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**TRAI'S CONSULTATION PAPER NO. 06/2016 DATED 18TH  
MAY 2016 ON ISSUES RELATED TO QUALITY OF SERVICES IN DIGITAL  
ADDRESSABLE SYSTEMS AND CONSUMER PROTECTION**

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## **Preamble**

At the outset, we fully concur with the Authority that Quality of service (QOS) is an integral component of consumer interest. “Services” in the broadcasting, cable and satellite industry entails the “end to end” activities of making available the television channels to subscribers and hence, we believe that an ideal QOS should satisfy the following broad criteria:

- (i) It must be a fair, transparent and well defined process;
- (ii) Makes available to the subscribers the television channels of their choice in a time bound manner;
- (iii) Ensure good quality signals of the television channels
- (iv) Ensure satisfactory user experience and interface
- (v) Provide information to the subscribers relating to the services such as subscription and maintenance
- (vi) Easy and user friendly mechanism for grievance redressal;

The framework for QOS thus needs to identify and define minimum performance benchmarks under each of the identified criteria and ensure compliance of the same through monitoring and enforcement provisions.

While TRAI has framed substantial QoS regulations, there has hardly been any effort made by either the industry or the regulator to implement these regulations on the ground. Some of the current issues that plague TV viewing for subscribers in India are as follows:

- Poor quality of channel reception, poor strength of signals
- Recurrent disruption and black outs without prior intimation; no corresponding decrease in consumer prices when channels are dropped/taken out of retail packs

- Frequent dislocation of channels from the EPG and their LCNs are changed without prior notice to subscribers
- Lack of transparency and information on subscription of services; subscribers have no clarity whatsoever on composition and price of different retail packs to enable them take an informed decision
- Poor packaging and non-implementation of tiering of channels; frequent changes in the composition of consumer retail packs without prior intimation.
- Lacking in implementation of KYCs or CAFs
- The ills of pre activated boxes whereby MSOs deliver STBs to LCOs that are pre-activated which has severely hampered the implementation of true digitization and limited benefits accruing to subscribers
- Lack of a systematic consumer complaint management or redressal systems; no single point of contact for remedying complaints, non-appointment or non-availability of nodal officers and appellate bodies
- Non transparent and opaque billing practices; Lack of user-friendly payment options including pre-paid options
- Lack of economically viable option to subscribers to shift from one DPO to another
- Lack of performance monitoring and enforcement
- No adequate deterrence in the regulations that could ensure compliance

In order to enable an effective QOS which satisfy the criteria set out above and also address the issues highlighted, it is imperative that the QOS framework is guided by the following core principles:

**Non Discrimination:** The principles of non-discrimination should be carried forward to the QOS regulations as well to ensure that the same flows across the value chain. DPOs should not be allowed to (i) discriminate between broadcasters by allocating more capacity to one broadcaster so that other broadcasters are disadvantaged, all channels should be given identical treatment by the MSO so that the signal strength or quality is uniform across all channels (ii) discriminate between affiliate LCOs, they should ensure that all their affiliated LCOs are subjected to uniform QOS parameters so that viewers of one DPO is not disadvantaged vis a vis the viewers of another.

**Network Neutrality:** QOS should facilitate implementation of the principles of Network neutrality. DPOs cannot act as gatekeepers and should not be in a position to block, throttle or prioritize or deprioritize any television channel. The regulatory construct and more particularly the QOS framework should make it mandatory for DPOs to make available to all the consumers for subscription, all television channels. This is also imperative to ensure that the objects and principles of “must provide” are not vitiated at the last mile level. The onus of “must provide” must also apply to the DPOs with a clear mandate requiring them to make available to the end consumer the signals of the television channel on “must provide” basis in a time bound and non-discriminatory manner as and when such consumer request for the same.

**Transparency:** DPOs should transparently disclose all the terms and conditions of their subscription service offerings including details of the channel offered (bouquets and a-la-carte) along with their prices, CPE schemes etc. to enable subscribers to exercise their freedom choice and take an informed decision on subscription. The QOS should remove all opacity that surround consumer billing practices.

**Standardization:** The Regulations should clearly articulate the technical specifications for quality of retransmission of channels by DPOs. Such specifications should be capable of being both qualitatively and quantitatively discerned with clearly defined parameters to enable adequate monitoring and identify infractions.

**Clear mandate to declare pre-activated boxes and unencrypted feed as illegal:** The regulations should make it clear that no activation of services to subscribers shall occur without integrating CAF into SMS. Neither should operators provide unencrypted feed;

**Locus should not be called into question:** Any stakeholder should have locus to enforce the provisions of QOS and seek appropriate redressal. Broadcasters if

aggrieved must also be empowered to enforce the provisions of the QOS before the appropriate forum and enforce their contractual rights against defaulting DPOs.

**Remedies:** The Regulations should provide for strict monitoring and enforcement with stringent penalties for violations. The Interconnect Regulations and license conditions of DPOs should mandate compliance of QOS regulations as one of the fundamental obligations of DPOs. Defaulting DPOs must not be afforded the protection of “must provide” and severe consequences in the form of cancellation of license should be prescribed.

In the light of the above background, we have provided our comments to each of the issues raised in the Consultation Paper:

### **3.2. Contours of proposed Quality of Service (QoS) regulatory framework**

**Q1. What should be broad contours for a QoS Regulatory framework for digital addressable systems? Please furnish your comments with justification.**

Consistent with our stand of minimal regulatory intervention in a competitive market, we recommend ‘Self Regulated QOS Framework’ in the long term. However, given the challenges of the transitory environment that the Industry is currently grappling with, we are of the view that it is of utmost importance for the Authority to enable a robust and seamless transition in the short term through a ‘Regulated QOS Framework’. This is also necessary to bring in the much needed hygiene and behaviour which is lacking.

### **3.3. Uniform QoS regulatory framework**

**Q2. Should there be a uniform regulatory framework for Quality of service and Consumer protection across all digital addressable Platforms? Please provide your comments with justification.**

We recommend a uniform regulatory framework for QOS across all addressable platforms. However allowances may have to be made for differing technical parameters of various DPOs without compromising on the principle of non-discrimination.

### **3.4. Issues related to Quality of Service (QoS)**

#### ***3.4.1. Subscription to services:***

**Q3. Should timelines relating to various activities to get new connection be left to the DPOs for transparent declaration to the subscribers? If so, how can the**

**interest of the subscriber be best protected if the connection is not provided in given time frame?**

In order to ensure highest standards of QOS in the interest of the consumers, the Authority should prescribe a reasonable time period within which installation and activation of service should be completed by the DPOs.

If the timelines are breached by any service provider, a very clear redressal mechanism including mandating operators to notify a nodal and appellate officer for handling consumer complaints and escalation to a designated person within the Authority should be defined in the QOS Regulations. For each day of delay, the operator should compensate the consumer by an ad valorem reduction on the first month's subscription fee.

**Q4. What should be the time limits for various activities, as mentioned below, to get new connection? Please provide your comments with justification.**

**(a) Response time for processing new service request and conveying feasibility of providing connection at the desired location**

**(b) Time line for completion of CAF, installation and activation of service**

There should be a single consolidated time frame from the date of request within which all the activities should be completed.

No activation should be undertaken without integration of CAF into SMS.

**3.4.2. Consumer Application Form:**

**Q5. Should minimum essential information that must be included in the CAF be mandated through regulations so as to maintain basic uniformity? Give your suggestions with justification.**

In order to ensure transparency, simplicity and uniformity, it is imperative that the Authority prescribes the minimum information to be included in the CAF. It is also important to ensure that the application is filled up in duplicate with operators having to acknowledge receipt of the application from the consumer on the Duplicate form that must be handed over to the consumer for any future reference.

Information included in the CAF should not be limited to the information of only consumers, but should also include basic information about the DPOs as they are service providers. We propose following to minimum essential information to be mandated in CAF:

**Information about DPOs:**

- Registration/License number of DPOs
- Name of registering and licensing authority.
- Entertainment tax/service tax registration number
- Registered address of DPOs.
- Manual of Practice (MoP) number.
- Location of Head End/Source of Signal
- Complaints redressal mechanism including designated nodal and appellate persons appointed by the DPO
- Information regarding escalation to the Authority in case of deficiency in service

**Information about subscribers:**

- Subscriber ID
- Name and Address
- Identity and Residence Proof
- Aadhar number may be provided
- Registered and verified mobile number and email ID

**Information about service**

- Details of price and packaging
- Channels requested whether in bouquet or A-la- carte
- Channel and bouquet wise cost
- Toll free customer care number

**Q6. Should minimum font size be specified for CAF? If not, how can it be ensured that important information provided in CAF is given in a manner such that a consumer can read it easily?**

We believe that prescribing a minimum font size will go a long way in ensuring transparency in letter and spirit and will enable the viewers to take an informed decision.

**3.4.3. Electronic CAF (e-CAF):**

**Q7. Should use of e-CAF be facilitated, encouraged or mandated? Please provide your comments with justification.**

Eventually e- CAF should be made mandatory and we applaud the Authority's initiative in this regard of issuing advisory dated 05.02.2016 to all DPOs to use e-CAF for subscription of service. It would be ideal if the Authority can lay down a time bound transition period to mandatory e-CAF.

**3.4.4. Manual of Practice (MoP):**

**Q8. Should the minimum essential information to be included in the MoP be mandated through regulations to maintain basic uniformity and to ensure that consumers get all relevant information about the services being subscribed?**

Yes, minimum essential information to be included in the MoP should be mandated through regulations across platforms.

**Q9. What should be the minimum information to be included in MoP? Please provide details with justification?**

We propose following should be the minimum essential information included in MoP:

- Name and registered address of the DPOs.
- Details of all linked affiliates along with their area of operation
- Name of the channels offered in a la carte and bouquets with their MRP.
- Guidelines for making online payment.
- Manner and mode of subscribing to channels/ bouquets with lock in periods if any.
- Period of monthly billing cycle.
- Details of value added service (if any)
- Customer care number and procedure for redressal of complaints through complaint center.
- Name, designation and address of the Nodal officers.
- Appeal procedure to the Nodal officers for redressal of complaints.
- Details of CPE schemes (as answered in Question 26).
- Duties and obligations of the DPOs and LCOs as specified in the regulations
- Rights and duties of the subscriber as specified in the regulations.
- Information regarding escalation to the Authority in case of deficiency in service
- Details of the website of the operator

**Q10. Should it be necessary to provide a printed copy of MoP to all the customers at the time of subscription to the service? If not, how it can be ensured that all required information is available to subscribers when required?**

Yes, customers should be supplied with a printed copy of the MoP at the time of installation. However, it should be made available on website of DPOs in a visible manner and in a downloadable format, for the subscribers to access at any point of time. Any change in MOP or subscription should also be intimated transparently to consumers in a prompt manner.

***3.4.5. Initial subscription period:***

**Q11. Should there be an initial subscription period while providing a new connection to protect the interest of both the subscriber as well as DPOs?**

**Q12. If so, what should be the duration of such initial subscription period?**

**Q13. What protections should be provided to subscribers and DPOs during initial subscription period? Give details with justification?**

We propose that consumer should be given complete flexibility in deciding the subscription period. However, to ensure stability, one month initial/minimum subscription period be applicable to subscribers.

In order to protect consumer interest, we propose that for 180 days from subscribing channels on a-la-carte or bouquet basis, there should be:

- a. No deletion of channel deletion from a package
- b. No change in price of package subscribed.

**3.4.6. Non availability of channels on platform:**

**Q14. What should be the framework for compensation to the subscriber for dropping of a channel due to its non-availability on the DPOs' platform?**

- The Subscribers must be given prior notice of 15 days before any discontinuation of the channel through visible means like public notice, SMS and to registered email ID of subscribers.
- Only on consent of the subscriber any channel should be offered as a substitute for the discontinued channel.
- Monetary compensation as detailed in comments to question 15

It should be clarified here that these provisions should also apply when a channel is available on the platform and DPO carries changes in package composition that results in dropping of a channel or if a channel is taken out of the pack and offered only on ala carte.

**Q15. How should the reduction in subscription charges be calculated in case of discontinuation of channel from DPOs platform? Please provide your comments along with justification.**

In case of discontinuation of channel from DPOs platform, reduction in subscription charges should be basis a-la-carte rate of the discontinued channel vis-à-vis sum of a-la-carte rates of all the channels in the package subscribed.

Reduction in the subscription charges should be calculated in the following manner:

- a. Bouquet subscription: If a channel is discontinued, the reduction in subscription charges should be calculated as follows:

Reduction in subscription charges = (A-la-carte rate of channel discontinued) / (Sum of a-la-carte rates of all the channels in the package subscribed) \* Package price

Illustration: Consider a subscriber with a subscribed package rate of Rs.100 with 20 channels whose sum of a-la-carte rates is Rs.150. If the operator discontinues 2 channels with a-la-carte rates of Rs.10 and Rs.5 from its platform, then the reduction in subscription charges should be (Rs.10+Rs.5) / Rs.150 \* Rs.100 = Rs.10.

- b. A la carte subscription: Subscription charge after discontinuation of the channels should be calculated by subtracting “a la carte rate of dropped channel from sum of rate of a la carte channels”.

Illustration: Sum of rate of a la carte channels is Rs. 100. Rate of dropped channel X and Y are Rs. 15 and Rs. 10 respectively. Hence, sum of rate of channels after the discontinuation of channels shall be 100-15-10= Rs. 75

Due to discontinuation of the channels, compensated amount will set off by DPOs in the succeeding months billing cycle.

#### ***3.4.7. Disruption in service:***

**Q16. In following cases what should the maximum permissible time of disruption beyond which subscriber must be compensated?**

- (a) Disruption due to technical fault on the DPO network or at the subscriber's end**
- (b) Disruption due to technical fault of CPE at the subscriber's end**

Maximum permissible time of disruption in both the situations above should be reasonable timeframe (say, 48 hours) within which DPOs to rectify the fault. Failure to do so should lead to compensation to subscriber as per mechanism prescribed below.

**Q17. In following cases what should be the duration of disruption in service warranting compensation to the consumer and how the compensation should be calculated?**

- (a) Continued Disruption due to technical fault on the DPO network or at the subscriber's end beyond the pre specified time.**
- (b) Continued Disruption due to technical fault of CPE at the subscriber's end beyond the pre specified time.**

In case of disruption in both the situation stated above which is beyond the above specified reasonable time frame should lead to compensation to subscriber which shall be equal to the subscription charge for the number of days the service remains disrupted over the proposed reasonable timeframe.

For the above, “Per day subscription charge” should be calculated by dividing monthly subscription charge by total number of days in the month. Compensation will be calculated multiplying “per day subscription charge” with days of disruption beyond 48 hours.

Illustration: Monthly subscription charge either as bouquet or a la carte is Rs. 300 in the month of April and number of disruption days are 5 days in which 48 hrs are exempted for providing any compensation. The “per day subscription charge” will be  $\text{Rs.}300/30 \text{ (days)} = \text{Rs. } 10$  and hence compensated amount will be  $\text{Rs.}10*3 = \text{Rs. } 30$ .

If the disruption occurs during more than 2 occasions in a month for a time frame exceeding 48 hours, the compensation to subscriber should be equal to one month subscription fee.

#### ***3.4.8. Shifting of service connection:***

**Q18. What should be the framework and terms and conditions for shifting of connection including timelines in respect of PAN India DPOs where provision of connection at new location is feasible?**

Shifting should be allowed within reasonable timelines.

#### ***3.4.9. Transfer of service connection to another consumer:***

**Q19. Is there a need to prescribe procedure for transfer of the TV connection? If so, what should the procedure, terms and conditions for transfer of services connection and timelines?**

This can be permitted with clearly defined regulations prescribing modalities of registering such a transfer in the DPOs system through necessary documentation including new CAFs in the name of transferee.

#### ***3.4.10. Temporary suspension of service:***

**Q20. What should be the framework to address the concerns of stakeholders (Subscribers and DPOs) relating to temporary suspension of service?**

Scheme of suspension should be made available transparently to all subscribers. Subscribers should be given ample choice and flexibility to avail suspension of service.

No charge should be levied upon the subscribers for the period of suspension of the services by the operator and also upon such a suspension request from the subscriber. Also, no charge should be paid for activation and resumption of services.

### **3.4.11. Closure of service:**

**Q21. How issue of abrupt closure of service due to non-payment can be addressed while protecting the interest of subscribers and DPOs?**

The service should be switched off immediately on non-payment after giving adequate advance notice to the subscriber in the form of alerts. The Regulations must mandate “zero tolerance” towards defaulters across the value chain. In all other service industries, defaults result in immediate disconnection, accordingly there is no necessity why cable and satellite industry should be made an exception.

**22. Is gradual closure of service as discussed in para 8.23 is a feasible option? If so what should be procedure and the framework?**

As explained above, closure of service must be immediate after prior notice.

**Q23. What should the procedure and timeframe to inform the subscriber regarding closure of service due to closure of business?**

In case of closure of service due to closure of business of the DPO, interest of consumer should be protected in terms of notice period, refund, shifting of service, etc.

### **3.4.12. Customer Premised Equipment (CPE):**

**Q24. Why uptake of mandated schemes for set top box (Outright purchase, Hire purchase, and on rent) is so low at present? How consumer awareness on these issues can be increased?**

No comments.

**Q25. What should be the consumer friendly common framework of CPE Schemes for providing CPE to consumers in digital addressable system? Please provide your comments with justification?**

The most consumer friendly framework for CPEs would be **interoperability** between CPEs of various DPOs.

In the interim, until interoperability becomes a reality the Regulator should make it obligatory for the DPOs to offer a rental scheme for CPEs, and such rental scheme should not be illusory vis-à-vis the outright purchase price.

**Q26. What should be minimum essential information related to a CPE scheme that must be made available to the consumers to safeguard their interests? Please provide your comments with justification.**

We recommend that the consumer should be provided with all relevant information in a transparent manner to enable them to make an informed choice. TRAI orders in these regard should be made available in the MOP.

**Q27. What measures may be adopted to ensure availability of good quality CPE to consumers?**

- CPE should conform with the standards set by the Bureau of Indian Standards.
- Guarantee-warranty period of CPE should be one year without any fee charged to the subscriber. Subscriber may request to resolve in issues related to CPE.
- The authority with the help of all stakeholders should work towards spreading awareness amongst the customers, so that they can understand the differences between service offerings and ensure that service providers' own claims are honored in practice

**Q28. Should any charges such as visit charges, etc. be charged from the subscribers during guarantee-warranty period?**

No comments.

**Q29. What should be provisions for maintenance of CPE after the expiry of guarantee- warranty period?**

No Comments

**Q30. What should be the simplified provisions for surrender of CPE in case of closure of service by the subscribers in order to protect their interest?**

No Comments

***3.4.13. Technical standards for signals and network parameters:***

**Q31. Please suggest the standards and essential technical parameters for ensuring good quality of service for the following digital addressable platforms:**

- a) Digital Cable TV**
- b) DTH**
- c) HITS**
- d) IPTV**

It is extremely important for the Authority to prescribe the standards and essential technical parameters for re-transmission of services to ensure highest levels of user experience. Further, as broadcasters we invest huge amounts of money and efforts to

create high quality content for the subscribers (SD/HD/SD/4k etc) and hence it is extremely critical that the same reaches the end consumer in the same form without any compromise on the quality of re-transmission. In this context, we are recommending the minimum technical standards set out in Annexure A.

### **3.5. Issues related to Consumer Protection**

#### ***3.5.1. Publicity of information and consumer awareness:***

#### **Q32. What are the different methods to effectively increase consumer awareness?**

Following methods are recommended to increase consumer awareness:

- DPOs website designed to create consumer awareness
- SMS/IVR
- News-letters/ Emails
- Public hoardings
- Commercials/Advertisements across mass media (Radio / television / print / online mediums)
- Home page and other user interface areas can be utilized for the same (DPO should not interfere with/modify the Channel signals in this process)

#### **Q33. How consumer related information can be effectively provided to Subscribers through DPO website. What minimum information should be provided through consumer corner?**

Following minimum information should be always available on the DPO's website:

- Information on subscriber offerings: names of channels. Packages /a-la-carte offering along with price, changes/modifications to offerings, standard terms and conditions
- CPE Schemes
- Call center details
- Complaint/Redressal mechanism
- Payment guidelines
- Period of monthly billing cycle.
- Name, designation and address of the Nodal officers.
- Appeal procedure to the Nodal officers for redressal of complaints.
- Other relevant information.

#### **Q34. Can outsourcing to the third party for various web based operations be permitted especially for smaller DPOs? If yes, what precautions are taken to ensure that such provisions are not misused?**

No comments.

**Q35. In case of the use of “In Channel” communication means, what should the guidelines for running scrolls or other onscreen displays, so that it does not adversely impact the viewing experience?**

DPOs should NOT be allowed to run scrolls on the broadcaster’s channel/screen. DPOs should be prohibited from use of “In Channel” communication by whatsoever means.

***3.5.2. Subscriber consent for change of service:***

**Q36. What options can be used for verifiability of subscriber communications for any change in service or provision of additional service?**

The express consent of the subscribers should be required for the change of service. Communications to the subscribers for any change in service or provision of additional service can be through website of the DPOs, email, SMS from registered mobile ID, via call centers etc.

**Q37. What should be the duration to preserve such verifiable subscriber communications requesting change in service or provision of additional services at DPO level?**

The information should be preserved for minimum period of 1 month higher than package duration of the package subscribed.

***3.5.3. Service offering and service packages:***

**Q38. What should be optimal number of channel packages which meets the subscriber demand and are well understood by the subscribers?**

**Q39. How the package offerings can be improved in case of cable TV services so that effective choice is made available to the consumers?**

There should not be any restrictions on the number of channel packages that can be offered to the subscribers. Service providers should be free to create any number of channel packages as per market demand. However, the same should be transparently disclosed to the subscribers at all times.

***3.5.4. Billing provisions:***

**Q40. Whether the choice of Pre or post-paid method should be mandatorily made available to the subscribers?**

We recommend that pre-paid option should be mandatorily made available to all the subscribers.

**Q41. What should be the essential information contained in the monthly Bill/ Usage details to be provided to subscribers in post-paid or pre-paid system?**

Following should be the essential information contained in the monthly bill:

- Name of the subscriber and communication address
- Registered mobile number and email id
- CAF and MoP number
- Registration number and Entertainment tax registration number of DPO
- Bill number
- Bill date and billing cycle
- Date of the payment made
- Monthly charge for Channels and VAS
- Maintenance charges for CPE
- Details regarding CPE
- Bouquets subscribed and a la carte channels with MRP
- Usage details
- Security deposit (if any)
- Discounts (if any)

**Q42. Should pre-paid method is encouraged in case of cable TV services provided though LCOs? Support your comments with justification.**

We recommend mandatory offering of pre-paid method in case of cable TV services provided through LCOs as it will usher in hygiene and transparency which is the need of the hour and will enable stakeholders across the value chain to enjoy the benefits of true digitization.

**Q43. What should the billing cycle both be for pre-paid and post-paid? Please give your comments along with justification.**

Period of one month from the date of activation is recommended.

Pre-paid model can have multi-month schemes as well.

**Q44. Should deduction of maintenance related charges for CPE from the pre-paid subscription account be prohibited?**

No comments.

#### ***3.5.5. Call center for customer care:***

DPO should set up a call center for redressal of complaints and addressing service request of the subscribers. Person aggrieved by the information or decision of call center may approach the nodal officer.

**Q45. How Toll Free number and call center details can be widely publicized among the subscriber?**

Toll free number and call center call center can be published through email, SMS/IVR, CAF, MoP, websites, newspaper, tie up with telecom operator for promotion and advertisement in public places.

**Q46. How response time and accessibility of call center including that of the Call center executive can be enhanced?**

The call center should be accessible to the consumer for 24 hours round the clock on all days of the week.

**Q47. Please provide your comments on the following performance parameters discussed in preceding paras related to call center?**

**(a) Call center availability hours**

**(b) Multiple languages in IVR**

**(c) Response time for answering IVR and voice to voice calls**

**(d) Sub menu and accessibility of customer care executive**

Following should be consider as our comments

(a) Call center availability hours- 24\*7

(b) Multiple languages in IVR- Hindi and English should be mandatory. Further, IVR should also include local languages.

(c) Response time for answering IVR and voice to voice calls- Not more than a minute

(d) Sub menu and accessibility of customer care executive- There should be sub menu for different type of issues and the customer care executive should be easily approachable on IVR.

**Q48. What should be the timelines for complaint resolution for different type of complaints at call center and Nodal officer level?**

Consumer should approach call center for the redressal of complaint. Consumer complaint should be redressed within 48 hrs from the time of complaint. In case a consumer is not satisfied with the redressal of his complaint by the call center, such consumer may appeal to Nodal officer for resolution of complaint. Nodal officer should resolve the complaint within 24 hrs from the time of appeal.

**Q49. Can outsourcing of call center and web based complaint monitoring functions to third party help in increasing efficiency and compliance levels?**

Yes if same is undertaken duly complying with the provision and timelines prescribed under regulations.

**Q50. What should be the innovative ways to develop a speedy user friendly complaint registering and redressal framework using Mobile Apps, SMS, Online system etc.**

Good quality Information and communications technology (ICT) should be opted by the DPOs through the reputed vendors to facilitate remarkable standard of Mobile app, sms, online system, etc.

### **3.6. Issues related to QoS compliance and reporting**

**Q51. What should be framework for implementation of electronic PMR?**

Answer: All DPOs should submit quarterly Performance Monitoring Reports (PMRs) with the Authority that they are in compliance with all the obligations arising out of QOS regulations within 7 days from the end of each quarter.

Such Reports should be evaluated by TRAI and made available to all stakeholders on request. Stringent action should be taken against the defaulting DPOs.

**Q52. What should be framework for auditing of the records for QoS regulatory compliance by DPOs? Please suggest appropriate measures along with justifications.**

We recommend that Broadcast Engineering Consultants India Limited (BECIL) should not be the only authorized technical auditor. A panel of independent technical auditors must be formed to cater to increasing audit demands and to ensure timely completion. While TRAI can conduct its own audits as it does for telcos, it is essential here that the auditing efforts of the TRAI are supplemented by broadcasters who wish to audit the DPOs on QOS parameters by appointing their own auditors. Random surveys and checks should be carried out by the authority regularly to assess the Customer Perception of Service.

The Authority should also prescribe penal provisions if a service provider is found to be in breach of QOS norms.

**Q53. What should be framework for carrying out survey for QoS compliance and subscriber satisfaction?**

Conducting quarterly survey every year by the Authority will not only give a clear insight about compliance but will also enable it to undertake further modification if so desired. Further all outcomes of such surveys and checks should be brought in the public domain by TRAI in order to promote transparency and hygiene.

**Q54. What should be the framework and quantum for financial disincentives for non-compliance to the prescribed QoS benchmarks? Please suggest appropriate measures along with justifications.**

#### Existing Framework:

- QoS compliance and reporting is done through Performance Reporting Report (PMR) and other reports sought from time- to-time for DTH. Such reports are also not brought in the public domain.
- No provision of audit in QoS regulations.
- No provisions for financial disincentive in the existing QoS regulations for non-compliance
- Few and far in between prosecution for QOS violation owing to consumer apathy and broadcasters being denied to bring any action on this score

#### Proposal:

- To formulate a framework for implementation and publication of PMRs for all DPOs.
- Develop a MIS that collects and archives relevant data that pertains to DPOs.
- To provide a system for audit
- To conduct periodic survey like telecommunication industry
- To provide penal consequences for non-compliance by service providers. Prohibitive financial disincentives should be imposed on DPOs so that there is adequate deterrence.
- Enable broadcasters to initiate action against operators violating QOS regulations by making suitable provisions in the Interconnect regulations and QOS regulations. Broadcasters should be able to enforce QOS regulations through enabling clauses to that effect in their respective RIOs.

### **3.7. Miscellaneous issues related to consumer protection**

#### **Q55. Should all channels carried on the platform of a DPO must be included and shown in the EPG? Justify your comments.**

Yes, EPG should include details of all the channels carried on a platform irrespective of whether the subscriber has opted for the same, as it will increase the awareness about the channels available and enable consumers to exercise his option of choice. The EPG should also provide details of all programs available on the channels and their price.

We also recommend that as per existing regulatory provision the EPG must be on the genre basis and the channels that pertains to the respective genre must appear in the relevant Genre in the EPG.

## ***Annexure A***

The content created for Television viewing is piece of art designed from a creative and technical standpoint to provide the consumer or viewer the best experience creatively as well as for its technical quality. Hence all the participants in the value chain needs to ensure that the viewer gets to experience the same quality on their screens as has been created. Further with digitization and technical improvements of the television display technology itself both in terms of video and audio, it becomes possible to represent the content very close to its original quality. However, to ensure this, all the participants in the value chain needs to maintain specific standards for TV signal reception, processing and re-transmission or delivery through various digital medium till the viewer's television sets.

Broadcasters' follow international standards for maintaining the quality of the content at all stages of content acquisition or reception, content processing and compression. The quality of the video and audio is maintained by ensuring monitoring at all stages and correcting where required up to the satellite delivery to the DPO. Technical parameters such as picture brightness, contrast, color, audio loudness and audio dynamic range is optimized to provide the best quality experience to the viewers. Since the DPOs receive the signals and deliver them to the viewers it is expected from them to follow the same standards and ensure that the quality till the delivery to the consumer does not deteriorate.

The key areas which need to follow specified standards are the SIGNAL RECEPTION SYSTEM, SIGNAL PROCESSING SYSTEM, SIGNAL COMPRESSION SYSTEM, delivery medium and the CUSTOMER PREMISES EQUIPMENT (CPE) and also ensure that the signal delivered to the consumer is not misused and protected through appropriate encryption and content protection mechanisms.

The following standards apply to all in the value chain.

#### 1. SIGNAL RECEPTION:

- a. The channels are broadcast over satellite on C-band in DVB-S or DVB-S2 standard. The satellite provider specifies the "LINK BUDGET" for downlink of the broadcast signals from the satellite. Based on the link budget, the DPOs should install their receive dish (TVRO) which should comply with the broadcasters link budget for that satellite and the specified downlink parameters. As a thumb rule, a minimum of 3.4 meter TVRO should be used for C-band signal downlink so that a margin of 5dB is maintained.
- b. The downlinked signals of the satellite C-band transponder should be distributed within the DPOs head-end in such a manner so that the signal losses are minimized to the extent possible. This L-band distribution should follow a structured cabling and distribution process to ensure minimum losses in the signal which is further provided as inputs to the IRD devices of the channels. The signal strength of the L-band signal to the IRD device should be as per standards specified by BIS. As a thumb rule it is recommended that the signal strength of the signal provided to the tuner of the IRD device should be -30dBW to -50dBW at each tuner input of the IRD device.
- c. Depending on the location of the DPOs head-end, they may need to use bandpass filters or TI (Terrestrial Interference) filters to reduce any external interference to the satellite downlink signal. It must be ensured that the L-band signal strength is maintained as per the standards specified by BIS for IRD device at each of its inputs.

#### 2. SIGNAL PROCESSING - BASEBAND

- a. Video:
  - i. SD TV: All the devices used in the DPO's headend should comply with SMPTE 259M for standard definition signal processing from the point the signal is decoded from the IRD device to the encoder of the DPO's headend.
  - ii. HD TV: All the devices used in the DPO's headend should comply with ITU-R BT 709 and SMPTE 292M for high definition signal processing from the point the signal is decoded from the IRD device to the encoder of the DPO's headend.
- b. Audio:
  - i. Audio received with the channels signal may be processed at the DPOs headend due to various reasons. During such processing audio format should be maintained to provide the best experience to the viewers. The loudness standard EBU R128 must be followed

across all formats of audio from mono, stereo to surround audio. This standard should be followed for all the processing devices from the IRD device output to the encoder of the DPO. This will ensure that the audio loudness is uniformly maintained across all channels and all components of the program on the channels and at the same time provide a very good dynamic range for the audio.

- c. Ancillary data:
  - i. These are data which are carried along with the broadcasters video and audio signals of the channels such as subtitling, WSS, etc., should be carried forward to the viewer through the DPOs headend systems.

### 3. SIGNAL COMPRESSION SYSTEM

- a. The compression system forms an important part in the broadcast chain up till the viewer's CPE in the Digital channel broadcast and distribution. The compression technology has evolved from MPEG1 to HEVC and each of these technologies provide better perceived signal quality over the previous generation at lower bit rates. Hence the most appropriate approach to ensure that the video and audio quality is represented to the viewer as close to the original broadcast video audio quality the recommendation by ITU-R BT500 should be followed. The Signal Compression System should so configured in terms of its video and audio parameters and appropriate bandwidth allocated per channel based on the channel type, SD, HD or UHD so that measurements of DMOS (Differential Mean Opinion Score), PSNR (Peak Signal to Noise Ratio), PQR (Picture Quality Rating) which are all double ended measurements can be applied to comply with the ITU recommendation (ITU-R BT500). These parameters measure the output video quality with reference to the input video quality and represent the results as a differential of the two. The recommendation for these measured parameters are as below

PARAMETER	ACCEPTABLE SCALE
DMOS (Differential Mean Opinion Score)	0 to 20
PSNR (Peak Signal to Noise Ratio)	-80dB
PQR (Picture Quality Rating)	10 to 20

- b. High compression introduces BLOCKINESS in the image which reduces the perceived video signal quality. DC Blockiness (Discrete Cosine Transform) is a measure of the compression artifacts introduced due to the compression systems motion compensation or when very high compression of the signal is applied and appears in the image as blurriness and edge blockiness. The DC Blockiness should be less than 2 % of the area of the image or less than 15% of the total area of the frame.

### 4. CUSTOMER PREMISES EQUIPMENT (CPE):

- a. The CPE Video and Audio output quality should comply with the standards specified in the above sections. The reproduction quality of

video and audio by the CPE can be evaluated and measured using the recommendations by ITU in ITU-R BT500. The measurements of DMOS, PSNR, PQA and DC Blockiness can be carried out with reference readings as the incoming signal from the broadcaster and the test point readings being the video output of the CPE at viewer location. The advantage of conducting the measurements at the viewer location reproduces the problems in the entire delivery chain. This would enable the DPOs to identify the problem and correct them so that the viewer is able to receive the best quality signal on his television display system.

- b. The CPE should also be able to reproduce the audio in the same format as the broadcaster delivers the channels up till the viewer's home. So if a channel has 5.1 surround audio then the CPE should be able to carry the surround audio till the CPE's decoded output. It should be left to the viewer to experience the audio in the format they prefer. The CPE's should be able to pass-through 5.1 surround audio as well as decode it to stereo if the viewer so desires. The CPE should comply with the EBU-R 128 recommendation for audio and loudness at pass-through as well as decode.

## **LIST OF ACRONYMS**

BIS - Bureau of Indian Standards  
CPE – Consumer Premises Equipment  
DPO – Distribution Platform Operator  
DTH – Direct to Home  
DVB – Digital Video Broadcasting  
ETSI – European Telecommunication Standards Institute  
HITS – Headend in the sky  
IPTV – Internet Protocol Television  
ITU – International Telecommunication Union  
MPEG – Moving Picture Experts Group  
DMOS – Differential Mean Opinion Score  
PSNR – Peak Signal to Noise ratio  
PQR – Picture Quality Rating  
DC Blockiness – Discrete Cosine Transform Blockiness  
SD – Standard Definition  
HD – High Definition  
TI – Terrestrial Interference  
IRD – Integrated Receiver Decoder  
SMPTE - Society of Motion Picture and Television Engineers  
EBU – European Broadcasting Union  
WSS – Wide Screen Signaling  
HEVC – High Efficiency Video Coding  
UHD – Ultra High Definition