adhered to, the Authority has been unable to find detailed documentation to substantiate that statement.
35. In the 'Cost Assumptions' sheet of the Fixed Module, the cost of Data Network is shown in cell C292. Provide detailed documentation for this cost input, for example an invoice or bill of materials. In addition, explain why no correction using price trends has been made.
36. In the 'Cost Assumptions' sheet of the Fixed Module, the cost of the interconnect billing platform is shown in cell E294 and an adjustment to that cost is shown in cell E295. In cell F294 the source of the cost input is indicated as "C&W estimate" and in cell F295 the source for the adjustment is shown as "C&W". Provide detailed documentation for the cost input in cell E294 and the adjustment in Cell E295, for example an invoice or bill of materials for the cost input and supporting calculations and documentation for the adjustment. In addition, explain why no correction using price trends has been made to the cost input.
37. The 'Cost Assumptions' sheet cells B306:B308 of the Fixed Module contains various costs related to VoIP including 'Terminal Adaptor Cost (before shipping and duty) per Customer', 'Shipping and duty cost on terminal adapter - per Customer' and 'Subscriber Port Cost per year'. Provide detailed documentation for these cost inputs, for example an invoice or bill of materials. It is noted that the 'Subscriber Port Cost per year' is added to the other costs and subject to annualisation in the 'Other Costs' sheet. Confirm that this is an accurate treatment of this cost item.
38. The 'Demand Assumptions' sheet of the Fixed Module cell D10 contains an estimate of the annual growth rate for lines of 3.0% based on C&W Planning Engineers (Appendix XIV - Cabinet forecast 2008). As the

estimate is from 2008, confirm the continued adequacy of this forecast given the historical developments in Cayman since 2008 and expectations for the future.

39. When calculating the efficiency factor, as detailed in its 2 October 2012 letter, to adjust the fixed operating expenses and overheads in the FAC Inputs sheet of the Fixed Module, LIME has included depreciation. Provide a detailed rationale for the inclusion of depreciation in the efficiency assessment.
40. In the 'FAC Inputs' sheet of the Fixed Module, LIME has not applied any efficiency adjustments to the Fixed Network Capital Cost of Support Assets (which include: 100-Freehold Technical Infrastructure - Fixed Network, 100-Furniture and Fittings - Fixed Network, 100-Computers - Fixed Network, 100-Building Infrastructure - Fixed Network and 100-Vehicles - Fixed Network). The Authority notes that these costs are annualised capital costs and not operating costs and possibly may be subject to a different efficiency adjustment than that suggested by LIME's analysis of operating costs. Provide a detailed rationale for lack of efficiency adjustment of these costs.
41. LIME has not applied the efficiency factor to retail costs in the FAC Input sheet of the Fixed Module. Provide a detailed rationale for lack of adjustment to these costs.
42. In its 2 October 2012 letter, LIME stated that the routing factor of .25 in cells F4, F5 and F8 in the 'Routing Factors Input' sheet of the Fixed Module reflects the share of the Capex of the PSTN Host Switch duration sensitive element. The Authority has reviewed the MSE costs and notes that the PSTN Host Switch duration sensitive elements share of total MSE cost is 72% (calculated as E35/sum(D35:E35 in the NGN Costs sheet). Confirm how LIME has calculated the 25%.
43. In its 2 October 2012 letter, LIME stated that some of the MSE costs are not voice-specific, but have IP functionality as well and that this should be accounted for. Specifically LIME submitted that the PP15K and PP8600 have IP functions and the cost should be allocated to those service that make use of this functionality. LIME stated that there are *"...two ways one could implement this in the model. One is to break out the components of the PSTN Host Switch duration sensitive element that are voice specific from those that are not. In the interest of time and simplicity we have instead taken the share of the capex of the PSTN Host Switch duration sensitive element, 25%, and used that for the routing factor for the ADSL and Direct Connect IP services."* Explain the adequacy of the approach

given that the final allocation to services will reflect a combination of the routing factor of 0.25 and demand (converted to minutes) of the Direct Connect and ADSL services.

44. In its 2 October 2012 letter, LIME stated that the billing platform is only utilized once per call minute for the transit service. For this service LIME has previously submitted (Appendix VIII RF Analysis - updated 10_09_01 Conf) that two sets of records must be carried one for either interconnecting parties and that this implies a routing factor of 2. Provide for each service that uses the billing platform a detailed rationale for how that service uses the billing platform.
45. In the 'Core Fibre Dimensions' sheet of the Fixed Module, fibre lengths of different cable type are shown. Provide a detailed explanation of how the various fibre lengths were derived, their optimality and maps showing where they run.
46. Fibre category "UBFO12/SM-LFM" in the 'Core Fibre Dimensions' sheet of the Fixed Module is not assigned a fibre pair category (see cell E15). Accordingly this length of fibre is excluded from calculations in the 'Core Fibre Calculations' sheet. Provide a detailed explanation for the exclusion of this fibre category.
47. In the Authority's 2005 Phase I decision on the FLLRIC Principles and Guidelines, ICT Decision 2005-4, guideline 3 states:

The FLLRIC study shall be based upon the locations of, and planned locational changes to, the existing central office and facilities configuration. "Facilities" shall be interpreted to include feeder routes, central offices, drop wire, network interface devices, and other specific items that make up the facilities of a telecommunications company. This is referred to as the "scorched node" approach. The adoption of this approach does not imply that the modelled equipment located at the network nodes is of the same type or function as the equipment currently situated at those locations; however, the locations themselves are retained.

The "MG Dimensions" sheet contains a list of MG locations. Confirm that the placement of equipment has been optimized within the scorched node approach as defined in guideline 3. For example, confirm the optimality of having two MGs at Ugland House.

48. The source of the duct quantities (in km by type) in the Duct Dimensions Sheet of the Fixed Module is stated as being C&W Cayman GIS System.

Provide a detailed explanation of how the duct quantities were derived using the GIS system and provide maps where available.

49. Explain in detail how the number of STM1 ADMs and STM16 ADMs in the Fixed Module's 'Tx Equipment Dimensions' sheet, cells J40:K44 have been derived.
50. Row 24 of the 'MG Calculations' sheet in the Fixed Module contains cost and volume information for "George Town 0". The volume of subscribers at "George Town 0" is nearly ## times higher than that of the location with the second highest volume. Provide a detailed explanation for the adequacy of the output of the regression analysis in the "Cost assumptions" sheet used to determine fixed and variable cost of the MG units given that this is based on a sample of MGs with a much lower volume than that located at "George Town 0".
51. LIME has updated network management, voicemail and MSE-related costs of the "NGN Direct Capex" section in the 'International Transmission TX Costs' sheet of the Fixed Module by multiplying by 69% (cell E6). According to LIME this value is based on a benchmark value of -6% per annum.

Using the formula:

$$\text{Equipment price}(t) \times (1 + p)^{(n-t)},$$

where p is the annual price trend, t is the year the equipment price is from, and n is the current year, would suggest a correction factor of $(1-6\%)^3 = 83.06\%$. Confirm the accuracy of the cost adjustment factor used.

52. Provide a detailed justification for the use of the formula "='TX Equipment Dimensions'!J44/2" to derive the STM1 demand in the "International Tx Costs" sheet of the Fixed Module.
53. The values in cells G25:G26 of the 'International Tx Costs' sheet of the Fixed Module would not appear to be used. Provide an explanation for the use of these values or in the event they are not used delete them.
54. The Authority notes that the annualised jointing costs in the 'Access Costs' sheet of the Fixed Module accounts for approximately 60% of the total annualized access costs in that sheet (shown in cells C139:C144). Confirm that jointing costs (incl. splicing) should account for such a large share of access costs.

55. In cell F11 of the 'Core Fibre Costs' sheet of the Fixed Module reference is made to the 'Access Dimensions' sheet cell C108 which reflects the average separation of fibre splices for underground cable. Confirm the accuracy of this value given it would appear, from inspection of cell F8, to belong to aerial fibre and not underground fibre.
56. In the 'NGN Costs' sheet cells D35:D36 of the Fixed Module, LIME splits the total MSE cost into a call and minute related element. In particular it is only the CS2K that is allocated to calls while the remaining MSE costs are assumed to be minute related. Provide a detailed rationale and explanation for why the other elements of the MSE are only duration related. For example, why is the USP driven by minutes rather than calls or a combination of both?
57. The costs in row 36 of the 'NGN Costs' sheet of the Fixed Module are used to spread the cost of the management system. Provide a source for these costs and explain why they should not be the cut and pasted values from row 35 of the 'NGN Costs' sheet.
58. In the 'Cost Summary & Mapping' sheet of the Fixed Module total duct costs are split into access related and core related using the sum of underground core fibre pair kilometers for various fibre cable sizes ('Core Fibre Costs'!O9) and the sum of underground copper pair kilometers for various copper cable sizes ('Access Dimensions'!C135). Provide a detailed rationale for this allocation of duct costs. It is noted that the same allocation is used for manholes.
59. In the 'Cost Summary & Mapping' sheet of the Fixed Module total manhole costs in the core network are split into host-host related and RSU-host. The allocation key is simply one quarter host-host and three quarters RSU-host. Provide a detailed rationale for use of this allocation key.
60. In the X2:AB37 cell range of the 'Volume Input for TD' sheet of the Fixed Module inputs for the volumes by service are provided. In its 2 October 2012 letter, LIME indicated that many of the volumes have been updated "based on actual 2011/12 volumes". The Authority has compared the demand data provided in that cell range to the information that has been submitted by LIME in the Quarterly Monitoring Data ("QMD") reports and the LIME interconnection services invoices issued to other local operators in support of the quarterly Analysis of Turnover and Deductions reports. The Authority has been unable to reconcile the 'Volume Input for TD' data with the data available from either the QMD or the invoices.

- a. Please identify the specific months that were used for the "2011/12" period.
- b. The demand values for four of the services listed in cells V2:V35 are identified with the note that "These volumes were retained from the previous version of the model." These four services are "900-INTERNATIONAL DQ RETAIL", "900-INTERNATIONAL DQ WHOLESALE", "900-INTERNATIONAL TRANSIT from OLO", and "900-INTERNATIONAL TRANSIT to OLO". Provide a revised module using the "actual 2011/2012" volumes for these four services from the same period used for the other services or provide a detailed explanation for why the "actual 2011/2012" volumes are not available for these four services.
- c. For each service listed in cells V2:V35 indicate the row, if any, in which volumes for that service are included in the QMD reports and, for such rows, provide a detailed reconciliation by quarter between the volumes in the 'Volume Input for TD' sheet and those provided by LIME in the QMD reports.
- d. Identify all services in cells V2:V35 to which transit rates apply (either as the "Transit Part" of the PSTN or PLMN termination services or as "Usage Charges" under the PSTN or PLMN Transit Service tariff section of the interconnection agreements).
- e. Provide a monthly reconciliation between the volumes for the services identified in d) above with the volumes for the various transit services that are charged by LIME on its monthly interconnection services invoices to other local operators (which are provided by LIME in support of its quarterly Analysis of Turnover and Deductions reports.) The reconciliation should be done by an "other local operator" basis using the sub-category service descriptions LIME uses on those invoices, such as "Int'l to Other Fixed – In", "INT'L TO OTHER FIXED – IN (Inpayment)", "International to Mobile – In", "INTERNATIONAL TO MOBILE – IN (Inpayment)", "OTHER FIXED TO MOBILE – IN (Inpayment)", "OTHER FIXED TO OTHER FIXED – IN (Inp)", etc.
- f. Identify all services in cells V2:V35 to which fixed termination rates apply.
- g. Provide a monthly reconciliation between the volumes for the services identified in f) above with the volumes for the various fixed termination services that are charged by LIME on its

monthly interconnection services invoices to other local operators (which are provided by LIME in support of its quarterly Analysis of Turnover and Deductions reports.) The reconciliation should be done by an "other local operator" basis using the sub-category service descriptions LIME uses on those invoices, such as "Int'l to Other Fixed – In", "INT'L TO OTHER FIXED – IN (Inpayment)", "OTHER FIXED TO OTHER FIXED – IN (Inp)", etc.

- h. For each of the sub-category service descriptions for transit and fixed termination services LIME uses on the invoices for monthly interconnection services, please identify the specific section from the interconnection agreements from which those rates are referenced. For example, the interconnection agreements references transit rates for various "Part 2 - Termination Services" and transit "Usage Charges" for various "Part 4 - PSTN Transit Services". Using the LIME/Digicel March 2011 agreement as an example, transit rates are listed under "PSTN Terminating Access Service", "PLMN Terminating Access Service", "Incoming International Call Termination to PSTN Service", "Incoming International Call Termination to PLMN Service", "PSTN Transit Service", and "PLMN Transit Service".
 - i. For each of the sub-category service descriptions for transit and fixed termination services LIME uses on the invoices for monthly interconnection services, please identify the specific cell in the 'Volume Input for TD' sheet where the demand is included.
- 61. In the 'Volume Input for TD' sheet of the Fixed Module, among other things, LIME uses the line volumes of the ADSL and Direct Connect services to estimate an assumed usage in terms of minutes. In order to help the Authority to evaluate the assumed usage volume and any recent trends in the Cayman market, provide, by month for each of the last 36 months:
 - a. the number of active LIME provided permanent broadband internet connections in service,
 - b. the average monthly download usage in Gbytes per in-service LIME provided connection, and
 - c. the average monthly upload usage in Gbytes per in-service LIME provided connection.

62. In the 'Volume Input for TD' sheet of the Fixed Module LIME convert line volumes of the services 900-ADSL RETAIL, 900-ADSL WHOLESALE, 900-DIRECT CONNECT, 900-DOMESTIC LEASED CIRCUITS RETAIL, 900-DOMESTIC LEASED CIRCUITS WHOLESALE, 900-MPLS IP-VPN QoS RETAIL, 900-MPLS IP-VPN QoS WHOLESALE, 900-INTERNATIONAL LEASED CIRCUITS RETAIL, 900-INTERNATIONAL LEASED CIRCUITS WHOLESALE to minutes equivalent.
- a. For each of the services listed above, identify whether or not LIME provides the service on a guaranteed transmission speed availability basis (that is, a customer has a specified capacity always available regardless of whether or the customer actually uses that capacity.)
 - b. The formula used to convert 2Mbps line equivalents to minutes (i.e. a conversion from a data service to a voice service) is found in the Demand Calculations sheet cell C4 and uses information on 1) the % of traffic in busy hour, 2) a conversion factor for minutes to erlangs and 3) the number of 64kbps channels in a 2 Mbps link. Provide a detailed explanation for the reasonableness of this conversion factor given that the resultant converted minutes is used to allocate the costs of certain network elements that share data and voice services where the demand for voice services is measured in total annual minutes and given that some of the data transport services are sold as capacity that is available at all times regardless of any actual traffic.
 - c. LIME's data transport services (such a DPLC's and IPLC's) are typically provided on a circuit basis with each circuit set at a specific capacity ranging from 56 Kbps to 1000 Mbps. Provide a breakdown of the column Y "Volume - Lines" data for each of the above listed data transport services by the specific tariff item (or service offering name where tariff item is not available) and specific circuit data speed. For example, the breakdown of the data for circuits counted in the "900-DOMESTIC LEASED CIRCUITS RETIAL" would likely identify some quantity of circuits as being provided under Tariff Item 502 and for those, separately for each speed, the data transport speed at which they are provided (one of the 64 Kbps, 512 Kbps, 1024 Kbps, 1.5 Mbps, etc. as listed in the tariff.)
 - d. Provide a detailed description of the methodology used to develop the Column Z "Volume - Minutes" values for the data

transport services considering that the lines are provided at various speeds. The Authority notes that the Column Z "Volume - Minutes" values for these services are calculated based on values in Column AA, but those Column AA values are input value and don't appear to use the values in Column Y "Volume - Lines".

63. In its 2 October 2012 letter, LIME indicated that the Fixed Termination Rate ("FTR") was taken from cell F44 of the 'Fixed Service Costs' sheet and that the transit rate was taken from cell H44 of that sheet. However, F51 and H51 of that sheet also lists service unit costs for those two service and are different from the rates stated in LIME's letter as the reflect a bad debt adjustment. Confirm that LIME is proposing to use the rates from cells F44 and H44 for the FTR and transit rates respectively. In addition, please provide a detailed rational for excluding those bad debt costs from the calculation of the FTR and transit rates.
64. In the Asset Expense Factors sheet of 'Appendix IV-FAC-TD Values 10_09_01_rev2 – Conf.xls', LIME provides various Gross Book Values (GBV) of Freehold Technical Infrastructure, Furniture and Fittings, Computers, Customer Apparatus, Building Infrastructure, Vehicles. These asset values are annualised and allocated as Support Assets in the Fixed Module.
 - a. Confirm the appropriateness of the GBV values used given Principle 3 determined by the Authority in ICT Decision 2005-4 states: "*The forward-looking long-run incremental costs of services or network elements are to be based upon those costs assumed to be incurred by an efficient carrier operating in the Cayman Islands for the first time. A carrier is deemed to be efficient where the total capital and operating expenditures are those that are necessary and sufficient in order to meet the required demand at a particular grade of service.*"
 - b. The GBV's are annualised assuming the following asset lives: Freehold Technical Infrastructure 40 years, Furniture and Fittings 10 years, Computers 5 years, Customer Apparatus 5 years, Building Infrastructure 7 years and Vehicles 4 years. These asset classes differ from those used in the Fixed Module in the 'Asset Lives' sheet. Explain how the assumed asset lives for the above asset classes are consistent with those used in the Fixed Module.