TO BE PUBLISHED IN THE GAZETTE OF INDIA, EXTRAORDINARY,
PART III, SECTION 4

TELECOM REGULATORY AUTHORITY OF INDIA
NOTIFICATION

NEW DELHI, THE 4th December, 2012

F. No. 305-12/2012-QoS.—In exercise of the powers conferred by section 36 read with sub-clauses (i) and (v) of clause (b) of sub-section (1) of section 11 of the Telecom Regulatory Authority of India Act, 1997 (24 of 1997), the Telecom Regulatory Authority of India hereby makes the following regulations, namely: -

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THE STANDARDS OF QUALITY OF SERVICE FOR WIRELESS DATA SERVICES REGULATIONS, 2012 (26 OF 2012)

1. Short title, commencement and application.—(1) These regulations may be called the Standards of Quality of Service for Wireless Data Services Regulations, 2012 (26 of 2012).

(2) They shall come into force with effect from the 1st day of January, 2013.

(3) These regulations shall apply to all service providers [including Bharat Sanchar Nigam Limited and Mahanagar Telephone Nigam Limited, being the companies registered under the Companies Act, 1956 (1 of 1956)] providing,--

(i) Unified Access Services;

(ii) Cellular Mobile Telephone Service;

2. Definitions.—(1) In these regulations, unless the context otherwise requires,-

(a) **"Act"** means the Telecom Regulatory Authority of India Act, 1997(24 of 1997);

(b) **"Authority"** means the Telecom Regulatory Authority of India

established under sub-section (1) of section 3 of the Act;

(c) **"Cell"** means the radio frequency coverage area of a site in radio access network which is part of a cellular mobile telephone network and-

(i) in case it is an omni-site, it is synonymous with the site; and

(ii) at a sectored site, it is synonymous with the sector;

(d) **"Cellular Mobile Telephone Service"-** (i) means telecommunication service provided by means of a telecommunication system for the conveyance of messages through the agency of wireless telegraphy where every message that is conveyed thereby has been, or is to be, conveyed by means of a telecommunication system which is designed or adapted to be capable of being used while in motion;

(ii) refers to transmission of voice or non-voice messages over Licensee's Network in real time only but service does not cover broadcasting of any messages, voice or non-voice, however, Cell Broadcast is permitted only to the subscribers of the service;

(iii) in respect of which the subscriber (all types, pre-paid as well as post-paid) has to be registered and authenticated at the network point of registration and approved numbering plan shall be applicable;

(iv) includes access service provided through Global System for Mobile Communications (GSM) and Code Division Multiple Access (CDMA) technologies and any other technologies permitted under the licence agreements for the Cellular Mobile Telephone Service and the Unified Access Service;

(e) **"consumer**" means a consumer of a service provider falling in sub-regulation (3) of regulation 1 and includes its customer and subscriber;

(f) **"latency"** means the time taken by a packet to reach the receiving endpoint after being transmitted from the sending point;

(g) "**licence**" means a licence granted or having effect as if granted under section 4 of the Indian Telegraph Act, 1885 (13 of 1885) or the

provisions of the Indian Wireless Telegraphy Act, 1933 (17 of 1933);

(h) **"licensee**" means any person licensed under sub-section (1) of section 4 of the Indian Telegraph Act, 1885 (13 of 1885) for providing specified public telecommunication services;

(i) **"message"** shall have the same meaning assigned to it in clause (3) of section 3 of the Indian Telegraph Act, 1885 (13 of 1885);

(j) **"Packet Data Protocol context"** or **"PDP context"** means access to an external packet-switching network which contains information such as the type of packet-switching network, the Mobile Station PDP address (IP address), the reference of Gateway GPRS Support Node and the requested quality of service;

(k) **"Quality of Service"** is the main indicator of the performance of a telecommunication network and of the degree to which such network conforms to the standards of such quality of service as specified in these regulations for specified parameters;

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(l) **"Radio Access Bearer"** or **"RAB"** means a service provided by the Access Stratum to the Non-Access Stratum for the transfer of user data between the user equipment and the Core Network;

(m) **"Radio interface"** means the interface between user equipment and the Universal Terrestrial Radio Access Network access point which encompasses all the functionality required to maintain such interfaces;

(n) **"Radio Resource Control"** or **"RRC"** means a sub layer of radio interface Layer 3 existing in the control plane which provides information transfer service to the Non-Access Stratum and is responsible for controlling the configuration of radio interface Layers 1 and 2;

(o) **"regulations"** means the Standards of Quality of Service for Wireless Data Services Regulations, 2012;

(p) **"service provider"** means any service provider to which these regulations apply;

(q) **"telecommunication services"** means service of any description (including electronic mail, voice mail, data services, audio-tex services, video-tex services, radio paging and cellular mobile telephone services) which is made available to users by means of any transmission or reception of signs, signals, writing images, and sounds or intelligence of any nature, by wire, radio, visual or other electro- magnetic means but shall not include broadcasting services;

(r) **"throughput"** means an amount of user information transferred in a network within a defined time period;

(s) **"Time Consistent Busy Hour" or "TCBH"** means the one hour period starting at the same time each day for which the average traffic of the resource group concerned is greatest over the days under consideration and such Time Consistent Busy Hour shall be established on the basis of analysis of traffic data for a period of ninety days;

(t) **"Unified Access Services"**-

(i) means telecommunication service provided by means of a telecommunication system for the conveyance of messages through the agency of wired or wireless telegraphy;

(ii) refers to transmission of voice or non-voice messages over Licensee's Network in real time only but service does not cover broadcasting of any messages, voice or non-voice, except, Cell Broadcast which is permitted only to the subscribers of the service;

(iii) in respect of which the subscriber (all types, pre-paid as well as post-paid) has to be registered and authenticated at the network point of registration and approved numbering plan shall be applicable;

(2) all other words and expressions used in these regulations but not defined, and defined in the Act and the rules and other regulations made thereunder, shall have the meanings respectively assigned to them in the Act or the rules or the regulations, as the case may be.

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SECTION II
QUALITY OF SERVICE PARAMETERS FOR WIRELESS DATA SERVICES

3. Quality of Service parameters for wireless data services.—(1) Every Cellular Mobile Telephone Service provider or Unified Access Services provider shall meet the following Quality of Service benchmarks for the wireless data services in respect of each specified parameter, namely:-

Serial Number	**Name of Parameter**	**Benchmarks**	**Averaged over a period**
3.1	Service Activation /Provisioning	Within 4 hrs with 95% success rate.	One Month
3.2	Successful data transmission download attempts	>80%	One Month
3.3	Successful data transmission upload attempts	>75%	One Month
3.4	Minimum download speed	To be measured for each plan by the service provider and reported to TRAI	One Month
3.5	Average Throughput for Packet data	>75% of the subscribed speed.	One Month
3.6	Latency	Data <250ms	One Month
3.7	PDP Context Activation Success Rate	≥95%	One Month
3.8	Drop rate	≤5%	One Month

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(2) The Authority may, from time to time, through audit and objective assessments of quality of service conducted either by its own officers or employees or through an agency appointed by it, verify or assess the

performance of the service provider with respect to the Quality of Service benchmarks for the wireless data services specified in sub-regulation (1).

SECTION III
RECORD KEEPING, REPORTING AND PUBLICATION OF QUALITY OF SERVICE PERFORMANCE

4. Record Keeping.—(1) Every service provider shall maintain documented process of collection of data for each Quality of Service parameter specified by the Authority in regulation 3 and submit to the Authority, within thirty days of notification of these regulations, the documented process of collection of data of each Quality of Service parameter indicating the correlation with the primary data which are derived from system counters or codes in Operation and Maintenance Centre or Network Management System or Mobile Switching Centre, along with record keeping procedure.

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(2) Every service provider shall maintain complete and accurate records of its compliance of benchmark of each Quality of Service parameter specified in regulation 3 in such manner and in such formats, as may be specified by the Authority from time to time by an order or direction.

(3) The Authority may, from time to time, either by order or by direction, specify uniform record keeping procedures and formats including guidelines on measurement methodology for various Quality of Service parameters specified in these regulations.

(4) The Authority may, if it considers it expedient so to do, at any time, direct any of its officers or employees or an agency appointed by the Authority to inspect the records maintained under sub-regulation (2) and sub-regulation (3) or to get such records audited.

(5) The Authority may, if it considers it expedient so to do, require the

service provider to get the records maintained by it under sub-regulation (2) and sub-regulation (3) audited through an agency, as may be specified by the Authority, and submit the report in respect of such audit to the Authority and the cost of such audit shall be borne by the service provider.

5. Reporting.— Every service provider shall submit to the Authority its compliance reports of benchmarks in respect of each Quality of Service parameter specified under regulation 3 in such manner and format, at such periodic intervals and within such time limit, as may be specified by the Authority, from time to time, by an order or direction.

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6. Publication.—(1) The Authority may publish, in such manner and in such format, as may be decided by it from time to time ----

(a) the compliance reports of benchmarks of each Quality of Service parameter reported to it by the service providers under regulation 3;

(b) the results of the audit and objective assessment of the Quality of Service undertaken by the Authority or its authorized agency as per sub-regulation (3) of regulation 3 ------

through its website or through press releases or through advertisements in the newspapers, for the information of the general public.

(2) Every service provider shall publish, for the information of the consumers, its performance with respect to the benchmark of Quality of Service parameter specified in regulation 3, in such manner and in such format, as may be directed by the Authority from time to time.

(3) Every service provider shall publish at its website the details of all data services, being offered by it, along with their tariff, indicating the cities and towns to which such data services and tariff plans are applicable and shall not make any change in the existing data services and their tariff or offer new data services to the consumer without their prior publication at its website.

7. Review.—(1) The Quality of Service parameters specified in regulation 3 may be reviewed by the Authority from time to time.

(2) The Authority, on reference from any affected party for good and sufficient reasons, may review and modify these regulations.

8. Quality of Service Parameter in the licence.— Wherever higher quality of service parameter has been stipulated as a condition of licence, the service provider shall meet such quality of service parameters contained in the licence.

9. **Interpretation.—** In case of any doubt regarding interpretation of any of the provisions of these regulations, the clarification issued by the Authority shall be final and binding.

(Rajeev Agrawal)
Secretary

Note – The Explanatory Memorandum explains the objects and reasons including measurement methodology for various Quality of Service parameters of the "Standards of Quality of Service for Wireless Data Services, Regulations, 2012 (26 of 2012)".

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Explanatory Memorandum

1. BACKGROUND:

1.1 Section 11 (1) (b) (v) of the TRAI Act 1997 mandates the Telecom Regulatory Authority (TRAI) to "lay down the standards of quality of service to be provided by the service providers and ensure the quality of service and conduct the periodical survey of such service provided by the service providers so as to protect interest of the consumers of telecommunication services". In the discharge of these functions and in order to,.....

(i) create conditions for customer satisfaction by making known the quality of service which the service provider is required to provide and the user has a right to expect;

(ii) measure the Quality of Service provided by the Service Providers from time to time and to compare them with the norms so as to assess the level of performance; and

(iii) to generally protect the interests of consumers of telecommunication services,

the Authority, in exercise of its functions under the above provisions in the TRAI Act, had notified the "Quality of Service of Broadband Service Regulations, 2006" on 6th of October, 2006. These regulations provide benchmarks for the Quality of Service parameters of wireline broadband services. TRAI has also laid down the Quality of Service standards for dial-up and leased line internet access through the Regulation on Quality of Service of Dial-Up and Leased Line Internet Access Service, 2001 dated 10th December, 2001.

1.2 With the roll out of 3G and Broadband Wireless Access (BWA) services, the growth rate in cellular wireless telephone service is poised for higher growth, compared to wireline internet users. Presently, there is no quality of service standards for the wireless data services. It is necessary to benchmark and monitor the quality of service for wireless data services offered by the service providers so that the interests of consumers are

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protected. The Authority, therefore, decided to benchmark the quality of service parameters for wireless data services.

1.3 The draft Standards of Quality of Service for Mobile Data Services Regulations, 2012 were released on 09.07.2012, seeking comments of the stakeholders. Subsequently, an Open House Discussion was also held with the stakeholders on 10.10.2012. Keeping in view the comments received from the stakeholders, these regulations have been formulated.

2. Measurement setup

2.1 Specifications:

2.1.1 The measurement setup to be used to conduct test calls for measuring successful data transmission download and upload attempts, minimum download speed, average throughput and latency is given in Figure 2.1. The basic measurement set-up consists of a Test-Device and a Test-Server with specified software and hardware. Test calls have to be established between the Test-Device and Test-Server and measurements must be made for the respective QoS parameters. These parameters shall be measured in a stationary mode. Service Activation/Provisioning, PDP Context Activation Success Rate and Drop rate are to be reported from the actual network counters/database.

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2.1.2 To assess the quality of the connection between an end user and an Internet Service Provider (ISP), ideally the Test-Server should be placed as near as possible to the gateway providing the interconnection between access network and ISP network. The location of the test-server as near as possible to the gateway providing the interconnection between access network and ISP network implies that the measurements will not reflect the influence in the QoS of the ISP network, between that gateway and the gateway interconnecting with the Internet.

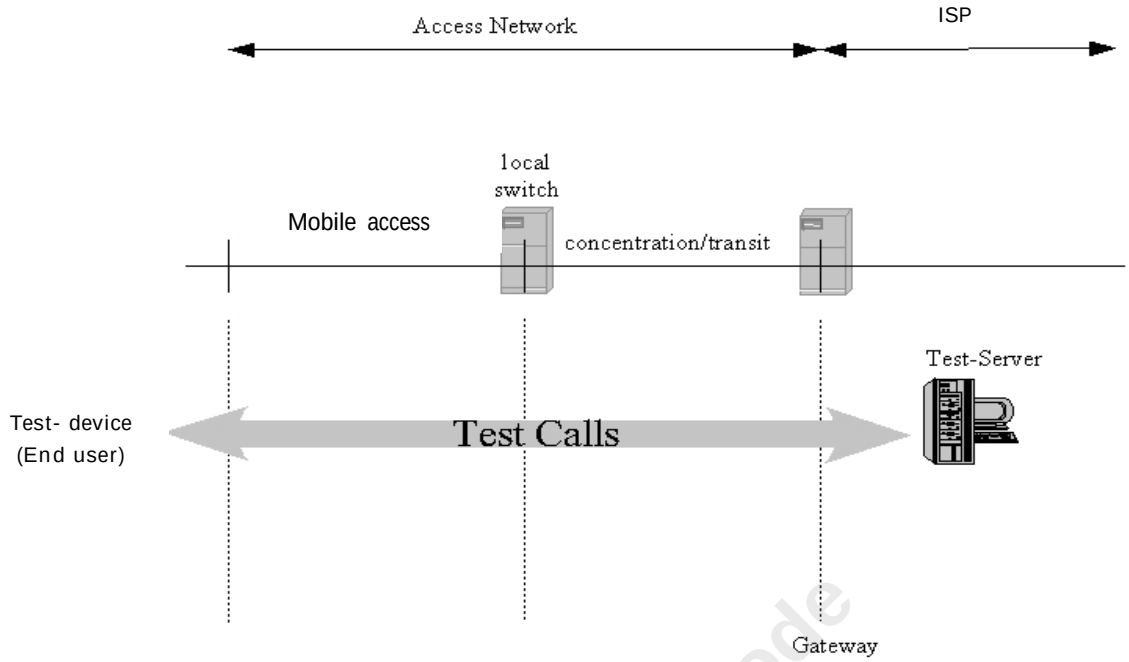


Figure 2.1: Measurement set-up

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2.2 Requirements for the Test-Server:

2.2.1 For all tests, a dedicated test server should be used as a well defined reference. The test server may be located centrally for all the licensed service areas (LSA) or for a number of LSAs or in each LSA (not more than one in each LSA). Under no circumstances a commercial server (e.g. www.yahoo.com) should be used, since the test conditions for such a server may change over time making later reproduction of the results impossible. The test server should be identified by an IP address and not by its Fully Qualified Domain Name (FQDN) in order to avoid issues with Domain Name Server (DNS) lookup and including the DNS caching strategies of the used operating system into the measurement.

2.2.2. The Transmission Control Protocol (TCP) settings of the server tested against should also be recorded. Since the number of host operating systems for internet servers is larger than on the client side, no detailed recommendation concerning the TCP settings of the server is given.

However, the TCP stack of the reference server should at least be capable of the following:

- Maximum Segment Size between 1380 Bytes and 1460 Bytes.
- TCP RX Window Size > 4096 Bytes
- SACK (Selective Acknowledgement) enabled.
- TCP Fast Retransmit.
- TCP Fast Recovery enabled.
- Delayed ACK enabled (200 ms).

2.3 Test File:

The test file should consist of incompressible data i.e. a data file that is already compressed, e.g. like a zip or jpg file. The test file should have at least twice the size (in Kbit) of the theoretically maximum data transmission rate per second (in Kbit/s) of the Internet access under consideration.

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2.4 Representativeness or Number of test calls:

2.4.1 The choice of adequate test calls, i.e. geographical locations of origin and destination of calls as well as traffic variations, is a crucial point with respect to the comparability and validation of the statistics to be calculated for the measured parameters. For each parameter, it is to be ensured that the samples are aggregated over all classes of customers for fairness in reflecting the QoS actually perceived by the user and the statistics shall be preserved to substantiate the same.

2.4.2 The necessary number of samples (test calls) shall be 1067 for each of the category “A” and “Metro” licensed service area (LSA), 600 for each of the category “B” LSA and 384 for each of the category “C” LSA for all the parameters.

3. Frequency of measurements:

3.1 For measurement of QoS parameters, it will be suitable to take measurements on a monthly basis during Time Consistent Busy Hour (TCBH). The number of test probes (Test PCs) used in the area of coverage of the system of measurements should be enough to guarantee that the

measurements are representative of the coverage area and sufficient from a statistical perspective. In order to guarantee the spatial representation of the measurements, the operators should establish and deploy test probes depending on the number of active customers in each city/town/region, which should take into account the market size and demographics in the license service area concerned.

3.2 For example, in a category A LSA, there has to be atleast 1067 test calls for each generation of the technologies. These test calls have to be spread over the LSA covering all the geographical areas (cities/towns) in proportion of the total number of active customers and shall be further proportioned to cover all the plans working in the LSA.

3.3 In some cases disasters, freak weather, etc. may distort measured QoS figures. Such occurrences may not necessarily damage a network, but could degrade QoS by inducing exceptional traffic levels etc. In these cases, service providers should provide the measured QoS and may additionally provide a second figure which excludes the effects of the exceptional circumstances. A note clearly explaining the difference should also be provided.

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4. The QoS parameters:

4.1 Service activation/ provisioning:

This refers to the activation of services after activation of the SIM. This involves programming the various databases with the customer's information and any gateways to standard Internet chat or mail services or any data services. The service provider typically sends these settings to the subscriber's handset using SMS or WAP.

4.2 Successful data transmission download attempts:

4.2.1 The successful data download attempts is defined as the ratio of successful data downloads to the total number of data download attempts in a specified time period. A data transmission is successful if a test file is downloaded completely and with no errors.

4.2.2 Measurement: The percentage that is the sum total of successful

data downloads, divided by the sum total of all attempts to download a test file should be provided. The statistics should be calculated from test calls made according to the measurement set-up and taking into account the representativeness requirements. The successful data download is measured by downloading a test file. An attempt to transmit the test file should be considered unsuccessful if it takes longer than 60 seconds.

4.2.2.1 The threshold of 60 seconds refers to the limit for acceptable performance for bulk data transmission/retrieval of ITU-T Recommendation G.1010.

4.2.2.2 The transmission time is the time period starting when the access network has received the necessary information to start the transmission and ending when the last bit of the test file has been received.

4.3 Successful data transmission upload attempts:

4.3.1 The successful data upload attempts is defined as the ratio of successful data uploads to the total number of data upload attempts in a specified time period. A data upload is successful if a test file is uploaded completely and with no errors.

4.3.2 Measurement: The percentage that is the sum total of successful data uploads, divided by the sum total of all attempts to upload a test file should be provided. The statistics should be calculated from test calls made according to the measurement set-up and taking into account the representativeness requirements. The successful data upload is measured by uploading a test file. An attempt to transmit the test file should be considered unsuccessful if it takes longer than 60 seconds.

4.4 Minimum download speed:

4.4.1 The download speed is defined as the data transmission rate that is achieved for downloading a test file from a test server to a test device.

4.4.2 Measurement: The minimum download speed should be calculated from test calls made according to the measurement set-up. Test calls are to be made to weigh the results according to the patterns of real traffic.

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Minimum download speed shall be average of the lower 10% of all such test calls.

4.5 Average Throughput for Packet data:

4.5.1 It is defined as the rate at which packets are transmitted in a network. In a mobile network the download speed varies depending on the number of users in a particular location. Even though a service provider may be advertising certain speed, the actual speed may vary as per the number of users in the network and there could be customer dissatisfaction on account of relatively slow speed. Hence, there is a need to prescribe an average throughput to protect the interest of consumers. The service providers need to constantly upgrade their network to meet average throughput benchmark.

4.5.2 The throughput is defined as the data transmission rate that is achieved for downloading a test file from a test server to a test device.

4.5.3 Measurement: The average throughput for packet data should be calculated from all the test calls made according to the measurement set-up. Test calls are to be made to weigh the results according to the patterns of real traffic. Average throughput shall be the average of all such test calls.

4.5.4 The service provider will advertise the throughput being offered to its customers as per their category or plan and it should be meted out as per their commitment.

4.6 Latency:

4.6.1 Latency is the amount of time taken by a packet to reach the receiving endpoint after being transmitted from the sending point. This time period is termed the "end-to-end delay" occurring along the transmission path. Latency generally refers to network conditions, such as congestion, that may affect the overall time required for transit.

4.6.2 Measurement: Latency shall be measured with the test server for ping connected directly to the server on the same Intranet domain.

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4.7 PDP Context Activation Success Rate:

4.7.1 A Packet Data Protocol (PDP) context specifies access to an external packet-switching network. The data associated with the PDP context contains information such as the type of packet-switching network, the Mobile Station PDP (MS PDP) address that is the IP address, the reference of Gateway GPRS Support Node (GGSN), and the requested QoS. A PDP context is handled by the MS, Serving GPRS Support Node (SGSN) and GGSN and is identified by a mobile's PDP address within these entities. Several PDP contexts can be activated at the same time within a given MS.

4.7.2 Measurement: This measurement provides the number of successfully completed PDP context activations. For these context activations, the GGSN is updated successfully and a report of PDP context activation success is generated at GGSN.

$$\text{PDP Context Activation Success Rate}(\%) = \frac{\text{number of successfully completed PDP context activations}}{\text{Total attempts of context activation}} \text{x}100$$

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4.8 Drop Rate:

4.8.1 It measures the inability of Network to maintain a connection and is defined as the ratio of abnormal disconnects w.r.t. all disconnects (both normal and abnormal). An abnormal disconnect may happen because of Radio Link Failures, Uplink (UL) or Downlink (DL) interference, bad coverage, unsuccessful handovers or any other reason. The drop rate is to be measured for all generations of the technologies separately.

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TELECOM REGULATORY AUTHORITY OF INDIA

NOTIFICATION

NEW DELHI, THE 24th JULY, 2014

F. No. 305-3/2014-QoS ----- In exercise of the powers conferred upon it under section 36, read with sub-clauses (i) and (v) of clause (b) of sub-section (1) of section 11, of the Telecom Regulatory Authority of India Act, 1997(24 of 1997), the Telecom Regulatory Authority of India hereby makes the following regulations to amend the Standards of Quality of Service for Wireless Data Services Regulations, 2012 (26 of 2012), namely:-

THE STANDARDS OF QUALITY OF SERVICE FOR WIRELESS DATA SERVICES (AMENDMENT) REGULATIONS, 2014 (10 OF 2014)

1. (1) These regulations may be called the Standards of Quality of Service for Wireless Data Services (Amendment) Regulations, 2014(10 of 2014).

(2) They shall come into force after thirty days from the date of their publication in the Official Gazette.

2. After regulation 3 of the Standards of Quality of Service for Wireless Data Services Regulations, 2012 (26 of 2012) (hereinafter referred to as the principal regulations), the following regulation shall be inserted, namely:-

"**3A. Download speed for wireless data services.-**

(1) Every service provider shall, in all its wireless data plans, indicate the minimum download speed available to the consumers.

(2) Every service provider shall ensure that the minimum download speed, specified by it in its wireless data plans, is available to the consumer for not less than eighty percent of the usage time."

3. In regulation 6 of the principal regulations, ---

(a) in sub-regulation (1), in clause (b), for the words, brackets and figures "sub-regulation (3) of regulation 3", the words, brackets and figures "sub-regulation (2) of regulation 3" shall be substituted;

(b) in sub-regulation (2), after the words "specified in regulation 3" and before the words "in such manner", the words "and regulation 3A" shall be inserted;

(c) after sub-regulation (3), the following sub-regulation shall be inserted, namely:-

"(4) Every service provider shall ensure that the details of minimum download speed available to the consumer, in its wireless data plans, are, ---

(a) printed on the vouchers of the wireless data plans;
(b) published on its website and all advertisements of wireless data plan; and
(c) available at its complaint centers and sale outlets."

(Sudhir Gupta)
Secretary

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Note.1. — The principal regulations were published in the Gazette of India, Extraordinary, Part III, Section 4 dated the 4th December, 2012 vide notification No. 305-12/2012-QoS dated the 4th December, 2012.

Note.2. --The Explanatory Memorandum explains the objects and reasons of the Standards of Quality of Service for Wireless Data Services (Amendment) Regulations, 2014.

Explanatory Memorandum

1. The Authority has laid down the Standards of Quality of Service for Wireless Data Services Regulations, 2012 (26 of 2012) on 4th December, 2012. These regulations contain a parameter 'Minimum download speed' to indicate the minimum download speed provided or available to various consumers who have subscribed to different tariff plans for wireless data services. The download speed in these regulations is explained in the explanatory memorandum as the data transmission rate that is achieved for downloading a test file from a test server to a test device. Further, the minimum download speed should be calculated from test calls made according to the measurement set-up specified in the main regulation. Test calls are to be made to weigh the results according to the patterns of real traffic. Minimum download speed shall be average of the lower 10% of all such test calls.

2. The Authority had not specified any benchmark for the parameter minimum download speed. The service provider has to measure the minimum download speed for each plan, as per the above measurement methodology, and report to the Authority. The Authority has been monitoring the minimum download speed reported by the service providers for each plan for the last three quarters. The Authority has been receiving complaints from consumers regarding poor download speed experienced by them. The Authority after examining the issue undertook a public consultation process to assess whether the minimum download speed for the wireless data services provided through various wireless technologies should have some benchmark. The need for publication of such minimum download speed, both by the Authority and the service providers, so as to protect the interest of consumers, was also a part of consultation. In this regard, a Consultation Paper on "Amendment to the Standards of Quality of Service for Wireless Data Services Regulations, 2012" was posted in TRAI website on 21.4.2014 for comments of the stakeholders by 19th May, 2014 and counter comments by 26th May, 2014. Comments were received from 57 stakeholders – 11 from telecom service providers, 2 from telecom service providers' associations, GSM Association, 4 from consumer advocacy groups and 40 individuals. Counter comments were received from one telecom service provider, 2 consumer advocacy groups and 2 individuals.

3. The service providers and their associations have opposed the proposal to prescribe the benchmarks for minimum download speed. Their main concerns in this regard were limited availability of spectrum in 2G/3G bands per operators, low coverage zones such as basements, high rise building clusters, tunnels etc., subscribers device quality and type, number of subscribers browsing the data services, peak/off peak time, transmission bandwidth, external interference, website behaviour etc. Some of them had also submitted that the fair usage policy terms and conditions will have an impact on minimum download speed. Considering the views of stakeholders, the Authority has decided that the benchmark for the minimum download speed for various technologies may not be prescribed. But in all tariff offers of wireless data services, including tariff offered through tariff plans, vouchers, tariff offered for services provided through dongle or through other means, the minimum download speed shall be specified by the service provider to the customer. Also such minimum download speed shall be reported to TRAI along with tariff filing.

4. The Authority also decided that in addition to providing such information on their website and mentioning it in all advertisements, in telephone bills and in vouchers, such information shall also be available in the complaint centres of service providers and their sales offices/outlets. Also the service providers have to publish, on a quarterly basis, on their website the minimum download speed achieved for each of the tariff offers. The Authority will also publish on its website on a quarterly basis the minimum download speed for each of the tariff offers submitted by service providers.

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