

BIF RESPONSE TO TRAI CP on Data Speeds under Wireless Broadband Plan

Q1: Is the information on wireless broadband speeds currently being made available to consumers is transparent enough for making informed choices?

BIF Response: BIF believes that the existing regulation though not substantive, could perhaps be used as baseline to build upon what is missing. The Existing Quality of Service standards for Wireless Data Services Regulations of 2012 from TRAI already recommends metrics for throughput speed), latency (delay) and errors (packet loss). Though it is claimed that adequate level of transparency is ensured by telecom service providers (TSPs) and internet service providers (ISPs) while communicating information on data usage and billing, however, the Quality of Service (QoS) parameters are too technical and complex for consumers to comprehend. It is also observed that use of certain terms such as ‘up to’ and ‘unlimited’ for data speeds and data limits are misleading and creates confusion and dissatisfaction among wireless broadband consumers

Certain studies carried out by academics and research bodies showed that though consumers seemed to be aware of their data plans, they had little information regarding the exact quantity of data being used every month. The level of awareness was significantly low in case of bandwidth usage. These studies also indicated that most of the consumers expressed a desire to know more about these issues.

BIF therefore believes that information needs of the consumers are to be dealt with by providing more information in a simplistic manner, so as to empower them to make informed decisions while purchasing or using a broadband service/plan

In this context, there is perhaps need to bring more clarity in disclosing details about the data packs including those related to transparency related issues like peak speed, minimum data speed (uplink and downlink speeds) during peak hours, definition of peak hours, jitter (change in delay), average speed, latency, tariffs, etc., so as to enable users to make better informed choices while buying data packs.

The information should also be made available at a place where common consumers can easily access the information and also be able to compare the same with that of its competitors

Also, consumers need to have more information that allows them to compare the information with TRAI's benchmarks for quality of service. The consumer rarely knows how to deal with a value of a metric- is it excellent, good, adequate, or poor? Therefore it is important that while disclosing the information, the same should be available along with TRAI's own benchmarks

Q2: If it is difficult to commit a minimum download speed, then could average speed be specified by the service providers? What should be the parameters for calculating average speed?

BIF Response:

Based on the technical reasons provided by the incumbent legacy operators providing 2G & 3G services, it is perhaps correct to surmise that it is difficult to commit a minimum download speed for 2G & 3G services. Also considering India's vast and varying topography, the dynamic environment of constantly changing availability of 2G/3G/4G coverage and the very design of 2G/3G/4G standards, a minimum download speed for a wireless broadband consumer at any particular time may perhaps be a challenge for TSPs to commit.

However, calculating an aggregate average download speed across consumers within a specific geographic region and at varying times has to be based on a rigorous test procedure which needs to be validated repeatedly to ensure optimum and correct results.

METHODOLOGIES FOR CALCULATING AVERAGE SPEED

For 2G & 3G networks , what could perhaps be done is to set Quality of Service benchmarks averaged over a period of say one month including download speed. These could be set at a level of "better than 75% of the subscribed speed", which is aligned to the Standards of Quality of Service for Wireless Data Services Regulations 2012 (26 of 2012) 6 dated 4/12/2012 .

For Calculating the Average Speed, the following parameters will be required

-Number of Files downloaded

-Size of each of the files (in Mb/Gb)

-Time taken to download the files

-This data may be taken over a period of one month (time) and perhaps for a sample size of subscribers polled which should be at least 50%. Since this is done on a real time basis and using an app "TRAI MySpeed App" , it will enable

availability of test data/parameters from users in all service areas and for all operators in a random and anonymous manner for a specific device.

An alternate and perhaps more accurate method of determination of average speed could perhaps be done on the basis of IP Payload/TCP Payload using controlled file transfers over HTTP (Refer Section 3.2 & 3.3 of attached consultation by BEREC which explains how this can be done). Section 3.2 also provides other metrics for latency and errors that should be considered.

Q3: What changes can be brought about to the existing framework on wireless broadband tariff plans to encourage better transparency and comparison between plans offered by different service providers?

BIF Response: As mentioned in Response to Q1, we believe there is scope for improvement in terms of the information provided by the operators for the sake of transparency. To help improve transparency and to enable better comparison between plans offered by different service providers, changes in the tariff declaration framework are definitely required. BIF is of the opinion that the framework established and being followed by FCC in the US could be possibly followed here.

Keeping the objective of bringing about further transparency, FCC passed an Open Internet Order in 2015. This Order enhances disclosure requirements by directing the Internet Service Providers to disclose Network Performance measured in terms of average performance over a reasonable period of time and during times of peak usage. It clarifies that Mobile Broadband Service Providers have obligation to disclose Network Performance information for each Broadband plan/service with separate disclosures to be made for each type of technology viz. 3G & 4G. It also requires Mobile Broadband service providers to have access to actual data on the performance of their networks representative of the geography in which the consumer is based or is accessing the service

To further fortify the framework on transparency and disclosure requirements put in place by the 2015 Open Internet Order, FCC has introduced **Consumer Broadband Labels** and has termed them as “**Broadband Facts**”. This consumer label intends to convey accurate information in a consumer friendly format and is designed along the lines of nutrition labels attached to packaged food products that display nutrition content of each item. The format of the consumer label mandates disclosure of critical details that would enable consumers to compare services offered by different Internet Service Providers. Instead of advertising wholesale network speed, the label format specifically requires Service providers to disclose typical speed, typical latency and typical packet loss, typical peak usage Download & Upload speeds for Network technologies consistent with the Open Internet Order

Given the above as a backdrop, BIF believes that the Policy framework must take into account the following three parameters viz.

a. **Broadband Labels:** Given the ever increasing share of services in the economy and the present Indian government’s thrust towards the ‘Digital India’ mission – e-governance, digital payments, etc. it is perhaps apt to consider labeling broadband internet services offered to consumers today. Labeling will bridge the information gap between consumers and TSPs/ISPs, offer information in a simple and standard format, help educate consumers about the conditions of broadband services and make services more transparent, encourage competition for better services among providers, and provide for network modernisation and consumer welfare.

b. **Information Disclosure:** TSPs/ISPs must disclose complete information to consumers on mobile internet services, at the time of sales as well as on their websites. Strict rules should be imposed against misleading advertisements by TSPs/ISPs and the reported performance must be compared with the performance that was originally advertised to understand the differences arising between promised and achieved performance. A disclosure code as is being

practiced in United Kingdom (Ofcom), which provides consumers a fair idea on the QoS should perhaps be emulated. Singapore has also mandated a complete information disclosure by the operators, so as to equip consumers with sufficient information for an informed choice making and also to strengthen the Quality of Experience (QoE).

c. Performance Ranking: A system of ranking of QoS should be introduced for TSPs/ISPs to instill competition and enhance QoS efficiency and innovation. Ranking parameters may include reported QoS indicators, data usage and pricing slabs, specific performance enhancing methods deployed by different providers such as data compression etc, content delivery network linkages, fast DNS servers, network capacity, backbone connectivity, etc. The parameter values may be displayed on labels and ranks may be presented as star ratings for each provider.

Another problem facing customers is verifiability of information provided while signing up for the services. An additional concern is the enforceability of TRAI's directions to consumers. For example, TRAI directions ask operators to *ensure* that data speeds do not fall below advertised/specified levels. This is simply unenforceable. A better metric would be to require operators to inform consumers of average speed delivered to a customer in the preceding, say, 30 days. It could also be helpful for TRAI audits to be more frequent and more widely shared with consumers.

Q4: Is there a need to include/delete any of the QoS parameters and/or revise any of the benchmarks currently stipulated in the Regulations?

BIF Response: Yes- We believe the existing regulation though not substantive, could perhaps be used as baseline to build upon what is missing. The Existing Quality of Service standards for Wireless Data Services Regulations of 2012 already recommend metrics for throughput (speed), latency (delay) and errors (packet loss). However, there is a need for some modification in the existing QoS parameters which includes demand for additional metrics e.g. Jitter, etc. The aim

shall be to create a list of metrics and then be specific about what other additional metrics needs to be mandated, so as to provide the consumers more transparency about actual speeds they are getting from the network. Data thus sourced should be made publicly available/published with full disclosure. In fact, operators' data on compliance to QoS benchmarks of TRAI must be mapped and compared with real time data on various QoS benchmarks made available through TRAI MySpeed App.

Parameters and benchmarks of a transitory kind, or those that cannot be verified by consumers are often confusing and should be discouraged.

Additional parameters that could perhaps be included are:

- Down time of service providers network in the preceding 30 days.
- % of time in the preceding 30 days when benchmarks were say, at least 20% poorer than prescribed.
- Inter Radio Access Technologies (IRAT) Switching Reports: Several studies have shown that due to improper configurations, IRAT handovers occur extensively thereby impeding performance by forcing devices to switch from 3G to 2G then back to 3G, etc. This must be considered as a parameter in the current reporting structure.

TRAI must distinguish between what should be reported to it on a regular basis and what must be shared with consumers. The former should be sufficiently detailed so that TRAI, consumer bodies and experts are able to analyse it, as they feel fit. However, the information shared with consumers must be succinct and in a form that the latter can use conveniently. Consumers need less technical data but more comparative information.

Q5: Should disclosure of average network performance over a period of time or at peak times including through broadband facts/labels be made mandatory?

BIF Response:

BIF is of the opinion that Information disclosure of QoS performance and other parameters through broadband labels must be mandated in the long run, as it will help consumers in making informed choice while purchasing a broadband service/plan, establish a formal contract between consumers & service providers as well as empower consumers to compare the advertised QoS with actual. However, a phased approach may be considered while implementing such a mechanism.

A recent case study undertaken by an International Consumer Labeling Organisation CUTS International, regarding the Bureau of Energy Efficiency's (BEE) Energy Star Labeling Program explored the implementation process of energy efficient star labels for electrical appliances in India and highlighted the fact that BEE launched this program on a voluntary basis for fewer appliances and gradually transited these to a mandatory phase as market preparedness and receptivity increased. For the same, voluntary labeled products were tracked with a view to assess the penetration of these products in the market. Once the market-share of voluntary labeled products became more than 50 percent, introduction of mandatory labeling for that product was considered.

Similarly, once a certain percentage of consumers are actively and consistently using these labels basis, TRAI may consider to mandate the mechanism. Moreover, introducing a new label would also mean that it may have certain limitations, which will be strengthened over time with constant improvisation and evolution. Thus, mandating it right away might not be the best option.

Pilot projects may also be considered by TRAI and operators to assess the effectiveness and efficiency of such labels. It is extremely important to get a buy-in of all the relevant stakeholders i.e. industry and consumers. Pilot projects would provide TRAI with this opportunity to be able to receive their responses/concerns and accordingly, be able to finalise the strategy for implementation of the labels

Hence BIF re-iterates that disclosure of average download speeds, average network performance etc should be made mandatory as it is done in many developed economies viz. US . However, the same should be done in a phased manner. Also this should be made available through consumer labels so as to be able to convey accurate information in a consumer friendly format. The format of the consumer label should be such so as to mandate disclosure of critical details that would enable consumers to compare services offered by different operators, viz. price, performance & network practices. Disclosure should include peak speed, average speed at peak hours and minimum speed during peak hours etc.

Normally speed is measured from POP of the Service Provider and the backhaul from the POP to the Internet Gateway and International Bandwidth available at the Internet Gateway also play a very important and crucial part especially for non-country top level domain sites and where traffic is to be routed outside the country. Therefore percentage utilization of International Bandwidth during peak hours is a good measure of this.

This is in consonance with the overall direction of introducing more transparency, enabling consumers to compare tariff plans from different Service Providers and to let them make better informed choices.

Q6: Should standard application/websites be identified for mandating comparable disclosures about network speeds?

BIF Reponse:

The following existing platforms must necessarily be enabled and utilised for mandating comparable disclosures about network speeds: a. TRAI Website b. TRAI MySpeed Mobile App c. TSP/ISP Website d. TSP/ISP Mobile App e. Websites of Consumer Organisations/NGOs registered with TRAI and f) Independent Test Agencies. This will also help TRAI, TSPs/ISPs and Consumer Groups to reach out to consumers and send updates on new regulatory initiatives and changes, building trust in the information source.

Apart from these options, other platforms may also be used for such information disclosures, namely marketing collaterals displayed and provided at retail stores, brochure inserts within the sim-card packs, television and social media commercials of the operators, etc.

Q7: What are the products/technologies that can be used to measure actual end-user experience on mobile broadband networks? At what level should the measurements take place (e.g., on the device, network node)?

BIF Response:

Technology/Measurement Tools:

Network Measurement Tools are available which can trace path of data packets and identify precise reason responsible for reduction of user data speed. In case of problem with the Internet connection, it can inform the user about the cause for the same viz. if it is due to the Internet connection or the APP or something else.

Some of these tools which provide end-to-end User Experience are:

MobiPerf (Open source platform) which provide the following metrics viz.

- Network throughput & latency
- DNS look up latency
- TCP Upload & Download throughput
- IPV4/V6Compatibility

Besides there are tools to identify if traffic management practices are being deployed by TSP/ISPs for checking traffic differentiation based on application or content in use. Some of these tools are:

Chkdiff, Glassnost

There are other tools which can identify content or routing based differentiation in Broadband service. e.g. NetPolice

Whitebox by SamKnows is a prominent solution used by many regulators and consumers globally to capture QoS experienced by consumers and extrapolate the indices to measure the overall QoS in a particular geographical region.

Reporting Level:

The spatial granularity for existing QoS reports must also be increased to allow for good comparisons. Currently these reports are prepared at circle-level and expanding them to district and city levels, categorically separated into rural/urban areas, should provide greater information to consumers specific to their geographies.

Measurement Levels:

Crowd-Sourced Measurements: Different aspects related to QoS should be measured in different ways: - Crowd-sourced measurements for throughput and latency should be aggregated in large numbers given the variability that may arise due to short-term and long-term shadowing in wireless connections. The alternate solution is to ask the TSP/ISPs for reporting data aggregated across all user sessions which is perhaps a more viable option and may be measured from within the providers' networks. - Metrics such as availability however, should be measured from an end-user perspective by capturing data from user device.

Crowd-sourced measurements through tools like TRAI's MySpeed app should serve the purpose of cross-checking values reported by providers, if obtained at very large scale. Their distribution should tally with the reported data as test methods of downloading large files, measuring IP packet latency, etc. are very similar. Crowd-sourced measurements should however not be the basis for labelling the performance of providers unless they can be obtained at very large scales and hence should not be mandated

Q8: Are there any legal, security, privacy or data sensitivity issues with collecting device level data? a) If so, how can these issues be addressed? b) Do these issues create a challenge for the adoption of any measurement tools?

BIF Response:

Yes-there are user privacy & data security issues involved while collecting device level data.

However, there are no security or privacy issues in reporting user performance in aggregate, measured through the network. Crowd-sourced information similarly has no liability attached as long as aggregate data is revealed for performance comparison, and data even at the backend is stored through anonymization. It should be ensured that consumer consent is taken into account while sourcing user-level information to protect privacy and maintain transparency in the system.

However, there might be applications collecting sensitive data than required. Thus, there has to be vigilance to ensure that such malign practices are not adopted by applications. Care must be taken to avoid user-identifiable information.

Consumers need to be made aware about the potential concerns and challenges around these issues that maybe faced while authorizing device level permissions required while using the various technological tools.

a) Risk Mitigation Procedures

User Privacy on speed test apps: Certain speed tests apps and portal collect sensitive user information like location and request device level permission that can pose risks to the user.

- a) To overcome this, it is suggested that such speed test portals could perform 'data anonymization' and not link properties user location and other sensitive details to actual user profiles. As a part of the proposed

consumer awareness plan, it is suggested that awareness must be increased among consumers about privacy risks that speed test portals pose. Additionally, these measurement tools are likely to affect user systems through malware attacks.

- b) Appropriate safeguards may have to be built in to address these privacy & security issues

Despite some portals or apps may be violating privacy, however it maybe virtually impossible to mandate or enforce data anonymization on test portals. Instead it may be more practical for TRAI, consumer bodies etc to alert customers about how test apps could abuse their sensitive data and make them vigilant and increase their overall awareness.

Q9: What measures can be taken to increase awareness among consumers about wireless broadband speeds, availability of various technological tools to monitor them and any potential concerns that may arise in the process?

BIF Response:

The suggested measures should include mandatory disclosure of network performance indicators to consumers such as latency, average speeds, peak time speeds, etc., similar to FCC's 'Broadband Facts' label. Mandatory disclosures should also include minimum speeds, tariff plans, methods and tools to audit Internet speeds offered by mobile service providers viz. use of reasonable Traffic Management Practices etc. and revision of mandatory QoS parameters.

Consumers also need to be made aware about the potential concerns and challenges around the issues that maybe faced while authorizing device level permissions required while using the various technological tools required to measure consumer experience.

The following measures could perhaps be taken up :

a. **Capacity Building Programs:** Trainings, workshops and awareness programs oriented towards importance, benefits and usage of broadband services, data speeds, broadband labels, various technological tools, etc. may be organised for consumers by TSPs/ISPs, TRAI, Department of Telecom (DoT), Consumer Action Groups and academia pan India. TSPs/ISPs may proactively incorporate labels at the point of sale, place detailed information on their websites, send regular alerts to users, etc. to not only bring transparency but also help consumers build an understanding about different performance parameters, billing details, etc.

b. **Marketing Campaign & Promotions by TRAI:** Taking cues from the successful 'Jago Grahak Jago' campaign driven by Department of Consumer Affairs and the Star Labelling Program implemented by BEE, TRAI may initiate similar marketing and promotion campaigns to build consumer awareness and give thrust to all stakeholders to ensure smooth implementation.

c. **e-Labeling:** TRAI may explore pre-loading such information via websites and apps on all new computing devices that access wireless broadband services which are made and sold in India.

TRAI must share comparative information widely in a user-friendly manner. This can be done on its website and through its many outreach programs with consumers. It can also be done, appropriately, using a mix of social media viz. Facebook, LinkedIn, Whatsapp, etc and mainstream media including newspapers, radio, TV etc.

Q10: Any other issue related to the matter of Consultation.

BIF Response: None