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**GUIDELINES ON NON TECHNICAL QUALITY OF SERVICE PARAMETERS OF ICT SERVICES IN THE EACO MEMBER STATES**

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**QUALITY OF SERVICE PARAMETERS FOR SUPPORTING SERVICE ASPECTS**

# INTRODUCTION

The regulation of Quality of Service (QoS) provided by communications providers has received increasing attention from regulatory authorities over the past few years. One obvious reason is that the provision of modern and high quality communications services is in the interest of consumers, businesses and the economic development of any country. Furthermore, the debate on QoS has gained in importance due to the introduction of competition in the communications sector in Africa, regional initiatives which aim at increasing the availability of borderless communications services, and recent discussions in many African countries on consumer rights and effective consumer protection in communications and other public services.

Currently, a lot of studies are being carried out on Quality of Service requirement for telecommunications services. Many of these are mainly concerned with the technical parameters required to ensure that users get the services they request for with acceptable and are able to use the services without much problems. This document on the other hand tries to focus on quality of services of those support service aspects necessary for customer service management.

# SCOPE OF WORK

This Guideline deals with the quality of service (QoS) parameters that could be of primary interest and concern to the customers and users of ICT services who wish to compare performances of service providers (SPs) of ICT services during the non-utilization stages of such services and secondarily to regulators and service providers.

All other guidelines that cover service-specific performances usually apply to services when they are in actual use. However the services surrounding ICT services offered by service providers that are outside the actual usage of services would be of interest and concern to the users. Quality and content of information on a service and its features, the contractual conditions offered by the service provider, provisioning facilities, and service support after contract with customers are examples of non-utilization stages of ICT services that could be of concern to the users. This guideline identifies non-utilization stages and lists a number of QoS parameters from which a selection may be made for the customer to assess the performance of the provider.

# ACCRONYMS

QOS: Quality of service

 ETSI: European Telecommunications Standardization Institue

ICT: Information Communications Technologies

SP: Service Provider

# DEFINITIONS

**Cessation:** All activities associated with the cessation of a service by a service provider from the instant a contractual agreement is in force between the customer and the service provider to the instant all hardware and software associated with the service is made inoperative and/or removed from the customer's premises.

**Charging:** [ITU-T E.800]: The set of functions needed to determine the price assigned to the service utilization.

**Customer:** A user who is responsible for payment for the services.

**Measure**: A unit by which a parameter may be expressed. Example: Waiting time for provision of a service may be expressed as calendar or working days.

**Parameter**: A quantifiable characteristic of a service with specified scope and boundaries.

**Quality of Service (QoS):** Totality of characteristics of a telecommunications service that bear on its ability to satisfy stated and implied needs of the user of the service.

**Service Provider**: An organization that provides services to users and customers.

**Opinion Rating (OR)**: OR is a quantitative value (a number) assigned to a qualitative performance criterion on a predefined rating scale to reflect the merit of that criterion to a user or customer.

# PARAMETERS

## Customer Complaint Submission Rate

## Brief description

The number of customer complaints received by an operator per customer per reporting period.

* + 1. **Measurement method**

A customer complaint is an adverse comment about a service (other than a fault report) that is made by a customer. A customer complaint about a retail service may be submitted in a customer service call, by personal contact at a customer service centre or in writing. A customer complaint about a wholesale service must be submitted in writing.

|  |
| --- |
| $$CustomerComplaintSubmisionRate\left[\%\right]$$$$= \frac{NumberofComplaintsReceivedDuringthePeriod×100\%}{AverageNumberofActiveCustomersduringthePeriod}$$ |

*where;*

1. *the average number of active customers is the mean of the numbers of active customers at the beginning of the reporting period and the end of the reporting period;*
2. *the active customers are the customers that have not been disconnected from the network (even if they have not recently used or paid for the service).*

Separate numbers might be provided as measurements for particular classes of customer complaint, depending on which problems are most pressing in the country; for those measurements there might be separate targets.

The measurements should include all customer complaints received during the reporting period for the reporting area, regardless of the validity, extent of repetition, and subject of the complaint.

Particular classes of customer complaint for which separate measurements are provided often relate to accounts and sometimes relate to disconnections. An account is a statement made in writing or otherwise about money owed or paid for a postpaid or prepaid service. A disconnection is a way of deliberately preventing a customer from using a service, by unplugging physical connections or otherwise.

* + 1. **Published measurement**

The number of customer complaints as a percentage of the number of active customers in the reporting period, rounded down to the nearest percentage point.

* + 1. **Retail target**

10% of the active customers for the service in the reporting period (and proportionately more if the reporting period is longer than 3 months)

For particular classes of customer complaint (such as those related to accounts), and particular types of service, separate targets might be set from within this overall target.

## Customer Complaints Resolution Time

* + 1. **Brief description**

This is the time taken to remove the causes for customer complaints.

* + 1. **Measurement method**

The time to resolve a customer complaint is the working time (not the elapsed time) from when the complaint is received by an operator to when the cause for the complaint has been resolved. In cases where peoplehavily depend on the services, then elapsed time becomes the preferred measure

The mean, standard deviation and 95th percentile of the distribution of times to resolve customer complaints, and the number of customer complaints resolved, should be provided as measurements. Separate numbers might be provided as measurements for particular classes of customer complaint, depending on which problems are most pressing in the country; for those measurements there might be separate targets.

The measurements should include all customer complaints resolved during the reporting period for the reporting area, regardless of the validity, extent of repetition, and subject of the complaint.

Particular classes of customer complaint for which separate measurements are provided often relate to accounts and sometimes relate to disconnections.

* + 1. **Published measurement**

The mean time in working days taken to resolve customer complaints in the reporting period, rounded down to two numerically significant figures

* + 1. **Retail target**

10 working days for the mean.

For particular classes of customer complaint (such as those related to disconnections), and particular types of service, the target might be made more demanding.

## Customer Service Call Answer Ratio

* + 1. **Brief description**

The proportion of successfully set up calls to the customer services of an operator that are answered fast enough.

* + 1. **Measurement method**

A customer service call is successfully answeredif, following successful setting up, it is answered in a suitable way within a suitable time from when the call is set up. Customer service calls include those for customer complaints, service requests, fault reports and help requests.

The number of customer service calls that are successfully answered should be divided by thenumber of customer service calls that are successfully set up. The result, and the numberof customer service calls that are answered in a suitable way and within a suitable time as a percentage ofthe number of customer service calls that are successfully set up should be provided as measurements.

A customer service call is being “answered in a suitable way” only if information valued by the customer has started to be provided; responses that just invite the customer to select items by voice or key are not regarded as providing such information. The “suitable time” is 40 seconds.

The measurements should be obtained from end-to-end test calls to customer services.

Much customer service takes place in response to personal contact in customer service centres, not through calls. However, the quality levels of customer service centres are difficult to assess objectively; for example, the time spent queuing in customer service centres is not on its own an adequate measure, because more, smaller, customer service centres might offer customers both shorter travelling times and longer queuing times than fewer, larger, customer service centres.

* + 1. **Published measurement**

The number of customer service calls that are successfully answered as a percentage of the number of customer service calls that are successfully set up, rounded down to the nearest percentage point.

* + 1. **Retail target**

90% of the number of customer service calls that are successfully set up (with 40 seconds as the “suitable time”).

## Service Supply Time

* + 1. **Brief description**

The time taken to provide a service in working order in locations where the service is offered.

* + 1. **Measurement method**

The service supply time is the working time (not the elapsed time) from when a service request is accepted by an operator to when the service has been supplied in working order. (The use of elapsed time instead of working time becomes appropriate when people depend very heavily on services.) A service request is a request to be supplied a service that is made by a customer. A service request about a retail service may be submitted in a customer service call, by personal contact at a customer service centre or in writing. A service request about a wholesale service must be submitted in writing.

Service requests that are unable to be fulfilled because the operator does not offer that particular service in the requested location are excluded. If the operator and the customer agree that more than one service will be provided at a location or that a service will be provided at more than one location, the provision of each service at each location should be counted as a separate service request. Otherwise, service requests concerning single physical connections should be counted as a single service request, regardless of the number of channels activated or affected; multiple analogue lines sharing the same physical path to a customer should be regarded as a single physical connection.

The mean, standard deviation and 95th percentile of the distribution of service supply times, and the number of service supply times, should be provided as measurements.

The measurements should include all service requests fulfilled during the reporting period for the reporting area.

Measurements are comparable with each other only if they give the same meaning to “a service in working order”; for wireless networks, for example, the meaning might relate to in-building signal strength (among other things).

* + 1. **Published measurement**

The mean time in working days taken to fulfil service requests in the reporting period, rounded down to two numerically significant figures.

* + 1. **Retail target**

5 working days for the mean.

For particular types of service, the minimum standard might be made more demanding and the target may be set within the overall budget..

## Fault Report Submission Rate

* + 1. **Brief description**

The number of valid fault reports received by an operator per customer per reporting period.

* + 1. **Measurement method**

A fault report is a report of disrupted or degraded service that is made by a customer. A fault report about a retail service may be submitted in a customer service call, by personal contact at a customer service centre or in writing. A fault report about a wholesale service must be submitted in writing.

Faults traced to other networks or to customer equipment behind network termination points are excluded (though, of course, the appropriate operators and users should be notified). Fault reports that are not valid are excluded. Faults reported for single physical connections should be counted as a single fault, regardless of the number of channels activated or affected; multiple analogue lines sharing the same physical path to a customer should be regarded as a single physical connection.

The number of valid fault reports received during the reporting period should be divided by the average number of active customers for the service during the same period; for this purpose, the average number of active customers is the mean of the numbers of active customers at the beginning of the reporting period and the end of the reporting period, and the active customers are the customers that have not been disconnected from the network (even if they have not recently used or paid for the service). The result should be provided as a measurement. Separate numbers might be provided as measurements for particular classes of fault report, depending on which problems are most pressing in the country.

Fault reports should be assumed to be valid unless there is a specific reason to consider that they are not valid. Fault reports for which the faults are found to be cleared when tested should be counted as valid unless the operator has reason to believe that the faults did not occur. Multiple customer reports about the same fault should be regarded as separate fault reports.

* + 1. **Published measurement**

The number of valid fault reports as a percentage of the number of active customers in the reporting period, rounded down to the nearest percentage point.

* + 1. **Retail target**

10% of the active customers for the service in the reporting period (and proportionately more if the reporting period is longer than 3 months)

For particular types of service, the minimum standard might be made more demanding.

## Fault repair time

* + 1. **Brief description**

The time taken to restore a service to working order after receiving valid fault reports.

* + 1. **Measurement method**

The fault repair time is the working time (not the elapsed time) from when a valid fault report isreceived by an operator to when the service has been restored to working order. (The use of elapsed time instead of working time becomes appropriate when people depend very heavily on services.)

The mean, standard deviation and 95th percentile of the distribution of fault repair times, and the number of fault repair times, should be provided as measurements.

The measurements should include all faults cleared during the reporting period for the reporting area, but exclude those traced to other networks or to customer equipment behind network termination points where the operator has not been told that the faults have been cleared.

Measurements are comparable with each other only if they give the same meaning to “a service in working order”; for wireless networks, for example, the meaning might relate to in-building signal strength (among other things).

* + 1. **Published measurement**

The mean time in working days taken to clear faults in the reporting period, rounded down to two numerically significant figures.

* + 1. **Retail target**

2 working days for the mean.

For particular types of service, the target might be made more demanding.

## Value-Added Service Call Answer Ratio

* + 1. **Brief description**

The proportion of successfully set up calls to value-added services that are answered fast enough.

* + 1. **Measurement method**

A value-added service call is successfully answered if, following successful setting up, it is answered in a suitable way within a suitable time from when the call is set up. The term “value-added services” covers operator assistance, directory assistance, emergency assistance, voice mail and dial-up internet access, as well as commercial shared cost and shared revenue content services. The number of value-added service calls that are successfully answered should be divided by the number of value-added service calls that are successfully set up. The result, and the number of value-added service calls that are successfully set up, should be provided as measurements.

Separate numbers should be provided as measurements for particular value-added services, depending on which problems are most pressing in the country; for those measurements there might be separate targets.

The measurements should be obtained from end-to-end test calls to value-added services.

* + 1. **Published measurement**

The number of value-added service calls that are successfully answered as a percentage of the number of value-added service calls that are successfully set up, rounded down to the nearest percentage point.

* + 1. **Retail target**

90% of the number of value-added service calls that are successfully set up (with 40 seconds as the “suitable time”).

For particular types of service (such as emergency assistance), the target might be made more demanding, typically by reducing the “suitable time” (perhaps to 10 seconds).

## Pricing Transparency

* + 1. **Definition of the parameter**

Pricing transparency of an ICT service is characterized by clarity, conciseness and unambiguity in every tariff structure for all usage conditions for every service provided by the SP.

* + 1. **Explanation of the definition of the parameter**

Pricing information should state clearly the rules for the calculation of the amount the customer has to pay under specified conditions of use and for exceeding the conditions, e.g., exceeding the usage time where there is limited allocation for a given tariff. The pricing structure should include all usage conditions.

* + 1. **Equation**

where

 OR is the mean opinion rating, with ORi(*i* = 1…N) being the individual opinion ratings for the N members of the audit panel.

 *i* Index of expert/customer.

 *N* Number of experts/customers in the panel.

* + 1. **Measurement**

Opinion rating (OR) as defined in clause 4.9.

* + 1. **Specific description of evaluation**

Opinion rating is perhaps best carried out by an expert panel. The number of members in the panel is at the discretion of the stakeholder(s).

Examining if there is a significant difference between the opinion of the expert panel and that of the public is recommended for services where there is likelihood of such difference. The two sets of ratings (expert panel and consumer survey) could complement each other and provide assurance to the potential customers. Opinion ratings based on the feedback from end-customers may be taken into account to adjust both sources of rating information.

Expertise required in the panel is technical familiarity with the use of the service or type of services.

Precondition: preliminary information is delivered.

* + 1. **Presentation of parameter values**

Opinion rating of the expert panel should be presented with an indication on the distribution of the members' individual scores taking into account the various types of services. The mean value should be given as a synthetic indication.

Where the opinion of the public has also been taken into consideration the OR of both the public and the expert panel should be published.

Results should be provided on a regular basis with a clear indication on the panel composition and size.

A chart can be used to display the results of the various types of services.

## Integrity of Contract Information

* + 1. **Definition of the parameter**

True and fair view of pertinent information on supply, maintenance and cessation for a telecommunication service provided by a SP.

Contractual document describing the supply, maintenance and cessation for a telecommunication service by a SP shall be honest if it is clear, accurate, complete, understandable, unambiguous and the language, phrasing and expressions chosen are aimed at maximum understanding for the target customer segment.

* + 1. **Explanation of the definition of the parameter**

The contractual document lists all pertinent terms and conditions that affect both the customer and the SP. These include escalation procedures and any compensation schemes that may apply when the implied or agreed performance of the SP is not met.

The terms and conditions stated are both fair and reasonable to both parties.

* + 1. **Equation**

where

 OR is the mean opinion rating, with ORi(i = 1…N) being the individual opinion ratings for the N members of the audit panel.

 *i* Index of expert.

 *N* Number of experts in the panel.

* + 1. **Measurement**

Opinion rating (OR) as defined in clause 4.9.

* + 1. **Specific description of evaluation**

Preferably the opinion rating is carried out by an expert panel. The number of members in the panel is at the discretion of the stakeholder(s), which could be a regulator or any national institution that undertakes to provide responsible information to the users.

Expertise required in the panel is telecommunications law and technical familiarity with the use of the service. Members of the assessment team may be trained to professionally evaluate all aspects of the service.

There are three separate instances of integrity checks:

1) Normal or standard contracts reflecting the PI supplied,

2) The customized contract where the customer has asked for specific changes in the terms and conditions of the contract,

3) Amendments carried out after the standard or customized contract is signed.

The panel members should be trained to appreciate and assess the key points in a contract between the SP and a customer/user. The members ought to look specifically for compliance of the information provided in the PI with the information provided in the contract. They also ought to look for ambiguity, e.g., what has not been said being of relevance. The members will have an insight into the legal aspects of the use of this service or family of services to enable them to critically evaluate the legal aspects from the customer's and SP's viewpoint.

* + 1. **Presentation of parameter values**

The rating may be expressed as the mean of the members' individual ratings at specified periods. Histograms of the panel members' OR should be provided.

A chart can be used to display the results of the different available contracts.

## Successful Repairs Carried out within a Specified Period of Time

Ratio of the number of repairs successfully carried out to the total number of repair requests accepted by the SP within a specified period.

* + 1. **Explanation of the definition of the parameter**

Rate of repairs carried out successfully within a specified period of time.

A repair carried out is considered successful if the service is restored to its specification. This has to be agreed/confirmed by the customer.

If an additional fault is found (not reported but evident while carrying out repairs) these may also be repaired in the context of the reported fault.

It may well be that a service may fail again after some time for the same fault. This would be counted as a separate fault.

* + 1. **Equation**

where:

 *NR* Number of repair requests carried out successfully within a specified period of time.

 *NS* Number of repair requests.

* + 1. **Measurement**

The parameter is expressed as a percentage.

* + 1. **Specific description of evaluation**

Only repairs successfully completed at the first attempt should be counted. Repeated repairs are to be counted separately in the total number of repair requests.

Evaluation of this parameter can be achieved by:

• analysis by the QoSAP of data stored by the SP,

• survey of relevant customers.

* + 1. **Representativeness**

Customer survey may be carried out, where possible, on 100% of the customer population. Where customer population is large, a representative sample may be chosen that reflects the whole population, the geographical coverage and usage pattern.

* + 1. **Presentation of parameter values**

Although the basic parameter delivers a single percentage, it is expected to be processed on a regular basis so that higher aggregations of this parameter, depending on the sample size per assessed customer segment, can be represented in terms of:

• Histograms,

• Probability density function (PDF),

• Cumulative distribution function (CDF),

• Quantile values.

Results should be provided on a regular basis with a clear indication on the panel composition and size or/and volume of SP data reviewed.

A chart can be used to display the results for the various types of services on a monthly basis.

## Frequency of Outages (during network/service management by customer)

* + 1. **Definition of the parameter**

The number of times access to the network/service management facility was not available to the customer during a specified period divided by the duration of this period.

* + 1. **Explanation of the definition of the parameter**

Lack of access to the network/service management facility should be counted as one if the unavailability is greater than a pre-defined period. Additionally the times of each outage shall also be recorded.

This specified period(s) should be set on a service by service basis by the stakeholders, e.g., regulator or a national institution responsible for QoS of telecommunication services.

* + 1. **Equation**

The numerical value of the parameter can be counted as follows:

where (see Figure B.10):

 *Noutages* Number of outage periods in time period [*t*1, *t*2].

 *t*1 Start of observation period.

 *t*2 End of observation period.

* + 1. **Measurement**

Frequency, which is 1/Time, calculated as number divided by time and/or cumulative number of outages during the specified period of time as preferred by the customer(s).

# Other Relevant Parameters

* 1. **Punctuality of equipment delivery of service provisioning**

Time difference between the actual equipment delivery and the scheduled delivery announced by the service provider for the service provisioning.

Measured as: Time.

* 1. **Time for alteration of service**

Time elapsed from the instant alteration notification is received by the user to the instant the alteration is completed.

Measured as: Time.

* 1. **Successful service alteration within specified period**

Ratio (percentage) of the number of contracts (or services) with successful service alteration to the total number of contracts (or services) with announced service alteration within the contractual specified period of time

Measured as: Ratio or percentage.

* 1. **Time for technical upgrade of a service**

Time elapsed from the instant the technical upgrade period was announced to the user to the instant the technical upgrade was carried out.

Measured as: Time.

* 1. **Accessibility to technical support**

Ratio of the number of successful attempts to technical support to the total number of attempts to reach this support.

Measured as: Ratio or percentage.

* 1. **Technical solutions achieved within a specified period**

Ratio of the number of contracts with successful technical solutions applied, to the total number of contracts where solutions were sought and applied within the specified period.

Measured as: Ratio or percentage.

* 1. **Number of attempts before successful solutions**

Number of attempts before the technical request was successfully resolved.

Measured as: Number.

* 1. **Integrity of technical solutions**

Proportion of successful solutions with respect to the total number of requests within a specified period of time.

Measured as: Opinion rating.

* 1. **Reliability of technical solutions achieved**

Ratio of number of services that were trouble-free for a specified period of time after the technical solution was resolved, to the total number of services where the technical support was requested and implemented.

Measured as: Ratio or percentage.

* 1. **Accessibility of the commercial support**

Ratio of the number of successful access attempts to the commercial support to the total number of attempts to reach this support.

Measured as: Ratio or percentage.

* 1. **Commercial solutions achieved within a specified period of time**

Ratio of the number of contracts with successful commercial solutions achieved, to the total number of contracts where solutions were sought within a specified period.

Measured as: Ratio or percentage.

* 1. **Accessibility of the complaint management**

Ratio of the number of successful attempts to the total number of attempts to reach complaint management (CM) in a specified period.

Measured as: Ratio or percentage.

* 1. **Recognition of the customer complaints**

Ratio of the customer claims recognized by the SP as genuine complaints to the total number of potential complaints.

Measured as: Ratio or percentage.

* 1. **Complaint solutions not complete and correct first time**

Ratio of the number of complaints not successfully resolved at the first attempt to the total number of complaints received by the SP.

NOTE – The indicator for this parameter provides how well the SP has performed in the complete and correct handling of the customer complaint at the first attempt.

Measured as: Ratio or percentage.

* 1. **Integrity of complaint resolution**

Ratio of the number of complete and professional resolutions of the contributory causes of a complaint, to the total number of user complaints accepted.

Measured as: Ratio or percentage.

* 1. **Overall quality of the complaint management process**

The combined effect of accessibility of the complaint management service: correct solutions at the first attempt, speed of resolution and the organizational capability to carry out these services.

Measured as: Opinion rating.

* 1. **Accessibility of repair services**

Availability of hardware, software and staff resources necessary to restore a service (and its features) to its specified level of performance.

Measured as: Ratio or percentage.

* 1. **Repairs not complete and correct first time**

Ratio of the number of repairs which were not successfully carried out at the first (and only) attempt to the total number of repairs carried out during the specified period.

Measured as: Ratio or percentage.

* 1. **Efficiency of the repair services**

"Efficiency of the repair service" (mainly technical) of a SP is characterised by the combined performances of:

• accessibility,

• the number of repairs in a specified period of time,

• repairs carried out successfully the first time,

• punctuality.

Measured as: Opinion rating.

* 1. **Notification of root cause of outage**

Ratio of the number of repairs, the root causes of which were shared with the customer, to the total number of repairs carried out.

Measured as: Ratio or percentage.

* 1. **Accessibility of tariff information**

Ratio of the number of successful attempts to the total number of attempts to reach this facility located as indicated in the contract or regulations (access details to this facility to be provided by the SP).

Measured as: Ratio or percentage.

* 1. **Accessibility of the account management**

Ratio of the number of successful attempts to the total number of attempts to reach the account management.

Measured as: Ratio or percentage.

* 1. **Timeliness of bill delivery**

The ratio of the number of bills delivered within the bill expectation period divided by the number of bills expected within the observation period.

Measured as: Ratio or percentage.

* 1. **Outage duration**

The total time a network/service management facility was not accessible to the customer during a specified reporting period.

Measured as: Time.

* 1. **Response time for reply to requests**

The time elapsed from the instant customer requests access to the network/service management facility to the instant such a request was carried out.

Measured as: Time.

* 1. **Overall reliability of network/service management service**

The consistent combined performance of availability, response times, response rates, correctness and completeness in the processing and fulfilment of customer requests for network/service management facilities.

Measured as: Opinion rating.

* 1. **Reliability of planned outage notification**

Ratio of the number of advanced notification of planned outage to customers by a service provider to the total number of planned outage carried out.

Measured as: Ratio or percentage.

* 1. **Cessation acknowledgement time**

The time elapsed from the instant of sending the cessation request to the instant of receipt by the customer of the acknowledgment from the SP.

Measured as: Time.

* 1. **Cessation request acknowledgement**

The ratio (percentage) of the number of cessation requests that were acknowledged to the number of such requests made in a specified period.

Measured as: Ratio or percentage.

* 1. **Accessibility of the cessation facility**

The ratio (percentage) of the number of successful attempts to the total number of attempts to reach the cessation facility.

Measured as: Ratio or percentage.

1. **PROPOSAL PARAMETERS TO BE HORMONISED**

Among the identified parameters have been proposed the following indicators and a proposal to harmonize the goals

|  |  |  |
| --- | --- | --- |
|  | QOS parameters | Threshold |
| 1 | Customer complaint submission rate | 10% of the active customers for the service in the reporting period (and proportionately more if the reporting period is longer than 3 months) |
| 2 | Customer complaint resolution time | 10 working days for the mean. |
| 3 | Customer service call answer ratio | 90% of the number of customer service calls that are successfully set up (with 40 seconds as the “suitable time”) 90% of the number of customer service calls that are successfully set up (with 40 seconds as the “suitable time”) |
| 4 | Service supply time | 5 working days for the mean. |
| 5 | Fault report submission rate | 10% of the active customers for the service in the reporting period (and proportionately more if the reporting period is longer than 3 months)  |
| 6 | Fault repair time | 2 working days for the mean. |
| 7 | Value-added service call answer ratio | 90% of the number of value-added service calls that are successfully set up (with 40 seconds as the “suitable time”). |