DRAFT

IMPUTATION TEST GUIDELINES

REPUBLIC OF LIBERIA

Liberia Telecommunications Authority

{INSERT DATE}

TABLE OF CONTENTS

1. PREAMABLE

1.1. Article 11 (1) (m) of the Telecommunications Act 2007 (the "Act") instructs the Liberia Telecommunications Authority ("LTA") to institute and maintain appropriate measures for the purpose of preventing service providers from engaging in or continuing anti-competitive practices, including the identification of telecommunications markets, determining dominance and abuse of dominance in identified telecommunications markets and responding to anti-competitive agreements.

1.2. Article 27 (1) of the Act; specifies that the duties and responsibilities of the LTA regarding the competition provisions in Part VII of the Act, including to:

> (e) monitor and prevent abuse of a service provider's dominant position, pursuant to Section 28;
>
> (f) monitor and prevent practices that would restrict competition, in accordance with Section 29;

1.3. Article 28 of the Act prohibits certain actions or activities by dominant service providers including any activity that has the effect or is likely to have the effect of materially restricting or distorting competition in a telecommunications market.

1.4. Section 28 (h) (i) prohibits dominant service providers from deliberately reducing the margin of profit available to a competitor that requires wholesale (upstream) telecommunications services, by increasing the prices for the wholesale services required by the competitor, or decreasing the price of the retail (downstream) telecommunications service in markets where they compete, or both.

1.5. Article 29 of the Act prohibits certain actions or activities by any service provider, dominant or not, that restricts or distorts competition in telecommunications services.

1.6. Article 30 of the Act confer to the LTA the authority to investigate any person for the purpose of determining whether an action or activity of a person constitute an abuse of dominant position under Section 28 of the Act or an anti-competitive practice under Article 29 of the Act.

1.7. The LTA has also issued Competition Guidelines, which set out the principles and procedures that it will follow in reviewing competitive conditions within any telecommunications market in Liberia, and how it will implement competition policy.

1.8. The Competition Guidelines state that the LTA will find a dominant vertically-integrated firm has engaged in a margin squeeze if the evidence demonstrates that:

> 5.7.2(a) it is dominant in the supply of an essential input for the downstream market where it competes with other service providers; and
>
> 5.7.2(b) it has set such a low margin between its (upstream) wholesale price and the price it sets for its (downstream) retail services that an efficient downstream competitor may be forced to exit the market or be unable to compete effectively.
>
> 5.7.3(a) it charges its retail competitors a higher price for its wholesale essential input than it charges to its retail operation; or

5.7.3(b) it charges such a low price for its retail services that it leaves insufficient margin for efficient retail rivals to compete effectively; and

5.7.3(c) the sale to its retail competitors of the essential input in the (upstream) wholesale market at such a high price, or the sale of its retail downstream product at such a low price has restricted, or is likely to restrict competition or future entry from efficient rivals in the downstream market.

2. PURPOSE

2.1. These guidelines set out the principles and procedures that the LTA will follow in determining whether a vertically integrated service provider that is dominant in one or more upstream markets (dominant VISP) has engaged or is engaged in a margin squeeze. In particular, these guidelines set out the methodology that would be applied by LTA in the application of an Imputation Test, also referred to as a Margin Squeeze Test.

2.2. While the LTA anticipates pursuing the methodology set out here as consistently and predictably as possible. No methodology can anticipate the complexity and parameters that may be relevant for individual cases, and the LTA reserves the right to consider other analytical approaches and factors not set out in these guidelines.

3. CONCEPTS

3.1. Introduction

3.1.1. The LTA may conduct an Imputation Test to identify and design remedies for cases where a dominant VISP is abusing its dominance in one or more upstream markets in order to achieve anti-competitive effects in one or more downstream markets.

3.1.2. The Imputation Test may be interpreted in one of two ways: as assessing whether the downstream price set by a dominant VISP is sufficiently above the upstream price to allow

- the VISP to be profitable in the provision of the downstream service if it sold the upstream service to itself at the same price, or
- equally efficient non-vertically integrated service providers to compete profitably in the downstream market.

3.1.3. This section defines the concepts that are necessary for a fuller understanding of the application of the Imputation Test.

3.2. Forms of Anti-competitive pricing

3.2.1. Although these guidelines concern only the assessment of a margin squeeze, the LTA believes that it is useful for understanding of such not only define the terms applicable to margin squeeze, but also those of predatory pricing and cross-subsidies. Indeed, these forms of anti-competitive pricing are related concepts, with both significant similarities and differences.

3.2.2. As defined in the Competition Guidelines, predatory pricing is the act of a dominant service provider selling services at prices below cost, incurring short-term losses with the intention of foreclosing a competitor from the market and recouping its losses through higher prices in the future.

3.2.3. As defined in the Competition Guidelines, cross-subsidy is the act of a dominant service provider using profits from the sale of service or products in a market not subject to effective competition to cross-subsidize the price of a product or service in a competitive market with the objective of lessening competition.

3.2.4. Margin squeeze, predatory pricing and anti-competitive cross-subsidy share a number of characteristics. Firstly, the behaviors are all motivated by the objective to exclude competition. Secondly, the service provider engaging in this behavior must be dominant in order for the action undertaken to be effectively exclusionary. While non-dominant players can use a pricing strategy to gain market share, they cannot by definition force dominant players out of the market. Thirdly, the instrument of exclusion is an unduly low sales price.

3.2.5. There are significant ways in which these forms of anti-competitive pricing are distinguished from one another. Firstly, in the margin squeeze case, the dominant service provider must be vertically integrated with the power for anti-competitive abuse arising from dominance in the upstream market. In the predatory pricing and cross-subsidy case, no vertical integration is required. In the cross-subsidy case, market power is leveraged from another market into a competitive one, but it is an “unrelated” market.

3.2.6. Secondly, in the margin squeeze and cross-subsidy case, the dominant service provider may not necessarily be making losses through its pricing behavior as it is the case with predatory pricing. In the case of margin squeeze, the firm may be making super-normal profits in its upstream business that offset its losses in its downstream business. In the cross-subsidy case, the dominant service provider using super normal profits in the “unrelated” market in which it is dominant to fund loss-making prices in the competitive market.

3.2.7. Thirdly, consumers are not necessarily benefiting in the short-run from the pricing in the margin squeeze and cross-subsidy cases. In a predatory pricing case, the dominant service provider is selling at a loss, which is benefit to consumers. In the margin squeeze case, downstream prices may not be low. In the cross-subsidy case, although the price in the competitive market may be lower than cost, there is offsetting higher priced services in the market without effective competition.

3.2.8. Fourthly, in a margin squeeze case the LTA will be not be examining all the costs of service provision, it will take the upstream price as the *imputed* costs of the upstream service and only examine the downstream costs. In the case of the cross-subsidy, the LTA will be examining not only all the costs of the competitively provided service, but that of the service providing the subsidy.

3.2.9. Finally, the remedies to address the anti-competitive behaviors differ. In the predatory pricing case, the remedy is to require the downstream price to be increased so that it covers costs. In the case of cross-subsidy, the below-cost price will certainly be required to increase, but price controls on the product or service on the non-effectively competitive market may be regulated as well to eliminate the source of the cross-subsidy. In certain cases, the LTA may require functional or structural separation of the two businesses serving each market to enable transparent and non-discriminatory arrangements to be established. In the margin squeeze case, the dominant service provider may be required to either lower its upstream price, raise its downstream prices or some combination of the two. Functional or structural separation of upstream and downstream business may also be a remedy chosen by the LTA.

These characteristics differentiating these forms of anti-competitive pricing are illustrated in Table 1 below.

Table 1: Differentiating Characteristics of Forms of Anti-competitive Pricing

	Form of Anti-competitive Pricing		
Differentiating Characteristic	*Predatory Pricing*	*Cross-subsidy*	*Margin Squeeze*
Vertical Integration	Not necessarily	Not necessarily	Yes
Firm loss-making?	Yes	Not necessarily	Not necessarily
Consumer Benefit	Short-term benefit	Not necessarily	Not necessarily
Focus of cost analysis	All costs of loss-making service	All costs of loss-making service and service(s) providing cross-subsidy	Downstream service costs
Possible Remedy	Price floor for loss-making service	Price floor for subsidized service; price cap for service(s) providing subsidy; business separation	Price floor for downstream service and/or price cap for upstream service; business separation

3.3. Relevant Markets

3.3.1. A pre-condition to carrying out an Imputation Test is that one or more service providers are determined to have market power on a relevant upstream market. The relevant downstream market may or may not be determined to exhibit dominance.

3.3.2. Before applying the Imputation test, relevant markets will be identified and market power assessed. The identification of relevant markets and market power assessment are described in sections 3 and 4, respectively, of the Competition Guidelines.

3.3.3. As indicated above, if margin squeeze is found to have occurred or is occurring, the LTA may choose remedies that relate to either or both upstream or downstream markets. Therefore, although the relevant downstream market may have been found to be competitive, the LTA may choose to regulate the downstream prices of the service provider that is dominant on the upstream market.

4. Method of Assessing a Margin Squeeze

4.1. Scope of the Test

4.1.1. The LTA will design the Imputation Test with reference to the relevant market. It may apply a test to a subset of service in that market if that subset is significant in revenue terms or the competitors have no option of shifting there commercial focus to other areas within the relevant market. In other words, the LTA will not apply the test to a subset of the relevant market if the competitive effects of a margin squeeze on that market subset are not deemed significant.

4.2. General Form of the Test

4.2.1. The general form of the Imputation Test (hereafter "the General Form") the LTA will apply is: $P_d - P_u >= C_r$, where

- P_d is the price of the downstream (retail) service of the dominant VISP
- P_u is the price of the upstream (wholesale) service of the dominant VISP
- C_r is the unit costs associated with transforming the upstream service into the downstream service ("retail" costs).

The difference between the downstream price and upstream price (the margin) must be equal or greater than the downstream costs.

4.2.2. When the downstream service is comprised of more than one product or separately priced components, the prices and costs in the General Form may represent a weighted average prices and costs of a number of products or components. The downstream products and services included in the test are determined by the Scope of the Test. The weights for determination of the weighted average may be the proportion of revenues making up each product or service in the total relevant market or subset of the relevant market.

4.2.3. Similarly, there may be more than one upstream product or service to be considered in the analysis. Consideration should also be given to the fact that there may be several alternative means to purchase an upstream input from the vertically-integrated service provider (e.g., dark fibre vs. leased line) and therefore a number of variants of the Imputation Test may be required.

4.2.4. “Retail costs” is a summary term used to indicate all additional costs incurred to transform the upstream service into a downstream service. As such they include costs that are not strictly “retail” in nature. Care must be taken to include all costs involved in the provision of the relevant downstream product or service.

4.3. Cost Base: Equally Efficient Operator vs. Reasonably Efficient Operator

4.3.1. As indicated in paragraph [3.1.2], there are different interpretations of the margin squeeze. In particular it may be viewed from the perspective of the dominant VISP or an reasonably efficient competitor. Given the challenges in obtaining cost information in the Liberian market, the LTA will choose which interpretation to apply based on availability of cost data.

4.3.2. If the LTA is satisfied that it has adequate information on the dominant VISP’s costs it may assess whether the downstream service of an equally efficient operator would be profitable when paying the upstream price paid by its downstream competitor. This application is referred to as the “Equally Efficient Operator” (EEO) Test.

4.3.3. If the LTA must rely on information from actual or hypothetical competitors, it may apply the Reasonably Efficient Operator (REO) test. The REO will take into account that costs incurred by a reasonably efficient competitor may be greater than the costs of the dominant VISP.

4.3.4. It is noted that even when the LTA chooses to apply the EEO, it may make adjustments in the interests of promoting competition in the market in the long term. For example, if the LTA believes that certain costs are absent when the dominant VISP undertakes provision of the downstream service, but are unavoidable when undertaken by competitors, the LTA may include such costs in its assessment. Examples of such costs are the costs of establishing and maintaining interconnection links and co-location. The LTA may also take economies of scale and scope into consideration (section 4.5 below).

4.4. Cost Base: Measuring Costs

4.4.1. There are several cost standards that might be chosen to measure downstream costs-- Average variable costs (“AVC”), long-run incremental costs (“LRIC”), or “LRIC+”:

- AVC considers only short-term variable cost. It considers the average variable cost across the total volume of service offered; therefore, it is not a marginal cost concept. It excludes consideration of long-term capital-related cost as well as any other fixed costs.
- LRIC is the cost that is specifically caused by the production of the product or service in question. It is cost that the service provider would avoid if it stopped the production of that product or service. The LRIC cost exceeds AVC as it includes both variable and fixed costs.
- LRIC + is the LRIC measure plus some proportion of common cost. A firm recovering only LRIC across all its services would not be covering its full cost as "pure" LRIC does not include any costs that are incurred across services. "LRIC+" exceeds "LRIC" by the amount included to allow for a share in the recovery of these common costs.

4.4.2. LTA considers that LRIC is the best choice for use in an Imputation Test. It is the minimum cost that must be faced in the long-term. A downstream price that recovers the upstream price and the unit LRIC of the downstream activity earns the service provider a profit. A price below the sum of the upstream price and unit LRIC is unsustainable in a competitive market in the long-term.

4.4.3. If the LTA believes, however, that the relevant market is so broad that the service provider under question could not earn sufficiently to recover its common costs in another market or markets, it may apply a LRIC+ standard.

4.5. Economies of Scale and Scope

4.5.1. In some case, it is possible that the dominant VISP enjoys significant economies of scale in comparison with competitors. In terms of the General Form of the test these economies may be reflected in either or both of the P_u or C_r variables. In terms of P_u, the dominant VISP may offer volume discounts for its upstream services. In terms of C_r, its scale may lower its unit costs significantly below what its smaller competitors may face.

4.5.2. Similarly, when the dominant VISP is active in several markets whereas its competition has a more narrow focus, the former can benefit from lower unit costs (e.g., economies of scope). Lower unit costs arise from the ability to spread common costs across more products. This benefit may be attenuated if the LTA applies a pure LRIC approach to the cost base as indicated in paragraph 4.4.2.

4.5.3. Under these conditions applying the EEO approach, while promoting efficiency, may not induce a sufficient level of competition in the long term. The LTA may therefore make adjustments to the EEO approach to effectively eliminate the economies of scale and scope advantages, or apply the REO approach.

4.6. Treatment of Revenue

4.6.1. When considering the revenue associated with the relevant product or service, the LTA may either calculate revenue by multiplying an appropriate level and mix of component volumes and prices associated with such volumes, or, when available, use product or service revenue directly.

4.6.2. Downstream products and services may be made available at different prices over time: at standard rates, temporarily discounted rates and volume discounted rates.

4.6.3. In its evaluation of revenue, LTA will take into consideration all promotions and discounts offered by the dominant VISP on the price of the downstream product or service.

4.7. Bundled Products

4.7.1. When two or more products are sold together, the LTA will apply an "aggregate" Imputation Test, which captures the price and cost of the bundled service in total. Addressing a bundle in aggregate avoids having to allocate any fixed costs or revenues that are shared across the component products.

4.7.2. An aggregate test can often be applied in the same manner as the General Form, with the modification that the price and cost information will include a sum of the prices and costs relating to the various products within the bundle. In this case, the General Form is modified as follows[1]:

$P_{d1,2} – P_{u1} - P_{u2} >= C_{r1} + C_{r2}$, where

- $P_{d1,2}$ is the price of the downstream (retail) bundled service of the dominant VISP
- P_{ui} is the price of the upstream (wholesale) service *i* of the dominant VISP
- C_{ri} is the unit costs associated with transforming the upstream service into the downstream product *i*.

4.7.3. If the upstream services are used in the production of both downstream services and retail costs are shared between the downstream services, then the formula can be written as

$P_{d1,2} – P_{u1,2} >= C_{r1,2}$

4.7.4. There are cases in which bundles pose particular challenges for testing for anti-competitive effects. Most significantly, there is the case in which competitors cannot supply all the products within a bundle offered by the dominant VISP. For example, the dominant VISP might possess both a mobile network and a high-speed internet infrastructure capable of delivering IPTV. In this case the dominant VISP might offer a bundle of mobile (product 1) and IPTV (product 2) services. Assuming its competitors have only a mobile network

[1] Here we present a two product bundle, but the formula can be generalized for more products

and no access to the high-speed IP infrastructure, the competitors are at a particular competitive disadvantage. In these circumstances the LTA may require that the margin on the bundled service of the dominant VISP be sufficiently high to cover the retail costs and the price of the cable services available to end-users on an unbundled basis. Or stated differently, it may require the bundled price of the dominant VISP be sufficiently high that the price would be equivalent to the sum of a) the price a mobile service sourced from an efficient competitor, and b) the unbundled price of IPTV services.

4.7.5. In a formula, this is represented as

$P_{d1,2} - P_{u1} >= P_{d2} + C_{r1,2}$, or

$P_{d1,2} >= (P_{u1} + C_{r1,2}) + P_{d2}$

4.7.6. This constraint would enable competitors to replicate the offering made by the dominant VISP profitably: they would be able to sell to their customers mobile services at a competitive price, while their customers would be able buy IPTV service from the dominant VISP for the same combined price or less than the bundled VISP offering.

4.8. Time Horizon

4.8.1. When the relevant market the LTA is examining is a mature market, it may use the latest available data for costs, prices and revenues in the test.

4.8.2. For new product markets or for markets experiencing rapid growth, the use of historic, even recent, costs could lead to inaccuracy in the calculation of expected margins. Therefore, in markets where historic costs are likely to be significantly different from future costs, it may be more appropriate to perform the Imputation Test based on forward-looking costs.

4.8.3. The period used to make such forward-looking analysis may vary. It could reflect the useful life of assets used in the production of the products or services or the expected lifetime of a customer contract. The LTA will use its choose the time horizon based on the most reasonable assumption of commercial behavior in the case.

4.8.4. If the period for calculation of the costs and revenues in the Imputation Test cover a period of over one year, the LTA will use a discounted cash flow (DCF) approach to take into account the net present value of the flow of costs and revenues over time. The General Form of the test will then be reinterpreted in terms of a DCF analysis.

4.8.5. In order to support investment in the provision of products, service providers must be able to generate adequate profit on the service they provide. However, the products offered by service providers will not necessarily be profitable in the first years of their launch. Therefore, the LTA will consider, where appropriate, justifiable losses related to the launch of a product.

4.9. Failure of Test

4.9.1. Failure of the Imputation Test is a necessary, but not sufficient condition to demonstrate a service provider has been or is behaving anti-competitively. The examples for which an Imputation Test might be failed for reasons other than anti-competitive behavior include market conditions leading to short-term price reduction, the dominant VISP may have introduced a new product and currently have low volumes, but expects volumes to increase; a competitor may be charging unsustainable prices; etc. Such transitory conditions will need to be examined to understand anti-competitive intent and effect. Imputation Test in most cases can be revised to avoid failure arising from transitory circumstances.

4.9.2. The LTA will also assess whether the margin squeeze causes material ham to competitors. If no such harm is caused, no remedy need to be imposed.

5. Procedure

5.1. The LTA will, in due course, prepare and consult on a formal Regulation that, when adopted, will establish procedures to be followed by the parties to competition-related proceedings, including the application of these Imputation Guidelines, and by the Authority when enforcing the rules explained in these Guidelines.