In this section we present AWTG's input to the Ofcom document titled "measuring mobile voice and data quality of experience". Specifically, we propose a new way of presenting information to the consumer that accurately reflects the consumer QoE and assists consumers in making informed choices about the mobile service they purchase.

There are a plethora of tools available for collecting technical performance metrics on both broadband and mobile services. Although these metrics indicate network performance it is not always clear what impact these results have on consumer experience. There is a need to come up with a framework of communicating these results to the consumer in an accurate and user friendly way. This section describes and presents a new approach of representing telecommunication information to a consumer to help them make an informed choice when purchasing mobile services.

We would like to propose the traffic light rating system as the solution to presenting technical performance metrics to the consumer. The idea of the traffic light rating system is not new. Many other industries have already adopted this method of presenting information to the consumer. Examples include. a) the traffic light labeling system proposed by the food association agency (FSA) which provides nutrition labels to help a consumer choose between products for a more balanced diet. b) the European union directive 92/75/EC energy consumption labeling scheme which requires most white goods, light bulbs packaging and cars to have an EU energy label and c) the Pan European game information (PEGI) which helps consumers make an informed decision on buying computer games. The last two examples do not use a strictly a three color traffic light system but a scale of different colors ranging from red to green.

We believe that using a similar system to represent technical metrics will bring many advantages to both the consumer as well as the mobile operators. For the consumer, it provides a simple and well recognized way of communicating information at a glance. For the mobile operator it provides a non-technical way of communicating their network performance. Overall, this will be a consistent system that will allow a consumer to compare service performance as well as contribute to helping them make an informed choice about the mobile service they purchase.

The idea of a traffic light rating system is simple and it works well with nutrition, energy consumption and game information labels. However, if to be used in a telecommunications environment it presents some very challenging problems. Unlike the examples above, there are a number of issues that need to be addressed relevant to the characteristics of a telecom environment. These are the challenges that we believe need to be solved in order to enable such a system to be used.

- Colour boundaries: In order to set the criteria that define the traffic light colour boundaries (e.g. the green/amber and amber/red boundaries) subjective tests are required to determine what is considered an excellent, a good and a bad user experience. For example, having a low throughput on a 3G network does not necessarily constitute a bad web browsing user experience.

- Quantification of information: There are currently no standards that quantify some of the technical performance metrics identified in [1]. For example, it is shown that one of the most important elements when considering a mobile provider is the reliability of the internet. In order to present this element using the traffic light system there is a need to define internet

reliability, identify the metrics that make up that element as well as applying the correct statistical methods to process the information from these separate metrics (e.g. use a weighted mean vs. an arithmetic mean)

- User profiling: Not all consumers needs are alike. Profiling consumers into different groups will help provide the most relevant information for each group. For example, consumers that use the internet for email, web and videos would be interested to see network performance information related to these services in terms of speed and reliability of the internet. Consumers that make a large number of voice calls would be more interested to see data representing the quality of the call, ability to make/receive calls, calls not being cut off. On the other hand, consumers that are dedicated to online gaming would be very much interested on the latency information of the networks.

[1] http://stakeholders.ofcom.org.uk/binaries/consultations/mobile-voice-data-experience/summary/condoc.pdf