

# **Measuring Authorised Operator Quality of Service Performance**

## **Consultative Paper**

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**October 2004**

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## **INTRODUCTION**

The Malta Communications Authority (MCA) is fully committed to promote the interest of consumers in respect of the quality of service in the provision of electronic communications services by authorised providers.

Under Maltese and EU legislation the MCA will collect performance information from certain operators in relation to a set of basic authorised services. The availability of impartial and comparable information regarding the performance of authorised service providers should enable consumers to make informed purchasing decisions. An operator can make numerous promises regarding the quality of services that it provides, but in many cases it is hard for the consumer to judge whether in reality the operator can maintain these promises. Therefore, easily accessible Quality of Service (QoS) indicators could be important for consumers when choosing or assessing a provider of electronic communication services quite apart from increasing the level of transparency in the Maltese Electronic Communications Market.

QoS results would be published periodically in a manner that would assist the consumer in comparing results with those of other operators in the market and also to international benchmarks.

In the early stages of this process, the MCA does not intend to set any specific targets for the minimum level of QoS parameters that would be expected to be achieved. Alternatively, the MCA is proposing the implementation of a framework whereby authorised providers of Electronic Communications Services (ECS) will be measured (benchmarked) against their counterparts in the European Union in accordance with internationally accepted standards and practice.

The results of this analysis will be published on an annual basis by the MCA and the market players for public scrutiny. On the other hand, the MCA will be monitoring these performance indicators and intervene only where there is a reasonable justification to do so based on the results of the analysis.

The objective of this consultation paper is to seek the views of stakeholders in setting out an approach that is designed in ensuring that the MCA has sufficient information to monitor the performance of authorised providers and to publish information in the public interest.

## **LEGISLATIVE BACKGROUND**

The recently published Electronics Communications Networks and Services (General) Regulations 2004, make several references to Quality of Service, particularly Articles 33 and 44. These Articles are based on the requirements of the Universal Service Directive (i.e. Universal Service Directive 2002/22/EC of the European Parliament and of the Council) as described below. With the completion of the market analysis warranted by the new regulations, it is envisaged that once the decision on Measuring Authorised Operator Quality of Service Performance is published, regulations 7 and 8 of LN151 of 2000; and regulations 7 and 8 of LN167 of 2000 will be repealed.

The Universal Service Directive (USD) establishes the European regulatory framework attributable to the collection and publication of QoS information. It states that quality of service and price are key components in the physiognomy of a competitive market; and National Regulatory Authorities (NRAs) should be able to monitor the performance of authorised providers, which have been designated with a Universal Service obligation. In relation to the quality of service standards achieved by such undertakings, NRAs should also be able to monitor the performance of other undertakings providing public telephone networks and/or publicly available telephone services to users at fixed locations.

Article 11 of the USD requires NRAs to ensure that universal service providers publish comparable and up-to-date information for end-users regarding the quality of their services. Article 22 of the USD requires NRAs to ensure that publicly available electronic communications services publish comprehensive, comparable and user-friendly information in the manner the said NRAs consider would be best suited for the purpose.

The establishment of QoS parameters, definitions and performance assessment by NRAs of undertakings designated with a Universal Service Obligation (USO), shall be based on the European Telecommunications Standards Institute guide (ETSI) EG 201 769 Quality of Service Parameters (Annex III of the USD). These standards can also

be applied to other market players of publicly available electronic communications services.

The ETSI document contains a series of harmonised definitions and measurement methodologies applicable to a range of user perceivable QoS parameters attributable to standard voice telephony service.

The purpose of these qualitative parameters is precisely to define objective and comparable measures in relation to the quality of services delivered to users/customers to be used by NRAs, as set out in the Open Network Provision (ONP) Voice Telephony Directive 98/10/EC. It is important to note that this document does not establish target values for QoS. The establishment of target values for QoS is beyond the scope of this consultative document.

## **ETSI PRINCIPLES FOR THE COLLECTION OF QOS DATA COLLECTION**

ETSI encourages that the following principles should be taken into account as far as practicable:

1. ONP QoS parameters should be easily understood by the public, and be useful and important to them,
2. All parameters are applicable at the network termination point,
3. Where measurements are possible they should be made on the customer's premises, using in-service lines,
4. To be as realistic as possible, real traffic rather than test calls should be used as a basis of the measurements, wherever possible,
5. Parameters should be verifiable by independent organisations. This process of verification could be effected through direct measurements or by auditing the service provider's systems of performance measurement,
6. The accuracy of QoS values should be set to a level consistent with the measurement methodology; which should be as simple as possible with the lowest cost,
7. The parameters are designed for both statistical and individual application. The statistical values should be derived by the application of a simple statistical function to the individual values. The statistical function should be specified in the standard and the standard should also include guidelines on the selection of statistically significant samples,
8. The statistical functions should be designed in a way that QoS figures originating from different service providers can be compared easily by users and most importantly by consumers

## **QUALITY OF SERVICE INFORMATION REQUIRED FROM AUTHORISED PROVIDERS**

During 2003 the MCA conducted preliminary consultations with the operators with the objective of notifying all authorised providers of their obligations at law, but also to establish clearly the QoS information that the operators have available within their operational management information systems. The MCA also pre-notified each operator of the publication of this Consultation Paper and its underlying objectives regarding performance targets, frequency of reporting, publication and auditing of information.

The MCA is proposing that Electronic Communications Services Authorised Providers would be requested to publish Quality of Services reports on a bi-annual basis for MCA and public scrutiny.

From the experiences of other NRAs in various European jurisdictions, it transpired that where the QoS information collected was too detailed, it has often resulted in very expensive setups (for both NRAs and the Operators) that failed cost-benefit tests quite apart from making it difficult for operators to comply with such obligations. The MCA is of the view that it is fundamentally important that the information collected, analysed and published is reasonable and meaningful to the consumer and to the industry in general. After all, the objectives underpinning the requirements of the Universal Service Directive are meant to improve where necessary, the delivery mechanisms of the various service offerings by operators and therefore the information requirements that would need to be requested from the authorised providers should help to achieve such an objective

### **Publication of results**

The MCA wants to ensure that the published (QoS) Performance Measurement Indicators are accessible by the public at large. The MCA proposes that these results should be published on the MCA website and the operators' own websites. QoS reporting will also be included in the Telecommunications Market Review published by the MCA every six months.



### **Fixed Telephony Services**

Maltacom, as the sole provider of a fixed Public Communications Network and Publicly Available Telephone Service, with a Universal Service Obligation, shall publish QoS information, bi-annually on the basis of the Quality of Services Parameters based on the ETSI guide EG 201 769 (Annex III of the USD), namely the following:

- Supply time for initial connection,
- Fault rate per access line,
- Fault repair time,
- Unsuccessful call ratio,
- Call setup time,
- Response time for operator services,
- Response time for directory enquiry services,
- Proportion of coin and card operated public pay telephones in working order,
- Bill correction complaints.

*Definitions of these parameters can be found in Annex 1 of this document.*

*Specimen Form for Fixed Telephony Services QoS Performance Report – Annex 2*

### **Mobile Telephony Services**

The MCA recommends that Mobile Telephony Networks and Services providers publish QoS information bi-annually based on the following Parameters:

- Unsuccessful call ratio,
- Call setup time,
- Response time for operator services,
- Response time for directory enquiry services,
- Bill correction complaints,
- Dropped call rate,
- Network geographical availability.

*Definitions of these parameters can be found in Annex 1 of this document.*

*Specimen Form for Mobile Telephony Services QoS Performance Report – Annex 3*

### **Leased Lines**

The MCA is proposing that Leased Line Service providers publish QoS information bi-annually based on the following parameters:

- Supply time for initial connection,
- Fault rate per subscriber,
- Fault repair time.

*Definitions of these parameters can be found in Annex 1 of this document.*

*Specimen Form for Leased Lines Providers QoS Performance Report – Annex 4*

### **Television and Radio Distribution Services**

The MCA is proposing that Television and Radio Distribution Services Service providers, which include Melita Cable plc to publish QoS results bi-annually on the basis of the following parameters:

- Supply time for initial connection,
- Fault rate per subscriber,
- Fault repair time,
- Response time for customer care services,
- Bill correction complaints.
- Network geographical availability

*Definitions of these parameters can be found in Annex 1 of this document.*

*Specimen Form for Television and Radio Distribution Services QoS Performance Report – Annex 5*

### **Other Electronic Communications Services**

Other Electronic Communications Services such as VoIP, is being dealt with through another Consultation Paper which was published on 28 July 2004.

## **AUDITING OF RESULTS**

The MCA reserves the right to independently audit the operators' information systems relating to the QoS parameters indicated above. The MCA appointed independent auditors could also be requested to confirm that the data capture processes for assembling QoS data are likely to ensure accuracy within a 3% range.

## **ENFORCEMENT PROVISIONS**

The pertinent legislative provisions empower the MCA to collect QoS information from the authorised providers within the frequency and detail as established by the MCA. Non-compliance with such obligations may Result in legal action taken against the defaulting operator as provided by the Electronic Communications (Regulation) Act, 2004 and subsidiary legislation.

## **CONSULTATION FRAMEWORK**

The MCA would like to invite comments from interested parties in relation to the various issues raised in this document. The consultation period will run until 12:00hrs on Friday 3 December 2004. Comments should be sent to:

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Written representations will be made publicly available at the MCA on request unless these are of a confidential nature. Respondents are therefore asked to separate out any confidential material into a clearly marked annex. Respondents are also kindly requested to refer their comments to the specific sections of this document.

## **ANNEX 1 – Definitions of Parameters**

**Supply time for initial connection\*:** The duration from the instant of a valid service order being received by a direct service provider to the instant a working service is made available for use.

**Faults rate per access line\*:** A fault report is a report of disrupted or degraded service that is made by a customer and is attributable to the network of the service provider or any interconnected public network, and that is not found to be invalid.

**Faults repair time\*:** The duration from the instant a fault has been notified by the customer to the published point of contact of the service provider to the instant when the service element or service has been restored to normal working order.

**Unsuccessful Call ratio\*:** Unsuccessful call ratio is defined as the ratio of unsuccessful calls to the total number of call attempts in a specified time period. An unsuccessful call is a call attempt to a valid number, properly dialled following dial tone, where neither called party busy tone, nor ringing tone, nor answer signal, is recognized on the access line of the calling user within 30 seconds from the instant when the address information required for setting up a call is received by the network.

**Call set-up time\*:** The call set up time is the period starting when the address information required for setting up a call is received by the network ( e.g. recognized on the calling user's access line) and finishing when the called party busy tone or ringing tone or answer signal is received by the calling party (e.g. recognized on the calling user's access line).

**Response times for operator services\*:** The duration from the instant when the address information required for setting up a call is received by the network (e.g. recognized on the calling user's access line) to the instant the human operator answers the calling user to provide the service requested. Services provided wholly automatically, e.g. by voice response systems, are excluded.

**Response time for directory enquiry services\*:** The duration from the instant when the address information required for setting up a call is received by the network (e.g. recognized on the calling user's access line) to the instant the human operator or an equivalent voice-activated response system answers the calling user to provide the number information requested.

**Proportion of card and coin operated public pay-telephones in working order\*:** The proportion of public pay-telephones in full working order, i.e. the user is able to make use of the services advertised as normally available.

**Bill correctness complaints\*:** The proportion of bills resulting in a customer complaining about the correctness of a given bill. A bill correctness complaint is an expression of dissatisfaction with a bill received from a customer. A bill correctness complaint should not be confused with a billing query (a request for information) or with a fault report.

**Network geographical availability:** Quantifying the area where there is no network availability.

**Dropped call rate:** Call drop is defined as a mobile telephone call that is disconnected prematurely. A call drop would possibly be caused by weak signal strength, interference, congestion and other possible reasons.

*\* as defined in ETSI Eg201 769-1 (2000-10)*

**ANNEX 2 – Fixed Telephony QoS Performance Report Form**

**Fixed Telephony**  
**Quality of Service Performance report**

Authorised Service Provider: \_\_\_\_\_

Covering Period: \_\_\_\_\_ 200\_\_ till \_\_\_\_\_ 200\_\_

<b>PARAMETER</b>	<b>MEASURE</b>	<b>STATISTIC</b>
Supply time for initial connection	Time for fastest 95%	____ days
Fault rate per access line	Reports per 100 lines	____ reports
Fault repair time	Average fault removal time	____ hours
Unsuccessful call ratio	% for national calls % for international calls	____% ____%
Call setup time	Average for national calls Average for international calls	seconds seconds
Response time for operator services	Mean Time to answer	____ seconds
Response time for directory enquiry services	Mean Time to answer	____ seconds
Proportion of coin and card operated public pay telephones in working order	% in full working order	____%
Bill correction complaints	Complaints per 100 lines	____ complaints

*QOS results FT*



**ANNEX 3 – Mobile Telephony QoS Performance Report Form**

**Mobile Telephony  
Quality of Service Performance report**

**Authorised Service Provider:** \_\_\_\_\_

**Covering Period:** \_\_\_\_\_ 200\_\_ *till* \_\_\_\_\_ 200\_\_

<b>PARAMETER</b>	<b>MEASURE</b>	<b>STATISTIC</b>
Unsuccessful call ratio	% for national calls % for international calls	_____% _____%
Call setup time	Average for national calls Average for international calls	seconds seconds
Response time for operator services	Mean Time to answer	____ seconds
Response time for directory enquiry services	Mean Time to answer	____ seconds
Bill correction complaints (including Prepaid Customers)	Complaints per 100 lines	____ complaints
Dropped Call Rate	Ratio of dropped calls to total established calls	____%
Network geographic availability	Percentage of cell coverage	____%

*QOS results MT*

**ANNEX 4 – Leased Lines Providers QoS Performance Report Form**

**Leased Lines Providers  
Quality of Service Performance report**

**Authorised Service Provider:** \_\_\_\_\_

**Covering Period:** \_\_\_\_\_ 200\_\_ *till* \_\_\_\_\_ 200\_\_

<b>PARAMETER</b>	<b>MEASURE</b>	<b>STATISTIC</b>
Supply time for initial connection	Time for fastest 95%	____ days
Fault per subscriber	Reports per 100 subscribers	____ reports
Fault repair time	Average fault removal time	____ hours

*QOS results LL*

**ANNEX 5 – Television and Radio Distribution Services QoS Performance Report Form**

**Television and Radio Distribution Services  
Quality of Service Performance report**

Authorised Service Provider: \_\_\_\_\_

Covering Period: \_\_\_\_\_ 200\_\_ till \_\_\_\_\_ 200\_\_

<b>PARAMETER</b>	<b>MEASURE</b>	<b>STATISTIC</b>
Supply time for initial connection	Time for fastest 95%	____ days
Fault rate per subscriber	Reports per 100 subscribers	____ reports
Fault repair time	Average fault removal time	____ hours
Response time for customer care services	Mean Time to answer	____ seconds
Bill correction complaints	Complaints per 100 Subscribers	____ complaints
Network geographic availability	Percentage of National coverage	____%