

# TELECOM REGULATORY AUTHORITY OF INDIA

## NOTIFICATION

No.16-2/2006 -B&CS

Dated: 23<sup>rd</sup> August, 2006

In exercise of the powers conferred upon it under section 36 and sub clause (v) of clause (b) of sub-section (1) of section 11 of the Telecom Regulatory Authority of India Act, 1997 (24 of 1997), read with notification No.39 [No.S.O. 44(E) and 45 (E) dated 9<sup>th</sup> January, 2004], issued from file No.13-1/2004–Restg. by the Government of India under clause (d) of sub-section(1) of section 11 and proviso to clause (k) of sub-section(1) of section 2 of the Telecom Regulatory Authority of India Act, 1997 (24 of 1997), the Telecom Regulatory Authority of India, hereby makes the following regulation, namely: -

### **1. Short title, extent and commencement:**

- i) This Regulation shall be called "The Standards of Quality of Service (Broadcasting and Cable services) (Cable Television - CAS Areas) Regulation, 2006 (8 of 2006)"
- ii) This Regulation shall extend to the whole of India.
- iii) This Regulation shall come into force from October 1, 2006.

### **2. Definitions:**

#### **In this regulation, unless the context otherwise requires:-**

- (a) "addressable system" means an electronic device or more than one electronic devices put in an integrated system through which signals of television channels can be sent in encrypted or unencrypted form, which can be decoded by the device or devices at the premises of the subscriber within limits of the authorization made, on the choice and request of such subscriber, by the service provider to the subscriber;
- (b) "alternative tariff package" (ATP) means a tariff package which a service provider may offer, in addition to the standard tariff package, for supply of a set top box to the subscriber for receiving programmes;
- (c) "Authority" means the Telecom Regulatory Authority of India established under sub-section (1) of section 3 of the Telecom Regulatory Authority of India Act, 1997 (24 of 1997);
- (d) "authorized officer" shall have the same meaning as given in clause (a) of section 2 of the Cable Television Networks (Regulation) Act, 1995 (7 of 1995);
- (e) "broadcaster" means any person including an individual, group of persons, public or body corporate, firm or any organization or body who or which is providing programming services and includes his or her authorized distribution agencies;
- (f) "basic service tier" means a package of free-to-air channels provided by a cable operator, for a single price to the subscribers of the area in which his cable television network is providing service and such channels are receivable for viewing by the subscribers on the receiver set of a type existing immediately before the commencement of the Cable Television Networks (Regulation) Amendment Act, 2002 without any addressable system attached to such receiver set in any manner;

- (g) "CAS Area" means the State(s), City (ies), Town(s) or Area(s), where, in terms of a notification issued under sub-section (1) of section 4A of the Cable Television Networks (Regulation) Act, 1995 (7 of 1995), it is obligatory for every multi system operator / cable operator to transmit or retransmit programmes of any pay channel through an addressable system;
- (h) "cable operator" means any person who provides cable service through a cable television network or otherwise controls or is responsible for the management and operation of a cable television network;
- (i) "cable service" means the transmission by cables of programmes including re-transmission by cables of any broadcast television signals;
- (j) "cable television network" means any system consisting of a set of closed transmission paths and associated signal generation, control and distribution equipment, designed to provide cable service for reception by multiple subscribers;
- (k) "distributor of TV channels" shall have the same meaning as given in sub clause (j) of clause (2) of the Telecommunication (Broadcasting and Cable Services) Interconnection Regulation 2004 (13 of 2004);
- (l) "free to air channel" or "FTA channel" means a channel for which no fees is to be paid to the broadcaster for its retransmission through electromagnetic waves through cable or through space intended to be received by the general public either directly or indirectly and which would not require the use of any addressable system attached with the receiver set of a subscriber;
- (m) "multi system operator(MSO)" means a cable operator who receives a programming service from a broadcaster or his authorized agencies and re-transmits the same or transmits his own programming service for simultaneous reception either by multiple subscribers directly or through one or more cable operators, and includes his authorized distribution agencies by whatever name called;
- (n) "pay channel" means a channel for which fees is to be paid to the broadcaster for its retransmission through electromagnetic waves through cable or through space intended to be received by the general public either directly or indirectly and which would require the use of an addressable system attached with the receiver set of a subscriber;
- (o) "programme" means any television broadcast and includes-
  - (i) exhibition of films, features, dramas, advertisements and serials
  - (ii) any audio or visual or audio-visual live performance or presentation

and the expression "programming service" shall be construed accordingly;

- (p) "service provider" means the Government as a service provider and includes a licensee as well as any broadcaster, multi system operator(MSO), cable operator or distributor of TV channels;
- (q) "set top box" means a device, which is connected to, or is part of a television and which allows a subscriber to receive in unencrypted/descrambled form subscribed pay channels through an addressable system;
- (r) "standard tariff package "(STP) means a package of tariff as may be determined by the Authority for supply of a set top box to the subscriber by a service provider for receiving programmes;
- (s) "subscriber" means a person who receives the signals of a service provider at a place indicated by him to the service provider without further transmitting it to any other person.

**3. Provisions relating to connection, disconnection, transfer and shifting of cable service in CAS areas**

- 3.1 a) Cable operators /MSOs, as the case may be, in notified CAS areas, shall devise formats of applications in bilingual mode (including one local language), for all subscribers of pay channels to take a set top box, to return a set top box, to shift or transfer and to seek connection, disconnection or reconnection of cable service. Adoption of a common format prescribed, if any, by MSO or its affiliate for a group of cable operators under him, as the case may be, would be construed as compliance of the requirement under this clause. Every subscriber whose application has been accepted will be given a unique ID number and this should preferably be built in the Subscriber Management System of the MSO.
- (b) The requirement of application form for subscribers of pay channel but not for subscribers of basic service tier, comprising of free to air channels, in CAS Areas should not be construed as exclusion of the latter category of subscribers from the applicability of the clauses providing for standards of quality of service relevant to them.

Explanation : In Chennai the provisions of this clause and clauses 3.2 to 3.7 will apply, to new subscribers of pay channels.

3.2 The devised format of application, inter alia, must contain the following details:

- i) Applications shall be serially numbered and shall be in bilingual mode (including one local language).
- ii) There should be two copies of application and one will be returned duly acknowledged as having been received by the cable operator /MSO
- iii) Name, Address, telephone numbers, mobile numbers, fax numbers, e-mail address, if any, of the cable operator as well as the MSO, and the names of contact persons (at least two).
- iv) Details contained in the Registration Certificate obtained under section 4(3) of the Cable and Television Network (Regulation) Act, 1995 (7 of 1995) such as date of certificate, the date of expiry of Registration Certificate as well as any approval given by the Government of India
- v) Details of Entertainment Tax, Service Tax Registration number, if applicable.
- vi) Details of programming services offered clearly indicating number and names of channels available, bouquets of channels, whether free to air channel or a pay channel, value added services, if any, available.
- vii) Maximum retail prices of individual channels, bouquet(s) of channels along with names of the channels and bouquet(s) of channels offered.
- viii) In case the cable operator has a number of schemes of alternative tariff packages in addition to the standard tariff package as may be prescribed by the Authority for supply of set top boxes it can be attached to the application form as an annexure or circulated in such a manner that a subscriber is aware of the services offered and price thereof and can indicate his choice.
- ix) The application form should clearly lay down the terms and conditions and in particular contain the following:
  - (a) Columns for getting basic information about the subscriber such as name, address, telephone/mobile number, etc. All such personal information should be kept confidential.

- (b) Payment terms, indicating the due dates of payment, mode of payment, special discount schemes for lump sum or advance payment, penalty, charging of interest for delayed payment etc.
- (c) Reasons and grounds on which the application is liable for rejection.
- (d) Application form should facilitate subscribers to indicate number of TV sets, location where connection desired, individual channels and or bouquet(s) desired, value added services, if any, required.
- (e) List of documents, including proof of residence, required to be furnished for fresh connection, shifting, disconnection
- (f) Procedure for handling complaints either in the application form or separately in the form of booklet /pamphlet indicating
  - i) Possible areas /causes of complaint
  - ii) Contact details of persons responsible for redressal of the complaint – at least two.
  - iii) Procedure to be followed in getting the complaint redressed for each or group of causes or areas of complaint.
- (g) Maintenance / service policy either as a part of the application or as a separate booklet/pamphlet.
- (h) Policy for rebate in case of no signals or disruption in service.
- (i) Obligations of the cable operator/ MSO to ensure quality of service as stipulated in this regulation.
- (j) Obligations of the subscriber to protect and guard the property of the cable operator placed in the location of the subscriber where programming services have been requested for.
- (k) Technical and Non technical parameters of Standards of quality of service prescribed by the Authority.

3.3 An application duly signed and complete in all respects for subscribing to pay channels, or a request only for basic service tier, from any subscriber, residing in the area specified in the Registration Certificate of the cable operator should be responded to by the cable operator within five working days of receipt of application, indicating the deficiencies shortcomings, if any, in the application or request, as the case may be, expected date of activation of the connection /reactivation of connection

3.4 The cable operator shall also, in the case of subscribers for basic service tier, capture the details required of an applicant for pay channels and maintain appropriate records for the period as may be prescribed by the Authority from time to time.

3.5 In case, the cable operator finds that it is possible to provide connection, i.e, there is no technical non-feasibility, the activation/reactivation of the connection should be completed within two working days of the completion of the formalities on the part of the subscriber. For the purpose of this clause, the term 'technical non feasibility' would mean and include the following:

- i) The location where the services required is not accessible or would be accessible at a cost, which the subscriber is not agreeable to bear.
- ii) The location where the services required are accessible but it is not technically feasible to provide the extent of quality of signals as specified in clause 8 of this Regulation.
- iii) The location where the services are required falls outside the jurisdiction of the area for which the cable operator holds a registration certificate.

- 3.6 In case it is not technically feasible to provide cable services in the location where the services are requested by the applicant, he or she should be informed within 5 working days from the date of receipt of application, indicating the reasons as to why it is technically not feasible to provide service and what the consequences are in terms of quality of signals even if provided despite technical non-feasibility. If possible, the MSO/ cable operator may inform such applicant of the alternative sources from where cable services can be obtained.
- 3.7 No request from a subscriber for cable service at a location which falls within the area for which the cable operator has a valid registration certificate to provide cable service shall be rejected by any cable operator, solely on the ground that the location or the household has been demarcated for any other cable operator authorized to provide cable service in the same area. It is, however, clarified for removal of doubts that this would not preclude a cable operator from rejecting an application on any other explicitly stated grounds of rejection that he can establish.
- 3.8 Each MSO shall prescribe a procedure to be followed by the cable operators for handling requests for shifting by the subscribers within his network/area of operation. For this purpose, the MSOs/their affiliates may evolve a mutually agreed procedure and this procedure should provide, inter alia, for the details of steps to be followed by the cable operators, formalities to be completed by the subscriber and the maximum time limit within which the shifting should be completed. They may lay down different time limits for different situations but it shall however be ensured that the procedure prescribed is such that the subscribers are able to get the services from the new cable operator within a maximum of five working days from the date of request for shifting.

#### **4. Provisions relating to complaint handling and redressal in respect of cable services in CAS areas**

- 4.1 All complaints given to a cable operator/ MSO in a CAS area should be registered and a serial number of the complaint given to the complainant. The complaints should be taken up for redressal preferably in chronological order of registration. Every cable operator / MSO, as the case may be, should ensure that the subscriber is made aware of the complaint handling procedure containing details as indicated in clause 3.2(ix)(f) of this regulation.
- 4.2 A cable operator or MSO, as the case may be, shall maintain records of all complaints filed by the subscriber with them. The records shall include name and address of complainant, date and time of filing complaint, type of complaint and redressal date and time with the written confirmation from the subscriber that the complaint has been redressed. The records shall be kept till the expiry of 3 months from the date of resolution of a complaint. The cable operator /MSO shall present the records whenever called upon by the Authority or the Authorized officer as defined under The Cable Television Network (Regulation) Act, 1995 (7 of 1995).
- 4.3 Each cable operator/MSO must maintain a customer service center or help desk 24 hours a day, 7 days a week. A facility for automatic recording of complaints or some other mechanism for registering of complaints shall be in place. It may be ensured that the staff at customer service center or help desk are qualified and competent enough to handle the requirements of service.
- 4.4 The following benchmarks shall be observed in regard to the redressal of complaints:

- i) All complaints shall be attended /responded within eight hours of receipt of complaint, except those received during the night which shall be attended to the next day and satisfaction report obtained from subscriber. Where it is not possible to attend /respond to the complaint within this time limit, the response should indicate the anticipated time for redressal of the complaint. If it is not feasible to comply with the benchmarks indicated hereafter for reasons beyond the control of the cable operator /MSO, the reasons for the same shall be communicated to the subscriber, while responding to the complaint.
  - ii) At least 90% of "No Signal" calls received shall be corrected within 24 hours and a satisfaction report obtained from the subscriber
  - iii) At least 90% of all other types of complaints shall be corrected within 48 hours and a satisfaction report obtained from the subscriber.
  - iv) Subject to any specific provision in this regulation, a system of rebates in the form of discounts to the subscriber due to interruptions on account of no signal or weak signal or disruption of service, shall be put in place by the cable operator or MSO, as the case may be, and the subscriber should be made aware of the same.
- 4.5 A cable Operator/ MSO shall take all necessary steps like provision of back up power supply, to minimize the incidence of service interruption due to power failure.
- 4.6 In case signals have to be disrupted for facilitating preventive maintenance, the subscriber should be given a clear notice of atleast 3 days, if the disruption is likely to be for one day or less and the notice period shall be 15 days if the disruption is likely to be for more than a day. The cable operators / MSOs can choose their own method of providing prior notice of possible disruption.
- 4.7 All cable operators / MSOs shall ensure that its representative(s) carry proper identification along with a photograph, and are polite in their behavior with the subscribers.

**5. Billing Procedure and billing related complaints in respect of cable services in CAS areas**

- 5.1 Subscribers in CAS areas shall generally be billed on monthly basis and the bill should indicate the Service Tax Registration Number, Entertainment Tax Registration number of the MSO or the cable operator, as the case may be, as applicable. The entries in the bills must be itemized to separately indicate price of individual pay channel(s) or bouquet(s) of pay channels and the names of channels in the bouquet, as applicable, charges for basic service tier and the channels comprised therein, charges for set top box, amount of each type of tax levied and the rate thereof. This clause, however, does not preclude a cable operator /MSO, from promoting different schemes of payment in which case the bills can be raised at such periodicity as per the scheme opted by the subscriber.
- 5.2 The subscribers shall ensure prompt payment of all bills within 7 days from the date of receipt of the bill. Any payment done after the expiry of 7 days shall attract simple interest @ 15% p.a on the amount of bill delayed. The interest for such delayed payment shall be calculated on a pro-rata basis for the number of

days of delay. For each and every payment made by a subscriber, the cable operator/ MSO, as the case may be, shall issue a proper receipt.

5.3 The following procedure will normally be followed for raising of bills, delivery of bills and collection of payments thereof:

- i) In respect of subscriber opting to watch pay channels through a set top box, a single bill will be generated by the MSO, indicating the charges for pay channels as well as channels forming part of the basic service tier. The subscriber should be required to make only one payment.
- ii) In respect of subscribers who do not opt to watch pay channels through the set top box, the monthly bill shall be raised and the proceeds collected by the cable operator.

5.4 The billing system should be such that the following benchmarks are met:

- i) Complaints relating to billing shall be addressed within 7 days of notice from the subscriber.
- ii) Refunds must be issued within 30 days following the resolution of the complaint or before the next billing cycle whichever is earlier.

## **6. STB related issues and complaints in respect of cable services in CAS areas**

6.1 In CAS areas the cable operator or the MSO, as the case may be shall:

- i) facilitate availability of information regarding the contact addresses, telephone numbers, contact persons where the Set Top Boxes which are compliant with the Bureau of Indian Standards (BIS) can be purchased or obtained on lease or on rent;
- ii) publicize the schemes available for purchase or lease of BIS compliant Set Top Boxes with their salient features under the various schemes. Any scheme prescribed by the Authority as regards pricing and /or renting of set top boxes shall also be publicized
- iii) prescribe procedure to be followed for obtaining the BIS compliant set top boxes.
- iv) make available a manual or pamphlet setting out instructions as far as possible in an easy to understand language by a non-technical person for operating the set top box. This can be supplemented by providing information through the in-house channel or by suitably running a scroll on the screen.

6.2 In cases where there is a malfunction of a set top box supplied, by a cable operator / MSO, the cable operator / MSO, shall arrange for repair or replacement, as the case may be, within 24 hours of receipt of the complaint of malfunctioning. This clause shall not apply to cases of complaints of malfunctioning where the set top box has been found tampered with by the subscriber

6.3 In cases where a customer chooses to return a set top box, the refund of security deposit, if any, shall be made within seven days as per the prescribed scale. This clause shall not apply to cases of return of set top box where it is found that the set top box returned has been tampered with by the subscriber. In such cases the cable operator /MSO shall inform the subscribers within 4 weeks about their decision in the matter.

6.4 Rebate for deficient service: In case the installation and activation of the set top box is delayed beyond two working days of the completion of all formalities required by the subscriber, the MSO/cable operator shall, in the monthly subscription give a rebate of Rs 15 per day for the first 5 days and Rs 10 per day for the subsequent period.

**7. Change in positioning of channels/ Taking the channel off air in respect of cable services in CAS areas**

7.1 In CAS areas change of positioning of TV channels comprised in the basic service tier by the MSO operating the Head End should not normally be done. In case of pressing technical reasons requiring changes of TV channel position, the subscriber shall be notified at least 3 days in advance of such occurrence. For the purpose of information to the subscribers, a scroll indicating the frequency in which a particular channel is placed shall be run at periodic intervals.

7.2 MSOs shall keep adequate records or have in place a system to generate information on the frequencies at which a channel was placed at different points of time and the number of times the frequencies of a channel has been shifted.

7.3 In no circumstances, unless it is beyond the control of the MSO, a channel positioned in a particular frequency shall be taken off the air without giving prior notice of at least three weeks along with the reasons for taking it off the air. This notice must be given to all subscribers through an advertisement in two local newspapers or by running a scroll in the relevant channel(s).

7.4 No cable operator shall disconnect for whatever reason a subscriber without giving written notice of at least 15 days, clearly indicating the specific reasons for disconnection. The period of 15 days for the purpose shall be reckoned from the date of receipt of the notice for disconnection by the subscriber.

**8. Technical Standards**

MSOs and cable operators shall match the technical standards set by the BIS for cable Television Networks.

**9. Monitoring of performance of quality of service standards in respect of cable services in CAS areas**

The Authority may, from time to time, issue directions, orders requiring service providers in CAS areas to furnish information in such form and at such intervals as may be required for the purpose of monitoring the performance of quality of service standards.

**10. Public awareness campaign in CAS areas**

Every MSO who has been given permission under sub rule 3 of rule 11 of Cable Television Networks (Second Amendment) Rules 2006 to provide cable service in CAS notified area, shall conduct a public awareness campaign about the salient features of the provisions contained in this regulation in CAS areas. The public awareness campaign shall start from a date as may be specified through a direction by the Authority.



**11. Explanatory Memorandum**

Annex to this Regulation contains an Explanatory Memorandum for making this regulation.

By Order

Rakesh Kacker  
Advisor (B&CS-I)

**EXPLANATORY MEMORANDUM**

1. In the Recommendations of 1.10.2004 on Issues relating to Broadcasting and Distribution of TV channels, Authority, while indicating the Quality of Service codes for the Cable Television had stated that the necessary regulation will be issued by the Authority after the decentralized enforcement machinery has been put in place. The basic rationale was the concern for difficulties in implementation of the regulations at the ground level with more than 6000 multi system operators (MSOs) and 60000 cable operators without any machinery for decentralized enforcement mechanism. Keeping this concern in mind it was also proposed that the Telecom Regulatory Authority of India Act (24 of 1997) (TRAI Act) be amended to give powers to Authorised Officers as defined under the Cable Television Networks (Regulation) Act, 1995, (7 of 1995) to file complaints for violation of Regulations issued under the TRAI Act.
2. In a writ petition filed by a group of MSOs, a Single Judge Bench of the Hon'ble High Court of Delhi, on 10<sup>th</sup> March 2006, directed that the Conditional Access System (CAS) be implemented within a period of 4 weeks. In an appeal filed by Union of India against this direction, a Division Bench of the Hon'ble High Court of Delhi had on 20<sup>th</sup> July 2006, directed implementation of CAS in notified areas of Delhi, Mumbai and Kolkata by 31<sup>st</sup> December 2006. As a part of the plan of action for implementation of Conditional Access System, the Authority was required to formulate and notify a standard form of contract between a cable operator and consumers. Given the volume in terms of number of cable operators and number of consumers, it was considered more appropriate to issue regulations setting out the standards of quality of service rather than prescribe a standard form of agreement between a cable operator and a subscriber.
3. Accordingly, a process of consultation was initiated with the issue of a draft of the quality of service regulation on 23.6.2006 inviting inputs from the stakeholders. Responses were received from 7 stakeholder representatives and the gist of the comments received on various clauses of the regulation is appended to this Explanatory Memorandum. A meeting was also held with representatives of stakeholders to further deliberate on the various clauses of the regulations. The Government of India issued a notification on 31.7.2006 notifying areas where CAS would be implemented wef 31<sup>st</sup> December 2006. Government of India has also notified on 31.7.2006 the Cable Television Networks (Second Amendment) Rules, 2006.
4. The Authority would address the quality of service regulations for DTH and for Non CAS areas separately at an appropriate time.
5. The regulations have been formulated considering the fact that the Cable Television Industry in the country has not been subjected to any primal prescription of quality of service standards over a decade and half of its development. There are also no known industry standards or commonly followed business practices which can be adopted as a model. The factors that the last mile is highly fragmented and a large majority of the operators may not have the financial and technical wherewithal and would need time to adjust to the new dispensations has also been kept in view. On the other hand, Authority during the course of implementation of its Tariff Orders and Regulations, has experienced that the end consumers will have to be provided with a regulatory mechanism to seek relief and safeguard their interests on a number of issues related to quality of service aspects. The provisions, contained in

the notification of 31.7.2006, amending the Cable Television Networks Rules, 1994 has also been kept in mind.

6. While drawing up the regulations, Authority has made an effort to balance the interests of the consumers and their concerns as well as the considerations stated above relating to the industry. The lessons learnt during the implementation in the nascent stage would be a useful tool for improvement of the standards. This may require revisiting some of the standards and benchmarks, whenever necessary, based on experience in implementation.
7. The responses received during the consultation process have been examined and analyzed in detail in the background of the above basic approach. The succeeding paragraphs set out the basis and rationale for the changes made in the draft regulation and also the reasons for not accepting some of the changes
8. A view expressed during the consultation process was that for purposes of clarity, it should be specifically restricted to only CAS notified areas under Section 4 A of The Cable Television Networks (Regulation) Act, 1995 (Cable Act). Accordingly, the relevant clauses of the regulation have been amended suitably so as to bring clarity about the applicability of this regulation.
9. Certain changes have been proposed in some of the definitions. The approach towards defining various terms has been by and large to retain the structure and format of definitions as contained in the tariff orders, regulations, the Cable Act and the Cable Television Networks Rules, 1994 , as amended. Accordingly, some of the suggestions for changes in the definitions have not been accepted and the other definitions have also been brought in line with the above approach.
10. In Clause 3.1 certain changes have been proposed by the stakeholders regarding the language of the form. Accordingly, the draft has been modified to provide that the application must be bilingual (including one local language); the suggestion for a unique ID number has also been accepted and has been provided in Clause 3.1 of the regulations. In Chennai CAS is in force and therefore an explanation has been added below clause 3.1 to make the position clear that clauses 3.1 to 3.7 relating to requirement of application form, benchmarks for providing cable service etc would apply to new subscribers of pay channel in Chennai. In the case of Delhi, Mumbai and Kolkata, since CAS will be introduced from 31st Dec 2006, these clauses will apply to all subscribers. All the clauses of the regulation providing for benchmarks under various other headings, wherever relevant, will also be applicable to all subscribers of Chennai.
11. Certain changes have been proposed to bring clarity in the requirements of clause 3.2 as well as to overcome certain practical difficulties. After considering all these, the following changes have been made in this clause:
  - The requirements of the Registration Certificate have been amplified
  - The need for ensuring that the consumer can clearly indicate his choice in the form/annexure to the form
  - The maintenance policy can be part of the form or as a separate document
  - All personal information shall be kept confidentialDrafting changes have also been made to amplify/clarify the requirements.
12. Clause 3.3 (in the draft regulation) has been reviewed in the light of the above changes and has been included in 3.1 itself.

13. Clauses 3.5 to 3.6 deal mainly with the time period to respond to requests for fresh connections and to install a fresh connection. Operators had suggested that these time limits are too tight and while in most cases they would be able to adhere to it, in some cases, this may not be possible. This has been carefully considered. Five days time for the initial response and 2 working days for final installation after all formalities are completed cannot be considered to be too tight. In most cases, installation can be done on the same day after the completion of formalities. However, to take care of contingencies, 2 days have been provided which is quite reasonable. The suggestion to increase the time limit in clause 3.6 (clause 3.7 of the draft regulation) has, however, been found to be reasonable. Normally, a service provider would try and find a way to provide service. Where this is not possible, a shorter time limit may force the service provider to reject a request rather than find a way to provide the service. Accordingly, the time limit here has been increased to 5 days. The other suggestion received is that all consumers must be connected and no exception should be made for those cases where it is not technically feasible. This would be too extreme a condition. In the normal course no service provider would like to forego a business opportunity. However, there could always be some exceptions and, therefore, this has been provided for.
  
14. A legitimate concern of a subscriber has been the practice of self-imposed area demarcation by cable operators operating in an area thereby denying a choice to change or choose a particular cable operator. Clause 3.7 has been intended to mitigate this problem. One of the objections to this clause is that there is an overlap of the territories of various cable operators. This should not preclude an operator from providing a service where it is feasible even though another operator may be operating there. The concerns of the broadcasters on the issue of area of operation as provided in the agreement essentially arises out of concern on accounting for which remedies should be available in their agreements with MSOs/cable operators. In any case, this concern is not valid in an addressable system where there is full accounting of all pay channel subscribers. The purpose of clause 3.8 is to bring in a transparent procedure which the cable operators and subscriber are aware of in the case of shifting from one cable operator to another within the network of the same MSO. This has been clarified in clause 3.8. The causes for complaint for signal quality, disruption of service can arise at different stages of the distribution chain through which the broadcast signals travel. It can be at a stage before reaching the network of MSO, in the network of the MSO, in the last mile connectivity given by the cable operator, and in the household where the equipment and its accessories reside. The responsibility for redressal of the complaint would, therefore, depend on the cause of the complaint. One approach could be to identify each of these causes and the stage where such cause can normally occur and assign the responsibility in the regulation. The other approach is to provide an enabling clause in the regulation to require the MSO and the cable operator to identify causes for complaints; the stage where such causes would occur and the persons who can then resolve the cause for complaint. The subscriber will then have a clear direction as to whom to approach for redressal of the complaints. Given the different kinds of network and distribution arrangements, it has been considered desirable to give flexibility and adopt the second approach. A suggestion has been made that the Maintenance Executive should provide the name of the next senior who can resolve the problem. Further since the help desk may not always be manned, it has been provided that recording devices can be used so that the consumers can have their complaints recorded at all times. Accordingly, clause 3.2 (iii) and ix (f) as well as the provisions of clauses 4.1, 4.2 and 4.3 have been amended to provide for the minimum requirements in this regard.

15. Clause 4.4 has been objected to by the operators on the grounds that the time period of 4 hours is too short. This has been reviewed and in view of the difficulties expressed this time limit has been extended to 8 hours. Further these 8 hours will not apply in case of complaints received during the night. Thus a complaint received at night can be attended to during the next day. A complaint received at 10 p.m will have to be attended to by 6 p.m the next day (10a.m to 6p.m: 8 hours). Therefore, clause 4.4 (i) has been amplified and correspondingly the amended requirements have been made applicable to all complaints rather than only 90% of the complaints. Similarly, doubts have been expressed over both the feasibility and the manner of implementation of clause 4.4 (ii)(in the draft regulation) - for the present this requirement is being deleted and can be reviewed after some experience has been gained.
16. The need for back up power as provided in clause 4.5 has been accepted but in some areas it may be not be possible to provide the minimum of 6 hours for reasons of lack of electricity or other force majeure conditions. Accordingly, the minimum stipulation of 6 hours has been deleted. In respect of clause 4.6, a suggestion has been made that a shorter notice period may be provided for in case of shorter disruptions. This has been accepted and clause 4.6 has been suitably amended.
17. Clauses 5.1 to 5.3 have been reworded so as to bring out at one place the billing requirements; in addition the Service tax and Entertainment tax registration numbers should also be entered in the bill. These clauses have been amended to ensure that the subscriber has only one bill to pay – the arrangements between the MSO and the Cable Operator will be separately determined by the interconnection arrangements. Clause 5.2 also requires subscribers to ensure prompt payment and provides for deterrent to discourage delayed payments.
18. Clauses 6.1 to 6.4 have been slightly amended to bring in greater clarity and also to specify that any scheme for set top boxes approved by the Authority is also publicized. In addition, the time limit for refund of security deposit for boxes has been cut down from 15 days to 7 days. Safeguard to the cable operators/MSOs is also provided in cases of complaints of malfunctioning or return of set top boxes due to tampering by the subscriber. The wording of clause 6.4 has also been amended to bring it in line with the requirements of clause 3.5 as has been suggested by one of the stakeholders.
19. Clauses 7.1 to 7.3 are intended primarily to protect the interests of basic service tier subscribers where channels may continue to be in analogue mode and frequent shifting of its frequency or taking them off air without notice would be a big irritant. The clauses require notice in case there is a pressing need for change of frequency or if they are taken off air, with reasons to the consumer. As suggested by one of the stakeholders, the option has been specified to give the public notice either through the newspaper or through a scroll in the relevant channels(s). The notice to a subscriber prior to disconnection has been reduced from 30 days to 15 days keeping in mind that the subscriber will also have some time to pay his/her bill after availing the service.
20. Clause 9 is intended as an enabling provision to bring in a system for monitoring the performance at the ground level and for assessing the effectiveness of the quality of service standards. The precise forms of reporting, periodicity of reporting and such other details would be spelt out through appropriate directives.
21. Clause 10 has been added to ensure that the MSO creates public awareness campaign about the salient features of the quality of service regulations as

envisaged in the Cable Television Networks (Second Amendment) Rules, 2006 notified by Government of India on 31.7.2006. It has been proposed that Authority would separately issue directions on the date from when the public awareness campaign would start.

(refer to para 3 of Annex attached to The Standards of Quality of Service  
(Broadcasting and Cable services) (Cable Television - CAS Areas) Regulation, 2006  
(8 of 2006))

**GIST OF COMMENTS RECEIVED ON THE DRAFT REGULATION ON  
QUALITY OF SERVICE IN RESPECT OF CAS AREAS**

**INDEX OF STAKEHOLDERS FURNISHING COMMENTS ON THE DRAFT QUALITY OF  
SERVICE REGULATIONS FOR CAS AREAS**

Sl.No.	Name	From Where
1	IndusInd Media & Communications Ltd. (IMCL)	Mumbai
2	Hathway Cable & Datacom Private Limited (Hathway)	Mumbai
3	Cable Operators Federation of India (COFI)	New Delhi
4	Col V C Khare (Retd) – A cable industry observer	Mumbai
5.	Star India Pvt Limited	Mumbai
6	Espn Software India Pvt Ltd	Delhi
7	VOICE	Delhi

<u>Clause Reference in the Draft</u>	<u>Description of the clause (in bold italics) and comments of stakeholders</u>
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**2. Definitions (only those definitions where comments have been received have been reproduced)**

- (a) *'Addressable system' means an electronic device or more than one electronic device put in an integrated system through which signals of cable television network can be sent in encrypted or unencrypted form, which can be decoded by the device or devices at the premises of the subscriber within limits of the authorization made, on the choice and request of such subscriber, by the distributor of TV channels to the subscriber;*

Comments of Stakeholders

- A) For 'integrated system read ' Cabled Broadcast System' (Col (Retd) V.C Khare, a cable TV Industry Observer, Mumbai)

- (d) *"Broadcaster" means any person including an individual, group of persons, public or body corporate, firm or any organization or body who/which is providing broadcasting service and includes his/her authorized distribution agencies;*

Comments of Stakeholders

- A. After 'broadcasting service' insert ' terrestrial, satellite or cabled broadcasts' (Col (Retd) V.C Khare, a cable TV Industry Observer, Mumbai)

- (h) *"Cable Television Subscriber" means a person who receives the signals of a cable television network at a place indicated by him to the cable operator without further transmitting it to any other person and includes a fresh applicant who desirous of becoming a subscriber has made an application for the purpose to a Multi System Operator or Cable Operator;*

Comments of Stakeholders

- A. After 'place indicated by him' add 'in the subscription form deposited with the Cable TV service provider' (Col (Retd) V.C Khare, a cable TV Industry Observer, Mumbai)

- B. The Cable Operators are not authorized to provide signals to the commercial subscribers. Therefore, the definition of Cable Television Subscriber should specifically exclude ' Commercial Cable Subscriber' (M/s. ESPN Software India Pvt Ltd, Delhi)

- (i) *"Cable Television Service" means the transmission by cables of programmes including re-transmission by cables of any broadcast television signals;*

Comments of Stakeholders

- A. After 'cables' add 'optical fiber, coaxial copper, twisted /untwisted copper pairs' (Col (Retd) V.C Khare, a cable TV Industry Observer, Mumbai)

- (l) *"Distributor of TV channels" means any person including an individual, group of persons, public or body corporate, firm or any*



*organization or body re-transmitting TV channels through electromagnetic waves through cable or through space intended to be received by general public directly or indirectly. The person may include, but is not limited to a cable operator, direct to home operator, multi system operator, head ends in the sky operator;*

- (m) "Direct to home operator" means an operator licensed by the central government to distribute multi channel TV programmes in KU band by using a satellite system directly to subscriber's premises without passing through intermediary such as cable operator or any other distributor of TV channels;*
- (O) "head ends in the sky operator" means any person permitted by the central government to distribute multi channels TV programmes in C band by using a satellite system to the intermediaries like cable operators and not directly to subscribers;*

Comments of Stakeholders

- A. After 'cable operator' add 'wired distribution of TV channels' in clause 2(m) **(Col (Retd) V.C Khare, a cable TV Industry Observer, Mumbai)**
- B. Since the regulation relates to Cable Television in CAS areas the clauses [clause (l), (m) and (o)] which refer to other distribution platforms like 'Direct to Home Operator', 'Head Ends in the Sky Operator' and Distributor of TV Channels should be amended /deleted. **(M/s. ESPN Software India Pvt Ltd, Delhi)**

**3.1 All cable operators shall have prescribed formats of applications preferably in the local language, for a cable Television subscriber to take a set top box, to return a set top box and seek disconnection of the cable television service. Adoption of a common format prescribed, if any, by a Multi System Operator or its franchisee for a group of cable operators under him as the case may be would be construed as compliance of the requirement under this clause.**

Comments of Stakeholders

- A. OK **(IMCL, Mumbai)**
- B. The most widely accepted language for all major services of similar magnitude is English **(M/s. Hathway Cable and DataCom Private Ltd, Mumbai)**
- C. After the existing clause the following entry "A unique subscriber number should be allocated to the subscriber irrespective of the number of Set Top Boxes installed at their location. As good accounting practice syntax for unique ID should relate to subscriber location on the network, PIN Code and serial no of STB" should be added. **(Col (Retd) V.C Khare, a cable TV Industry Observer, Mumbai)**
- D. The application must be in English and local language printed on both sides and must be serially numbered **(M/s. Star India Pvt Ltd, Mumbai)**
- E. The application must also be in English –one side local language and other side in English. **(M/s. ESPN Software India Pvt Ltd, Delhi)**

**3.2 The prescribed format of application, interalia, must contain the following details:**

- i) Applications may be serially numbered and preferably be in the local language. In case it is not feasible to serial number the application it may be ensured that a system is in place to ascertain the number of applications received, number accepted, rejected, average time taken to respond to the application etc**

Comments of Stakeholders

- A. OK. Local language if required by the customer. **(IMCL, Mumbai)**  
B. The application should be in English as well as local language. **(COFI, Delhi)**  
C. The application must be in English and local language printed on both sides and must be serially numbered **(M/s. Star India Pvt Ltd, Mumbai)**  
D. The application must also in English and must be serially numbered. **(M/s. ESPN Software India Pvt Ltd, Delhi)**

- ii) Applications should either contain a perforation acknowledging the receipt of application and its date thereof or there should be some alternative mechanism for acknowledging the receipt of the application.**

Comments of Stakeholders

- A. OK (IMCL, Mumbai)

- iii) Name, complete Address including the telephone nos, mobile nos, fax nos, e-mail address if any, of the cable operator, names of contact persons (at least two).**

Comments of Stakeholders

- A. Two may not always be feasible or necessary. **(IMCL, Mumbai)**

- iv) Details of Registration Certificate (date, validity period etc) authorizing to provide cable services including the date of expiry of Registration Certificate, Area of operation as per the Registration Certificate.**

Comments of Stakeholders

- A. Whenever they are available under new CAS guidelines however should not be a deterrent to quick implementation. **(IMCL, Mumbai)**  
B. We have no clarity on the Registration Certificate and related process. **(M/s. Hathway Cable and Datacom Private Ltd, Mumbai)**  
C. The application must provide the details of the Registration Certificate but the area of operation must be as per the agreement. **(M/s. Star India Pvt Ltd, Mumbai)**

- v) Details of Entertainment Tax, Service Tax Registration number if applicable and obtained.**

Comments of Stakeholders

- A. This can be done at the time of billing instead of the application form. **(IMCL, Mumbai)**  
B. The Cable Operator must obtain the Entertainment Tax Registration Certificate, and Service Tax Registration Certificate,

if applicable. Therefore, the words 'and obtained' must be deleted. **(M/s. Star India Pvt Ltd, Mumbai)**

C. The Cable Operator must obtain the Entertainment Tax Registration Certificate, and Service Tax Registration Certificate, if applicable. Therefore, the words 'and obtained' must be deleted. **(M/s. ESPN Software India Pvt Ltd, Mumbai)**

**vi) *Details of programming services offered clearly indicating number and names of channels available, bouquets of channels, whether it is a FTA channel or a Pay Channel, value added services if any available.***

Comments of Stakeholders

A. OK. **(IMCL, Mumbai)**

B. The words " at rates prevailing on date of installation" may be added after the words "names of channels" **(Col (Retd) V.C Khare, a cable TV Industry Observer, Mumbai)**

**vii) *Maximum Retail Prices of individual Channels or Bouquet(s) of Channels shall be specified along with name of the channel and Bouquet(s) of channel offered.***

Comments of Stakeholders

A. OK. (IMCL, Mumbai)

**viii) *In case the cable operator has a number of schemes it can be attached to the application form as an annexure or circulated in such a manner that a cable Television subscriber is aware of the services offered and price thereof.***

Comments of Stakeholders

A. OK. (IMCL, Mumbai)

B. At the end of clause (viii) the words "Provided that annexure to the scheme, if any, ordered is signed by the subscriber and attached with the application form, to constitute the initial ordering preference entered in the subscriber management system (SMS). All further changes will in any case be accessible as history in the SMS" **(Col (Retd) V.C Khare, a cable TV Industry Observer, Mumbai)**

**ix) *The terms and conditions whether forming part of the prescribed application format or not and information required to be given in the application form, must address the following areas:***

**(a) *Period of Service and procedure for renewal of service after the expiry of the specified service.***

**(b) *Payment terms indicating the due dates of payment, mode of payment, special discount schemes for lump sum or advance payment penalty, charging of interest for delayed payment etc***

**(c) *Reasons and grounds on which the application is liable for rejection.***

**(d) *Columns in the application for getting information on the number of TV connections required in the location where the provision of Cable Television Services has been desired.***

**(e) *Columns facilitating the applicant to choose the services of individual channel /bouquet of channel or other value added services he/she desires to avail of.***

- (f) *List of documents if any required to be furnished for availing Cable Television Service, afresh, or for shifting or transfer or for disconnection.*
- (g) *Maintenance service policy.*
- (h) *Policy for compensation /Rebate in case of no signals or disruption in service.*
- (i) *Obligations of the cable operator to ensure quality of service as self-imposed or as stipulated in this regulation.*
- (j) *Obligations of the cable Television subscriber to protect and guard the property of the cable operator placed in the location of the Cable Television Subscriber where broadcasting services has been requested for.*
- (k) *Technical and Non-technical parameters of Standards prescribed by Authority or self prescribed parameters if such prescription are better and more stringent.*

Comments of Stakeholders

- A. Clauses (a) to (h) are OK. However, some of the policies like maintenance service policy may be in a separate document. In regard to (i) it would be advisable in initial stage to have minimum commonly stipulated obligations clearly spelt out in the regulations for the cable operators. However, MSO will not be responsible for some directly **(IMCL, Mumbai)**
- B. Compensation /rebate (refer (ix)(h) above) would be considered only if the same is available from the broadcaster for input services excluding damage to network due to force majeure or third party, customer premises inaccessible & customer canceling or deferring agreed appointment. **(M/s. Hathway Cable and Datacom Private Ltd, Mumbai)**
- C. In clause (ix)(d) the following may be added at the end "and feasibility established on existing network or on extensions to conform to Indian standards"  
Further the Maintenance Service Policy referred in (ix)(g) needs amplification to clarify clock hours in the day when help desk /service will be available on all days or excluding non working days / holidays. Mean time taken to repair to reckon from the time complaint is received to the time the same is rectified duly certified by signatures of the complainant on the trouble ticket bearing reference to the complaint also indicating whether any costs such as repairs to CPE or for damage rectifications, if any.  
A new sub para below 3.2 is proposed to be added to indicate and to record conformity to IS 13420 (EOL- End of Line) parameters at the input to the Set Top Box to establish feasibility of the service delivery through the Consumer Premise Equipment. **(CoI (Retd) V.C Khare, a cable TV Industry Observer, Mumbai)**
- D. A separate clause must be incorporated that lays down the conditions for deactivation. **(M/s. Star India Pvt Ltd, Mumbai)**
- E. A separate clause must be incorporated that lays down the conditions for deactivation. **(M/s. ESPN Software India Pvt Ltd, Delhi)**

- 3.3 The requirement of making an application in the prescribed format will be applicable to fresh subscribers who wish to avail of the Cable Television Services from a Cable Operator/Multi System Operator or in case of renewal of existing arrangements.**

Comments of Stakeholders

- A. Yes, for CAS subscribers as it would be administratively and uneconomical for the MSO to process. A common form in use can be used for existing subscribers. **(IMCL, Mumbai)**
- B. Even existing subscribers should fill the forms for CAS based services. This can bring transparency in connectivity. **(Col (Retd) V.C Khare, a cable TV Industry Observer, Mumbai)**
- C. Clause 3.3 (last line) may be amended to read 'or on renewal of existing arrangements' **(VOICE , Delhi)**
- 3.4 An application duly signed and complete in all respects from cable Television subscriber residing in the area specified in the Registration Certificate of the cable operator should be responded to the by the Cable Operator within 5 working days of receipt of application indicating the, deficiencies shortcomings in application if any, expected date of activation of the connection /reactivation of connection.**

Comments of Stakeholders

- A. The time limit should be 10 working days as maximum. However, MSOs will be able to manage within 5-7 days. **(IMCL, Mumbai)**
- B. Time for commissioning should be left to service provider. As it is likely that EOL (End of Line) standard may not be met at the location where connection is sought requiring replacement of cables, passives, amplifiers, the time for installation should be got committed by the service provider on the application form acknowledgment. **(Col (Retd) V.C Khare, a cable TV Industry Observer, Mumbai)**
- C. The words " Registration Certificate of the cable operator" should be substituted by the word " Agreement". **(M/s. Star India Pvt Ltd, Mumbai)**
- 3.5 The cable operator shall also in the case of existing cable Television subscribers enrolled with the cable operator, as on the notification of this regulation ensure and capture all the details required of a fresh applicant and maintain appropriate records of the same as may be prescribed by the Authority from time to time.**

Comments of Stakeholders

- A. We plan to initiate this only for customers who take STB under CAS. Reply to 3.3 may also be referred. **(IMCL, Mumbai)**
- B. The Authority must specify the time period for which the cable operator needs to maintain the records. The records must be made accessible to the concerned Broadcaster /MSO with whom the cable operator has executed the Agreement. **(M/s. Star India Pvt Ltd, Mumbai)**
- C. The Authority must specify the time period for which the cable operator needs to maintain the records. **(ESPN Software India Pvt Ltd, Delhi)**
- 3.6 In case, if it is technically feasible, the activation/reactivation of the connection should be completed within 2 working days of the completion**

*of the formalities required to be completed on the part of the Cable Television Subscriber. For the purpose of this clause the term 'technical non feasibility' would mean and include the following:*

- i) Location where the services required are not accessible or would be accessible at a cost, which the cable Television subscriber is not agreeable to bear.*
- ii) Location where the services required are accessible but it is not technically feasible to provide the extent of quality of signals as envisaged in the technical standards for quality of signals.*
- iii) Location falls outside the jurisdiction of the area for which the cable operator holds a registration certificate.*

Comments of Stakeholders

A. Minimum 2 working days, maximum 5 working days, considering delivery, installation, configuration and activation of set top box, and should exclude cases of wrong address /incomplete information, damage to network facility due to force majeure or by third party, customer premises inaccessible & customer canceling or deferring agreed appointment. **(M/s. Hathway Cable and Datacom Private Ltd, Mumbai)**

B. Clauses (i) and (ii) must be deleted. It is the obligation of the cable operator to provide quality signals to the Cable Television Subscriber in the area specified in the Agreement. A Cable Television Subscriber should not suffer if the place is not accessible / technically feasible. In (iii) the words " for which the cable operator holds registration certificate must be substituted by the words " Specified in the Agreement" **(M/s. Star India Pvt Ltd, Mumbai)**

- 3.7** *In case it is not technically feasible to provide cable Television Services in the location where the services are requested by the applicant he or she should be informed within 2 working days from the date of receipt of application indicating the reasons as to why it is technically not feasible to provide service and what are the consequences in terms of quality of signals even if provided despite technical non feasibility. If possible the Cable Operator may inform such applicant of the alternative sources from where cable television services can be obtained.*

Comments of Stakeholders

A. A time period of 5 working days may be required in some cases. So a maximum period should be 5 days and wherever feasible MSOs would do it in two days. **(IMCL, Mumbai)**

B. For all practical purposes it would take 2-5 working days to check the feasibility, which is quite optimistic for wired line service. **(M/s. Hathway Cable and Datacom Private Ltd, Mumbai)**

- 3.8** *Notwithstanding anything contained in this regulation and /or grounds, if any, stated for rejection in the application form or in any other document containing terms and conditions, no request from a cable Television subscriber for cable television service at a location which falls within the area for which the cable operator has a valid registration certificate to provide cable television service shall be rejected by any cable operator solely on the ground that the location or the household has been demarcated for any other cable operator authorized to provide cable television service in the same area. It is however clarified for removal of*

**doubts that this would not preclude a cable operator from rejecting an application on any other explicitly stated grounds of rejection that he can establish.**

Comments of Stakeholders

- A. This needs to be re-examined as it is not feasible in the present existing non –addressable set up wherein there is an overlap of territories of various operators **(IMCL, Mumbai)**.
- B. Subject to availability of cost effective last mile connectivity to the MSO. **(M/s. Hathway Cable and Datacom Private Ltd, Mumbai)**
- C. A Cable Operator cannot provide signals beyond the area specified in the Agreement and therefore, this clause must be deleted. **(M/s. Star India Pvt Ltd, Mumbai)**

**3.9 Each Multi System Operator shall prescribe a procedure to be followed by the Cable Operators for handling requests for shifting by the cable Television subscribers in his area of operation. For this purpose the Multi-system Operators /their franchisees may evolve a mutually agreed procedure and this procedure should provide, inter alia, for the details of steps to be followed by the Cable Operators, formalities to be completed by the Cable Television subscriber and the maximum time limit within which the shifting should be completed. They may lay down different time limits for different situations but it shall however be ensured that the procedure prescribed is such that the cable Television subscribers are able to get the services from the new cable operator within a maximum of 5 working days from the date of request for shifting of the cable operator.**

Comments of Stakeholders

- A. It would be necessary for a regulation on this issue. If required we will provide our inputs. **(IMCL, Mumbai)**

**4.1 All complaints should be registered and a serial number of the complaint given to the complainant.**

Comments of Stakeholders

- A. Yes it can be done in respect of those who opt for pay channel services using STB's in CAS notified areas. **(IMCL, Mumbai)**

**4.2 A Cable Operator shall maintain records of all complaints filed by the Cable Television subscriber. The records shall include name and address of complainant, date and time of filing complaint, type of complaint and redressal date and time with the confirmation of the consumer that the complaint has been redressed. The cable operator shall present the records whenever called upon by the Authority or the Authorized officer under the Cable Act.**

Comments of Stakeholders

- A. Yes it can be done in respect of those who opt for pay channel services using STB's in CAS notified areas. **(IMCL, Mumbai)**
- B We feel the records could be maintained for a maximum period of 6 months. **(M/s. Hathway Cable and Datacom Private Ltd, Mumbai)**

**4.3 Each cable operator must maintain a customer service center or help desk 12hours a day, 6 days a week. A facility for automatic recording of complaints or some other mechanism for registering of complaints should be in place during the period the help desk or service center is not**

***in operation. It may be ensured that the staff at customer service center or complaint service center is qualified and competent enough to handle the requirements of service.***

Comments of Stakeholders

- A. Yes it can be done in respect of those who opt for pay channel services using STB's in CAS notified areas. There are problems of defective internal wiring in the buildings, of using more than one TV set with one connection leading to deterioration of signal quality. TRAI should insert a provision whereby it becomes mandatory for the customer to get a 'certificate of installation /wiring' from their cable operator for the complaint clause to be invoked. **(IMCL, Mumbai)**
- B. The customer service center or help desk must be operational during reasonable hours /preferable days, Therefore, instead of mentioning 12 hours, a reasonable time must be specified say 9 am to 9 pm. Likewise instead of mentioning 6 days the days must be specified say Tuesday to Sunday. **(M/s. Star India Pvt Ltd, Mumbai)**
- C. The executive must provide the name, address and phone number of next senior who can resolve the complaint. **(VOICE, Delhi)**

**4.4 The following benchmarks shall be observed in regard to the redressal of complaints:**

- i) 90% of complaints will be attended /responded within 4 hours. The response should indicate the anticipated time for redressal of the complaint and if it is not feasible to comply with the benchmarks indicated hereafter for reasons beyond the control of the Cable Operator, the reasons for the same will be communicated to the Cable Television Subscriber while responding.***

Comments of Stakeholders

- A. We will endeavor to attend /respond within 12 hours depending on the customers physical availability at the premises where STB is installed. **(IMCL, Mumbai)**
  - B. With the consolidation of Cable TV networks tending to operate with only one head end in municipal limits and with the likelihood of complaining subscriber not accessible on telephone, 4 hours time is considered impractical. In CAS regime MSOs might be operating with a single national call center where complaints will be docketed, trouble tickets generated and manpower allocated at regional centers which might be operative only for 12 hours a day. Hence, reasonable time should be 12 hours for attendance. **(Col (Retd) V.C Khare, a cable TV Industry Observer, Mumbai)**
- ii) No more than 3% of Cable Television Subscribers enrolled with the cable operator should require lodging a complaint against service interruption each month.***

Comments of Stakeholders

- A. This is not acceptable at the introductory stage and may be fixed in future years after review and feedback from service providers and consumers. **(IMCL, Mumbai)**



- B. For wired line services number of subscribers and the area covered would contribute in arriving at the percentage. The percentage should be subject to force majeure conditions, QOS norms for input services from broadcasters and factors beyond control such as customer premises inaccessibility, customer canceling or debarring agreed appointment. **(M/s. Hathway Cable and Datacom Private Ltd, Mumbai)**
- C. This clause should exclude service terminations by broadcasters, switching off IRDs at headends. Provision should be made that on such service non-availability call centers will inform the complainant. **(Col (Retd) V.C Khare, a cable TV Industry Observer, Mumbai)**

*iii) 90% of "No Signal" calls received should be corrected within 24 hours.*

Comments of Stakeholders

- A. This can be considered for 48 hours. **(IMCL, Mumbai)**
- B. This should be subject to force majeure conditions. QOS norms for input services from broadcasters and factors beyond control such as customer premises inaccessibility, customer canceling or debarring agreed appointment. **(M/s. Hathway Cable and Datacom Private Ltd, Mumbai)**

*iv) 90% of all other types of complaints will be corrected within 48 hours.*

Comments of Stakeholders

- A. This should be within 5 days as the nature of some complaints need overhauling. **(IMCL, Mumbai)**
- B. To be subject to force majeure conditions, QOS norms for input services from broadcasters and factors beyond control such as customer premises inaccessibility, customer canceling or debarring agreed appointment. **(M/s. Hathway Cable and Datacom Private Ltd, Mumbai)**
- C. Provision to include damage to CPE for CAS by unfair wear and tear requiring service restoration with costs to the customer, which will always nagging by customer. **(Col (Retd) V.C Khare, a cable TV Industry Observer, Mumbai)**

*v) Subject to any specific provision in this regulation a system of compensation /Rebates in the form of discounts to the Cable Television Subscriber due to interruptions on account of no signal or weak signal or disruption of service should be in place and subscriber should be made aware of the same.*

Comments of Stakeholders

- A. The question of compensation /rebates should be seen in the light of our response to para 6.5. **(IMCL, Mumbai)**
- B. Compensation /Rebate would be available if the same is available for input services from broadcaster & subject to Force Majeure conditions. **(M/s. Hathway Cable and Data com Private Ltd, Mumbai)**
- C. Compensation should be given in very specific cases where interruption is for a very long period. This can be done the way

TRAI has done it for the telecom operators including mobile, fixed telephone and broadband services. We should bring regulations regarding 'right of way' and licensing, which will give confidence to the service providers of working in a regulated way. **(COFI, Delhi)**

- D. This clause should require link up regulation to bind Pay TV Broadcaster as well. **(Col (Retd) V.C Khare, a cable TV Industry Observer, Mumbai)**
- E. It would be very difficult for the Cable Television Subscribers to enforce this clause. Therefore, a clause may be incorporated that authorizes the Authority to take appropriate actions against the Cable Operators if (XXX) number of valid complaints are received from the Cable Television Subscribers. **(M/s. Star India Pvt Ltd, Mumbai)**

**4.5 A cable Operator shall take all necessary steps like provision of alternate power supply for at least 6 hours, to minimize the incidence of service interruption due to power failure.**

Comments of Stakeholders

- A. MSOs and Cable Operators provide inverters, which cater for three hours. This has been sufficient to meet the QOS requirements as given in clause 4. Catering to six hours would require very heavy-duty batteries, which apart from being very costly are difficult to maintain. **(IMCL, Mumbai)**
- B. To be subject to Force Majeure Conditions. **(M/s. Hathway Cable and Datacom Private Ltd, Mumbai)**
- C. To be confined to power supply for Cable TV networking and to specifically exclude metered power for customer premises. **(Col (Retd) V.C Khare, a cable TV Industry Observer, Mumbai)**

**4.6 In case if the signals have to be disrupted for facilitating preventive maintenance the Cable Television subscriber should be clearly given a notice of at least 15 days of possible interruption of services indicating the period of disruption. The MSOs can choose their own method of providing prior notice of possible disruption.**

Comments of Stakeholders

- A. 2-3 days notice can be given for maintenance disruption where the disruption is not more than one day. **(IMCL, Mumbai)**
- B. Similar provision should be incorporated in the agreement between the MSO and Cable Operator. If the signals have to be disrupted for facilitating preventive maintenance, the Cable Operators must in addition to the Cable Television Subscribers provide at least a 15 days notice to the broadcasters /MSOs. This clause must be amended accordingly. **(M/s. Star India Pvt Ltd, Mumbai)**

**4.7 All cable operators must ensure that its representative(s) carry proper identification along with a photograph and are well groomed to be polite in behavior in dealing with the Cable Television Subscribers.**

Comments of Stakeholders

- A. OK. **(IMCL, Mumbai)**

**5.1 Cable Television subscribers must be billed monthly and the entries in the bills must be as clear and transparent as possible. This clause however does not preclude a Cable Operator from promoting different**

*schemes of payment in which case the bills can be raised at such periodicity as per the scheme opted by the cable television subscriber.*

Comments of Stakeholders

A. OK (IMCL, Mumbai)

- 5.2 *Where a Cable Television Subscriber does not subscribe to pay channels via a set-top box, but only subscribes to a Basic Service Tier the bill raised should be itemized, indicating separately the total cable charges (exclusive of all taxes), the names of the channels comprised in the Basic Service Tier for which cable charges are levied, installation fees if any, Service charges levied on account of Repairs and Maintenance, if any, Security Deposit /refundable Deposit if any, Taxes collected with separate entry for each type of tax, and Discounts etc if any.*

Comments of Stakeholders

A. OK (IMCL, Mumbai)

B. Instead of giving a list of FTA Channels in the Basic Service Tier in the monthly bill, it is suggested that the list may be printed on the backside of the bill. This will save time for printing the bills. (COFI, Delhi)

- 5.3 *Where a customer does view pay/premium channels via a STB, the bill should be itemized and should, in addition to the details indicated in clause 5.2 indicate the price of each and every individual pay channel delivered or bouquets of channels delivered, charges for smart cards fee, viewing cards fee as the case may be, STB rentals and deposits.*

Comments of Stakeholders

A. OK (IMCL, Mumbai)

B. To be reviewed in view of the defiance by PAY TV broadcasters to declare a-la-carte rates contrary to the statute. (Col (Retd) V.C Khare, a cable TV Industry Observer, Mumbai)

- 5.4 *For each and every payment made by a Cable Television Subscriber, the Cable Operator shall issue a proper receipt clearly indicating, inter alia the purpose for which the receipt of payment would be adjusted.*

Comments of Stakeholders

A. OK (IMCL, Mumbai)

B. The Broadcasters /MSO must have the right to audit the bills /receipts. (M/s. Star India Pvt Ltd, Mumbai)

- 5.5 *The billing system should be such that the following benchmarks are met:*

*i) Complaints relating to billing shall be addressed within 7 days of notice from the Cable Television Subscriber.*

Comments of Stakeholders

A. It is presumed that MSOs will bill their customers whether FTA or pay. As far as LCO billing is concerned, the regulator may consider building a consensus on who will do the billing in CAS notified areas for those who do wish to opt for pay channels and are LCO direct subscribers. (IMCL, Mumbai)

B. As per service industry standards. (M/s. Hathway Cable and Datacom Private Ltd, Mumbai)

- ii) Refunds must be issued no later than either the customer's next billing cycle or 30 days following the resolution of the complaint, whichever is earlier.*

Comments of Stakeholders

A. This will be linked with the standard agreement with the broadcasters. Whether the part of the month subscription is allowed or the payment will be for the full month to the Broadcasters will have to be specified by TRAI. The refund policy will be related to the schemes offered by the company. **(IMCL, Mumbai)**

B. As per service industry standards. However, for refunds, in case the subscriber continues to avail the service, necessary credit as applicable would reflect in the next billing cycle. Service credits on account of outages as mentioned earlier would be given only if service credits are available on input services from broadcasters excluding outages on account of Force Majeure conditions. **(M/s. Hathway Cable and Data com Private Ltd, Mumbai)**

**6.1 The cable operator or the Multi System operator as the case may be will:**

- i) Facilitate availability of information regarding the contact addresses, telephone numbers, contact persons where the Set Top Boxes which are compliant with the BIS standards can be purchased or obtained on lease*
- ii) Publicize the schemes available for purchase or lease of BIS compliant Set Top Boxes and the salient features of the Set Top Boxes under the various schemes.*
- iii) Prescribe procedure to be followed for obtaining the BIS compliant Set Top Box.*
- iv) Make available a manual or pamphlet setting out instructions as far as possible in an easy to understand language by a non-technical person for operating the Set Top Box. This can be supplemented by providing information through the in-house channel or by suitably running a scroll on the screen.*

Comments of Stakeholders

A. OK **(IMCL, Mumbai)**

**6.2 In cases, where there is a malfunction of a STB provided by the operator on rent, a cable operator must repair or replace the STB within 24 hours.**

Comments of Stakeholders

A. 2 working days is ideal as this involves the logistics of the place of the subscribers and the service center. **(IMCL, Mumbai)**

B. To be subject to defects caused by unauthorized repair, maintenance or improper use. Label bearing the serial number has been removed, defected or illegible are not to be covered. Also any failures on account of Force Majeure conditions would not be covered. **(M/s. Hathway Cable and Data com Private Ltd, Mumbai)**

C. The Scheme for Set Top Box should provide for Rental Basis only as provision to provide a purchase option will tempt service provider to put higher rental. **(VOICE, Delhi)**

**6.3 In cases where a customer chooses to return a STB, the refund must be made within 15 days, subject to a proper working condition of the STB.**

Comments of Stakeholders

- A. Within 30 days. The refund for return of the STB to be linked to the schemes and the usage period and the logistics for the return, testing on the condition of the STB and the refund. **(IMCL, Mumbai)**
- B. In case the customer returns the STB but still continue to avail 'Basic Service Tier' necessary credit would be passed on his next billing cycle. **(M/s. Hathway Cable and Datacom Private Ltd, Mumbai)**

- 6.4 ***If a customer chooses to subscribe to pay channels via a set-top box (STB) installation, subscriber activation must take place within two working days of the receipt of the subscriber's request.***

Comments of Stakeholders

- A. It involves the logistics for placing the request for purchase, payment realization and logistics of activation. **(IMCL, Mumbai)**
- B. Minimum 2 working days and a maximum of 5 working days considering factors of time for delivery, installation, configuration and activation of STB and cases of wrong address /incomplete information, damage to network facility due to force majeure conditions or by third party, inaccessible customer premises, customer canceling or deferring agreed appointment. **(M/s. Hathway Cable and Datacom Private Ltd, Mumbai)**
- C. The period of 2 days should reckon from date of realization of payments in service providers books of account and should state 2 working days, as very often cheques bounce or payments are stopped by subscribers after issuing cheques. **(Col (Retd) V.C Khare, a cable TV Industry Observer, Mumbai)**

- 6.5 ***Rebate for deficient service: In case the installation and activation of the STB is delayed beyond 48 hours of the receipt of the Subscriber's request, the multi system operator/cable operator shall in the monthly subscription give a rebate of Rs 15 per day for the first 5 days and Rs 10 per day for the subsequent period.***

Comments of Stakeholders

- A. Rebate on the delayed period of activation cannot be considered as a cause for withdrawal of CAS registration. **(IMCL, Mumbai)**
- B. As per service industry Standards. **(M/s. Hathway Cable and Datacom Private Ltd, Mumbai)**
- C. Time for reckoning should be two working days from realization of payments in service providers books of account and not 48 clock hours. Force Majeure contingencies too need to be incorporated. **(Col (Retd) V.C Khare, a cable TV Industry Observer, Mumbai)**

- 7.1 ***Change of positioning of TV channels by the MSOs/Franchisees operating the Head End should not be normally done. In case of pressing technical reasons requiring changes of TV channel position is required, the cable operators shall notify Cable Television Subscriber at least 3 days in advance of such occurrence. For the purpose of information to the Cable Television Subscribers the MSO/Franchisee shall run a scroll indicating the frequency in which a particular channel is placed at periodic intervals.***

Comments of Stakeholders

- A. Change in position of a channel in the analog mode is done essentially to meet customer requirements. The frequency change of popular channels is only sporadic. The reasons for change of frequency of channels otherwise could be due to channel modulator becoming faulty and the channel is a popular one and in demand; broadcast of an event of general interest, on a channel which is distributed presently in high frequency necessitating the shifting to lower frequency; to provide opportunity to the viewers to judge new FTA channels introduced and facilitate deciding to continue the existing channel on its frequency or place the new channel in its place. **(IMCL, Mumbai)**
- B. As feasible on best effort basis. **(M/s. Hathway Cable and Datacom Private Ltd, Mumbai)**
- C. Similar provision should be incorporated in the agreement between the MSO and Cable Operator. **(M/s. Star India Pvt Ltd, Mumbai)**
- D. Cable Operators should not be allowed to change the positioning of the TV channels without the concurrence of the Broadcasters. Accordingly clause 7.1 should be amended as under:

“Change of positioning of TV channels by the MSOs/Franchisees operating the Head End should not be done without the concurrence of the Broadcasters. Further in case of pressing technical reasons if a change of TV channel position is required, the cable operators shall notify Cable Television Subscriber at least 3 days in advance of such occurrence. For the purpose of information to the Cable Television Subscribers the MSO/Franchisee shall run a scroll indicating the frequency in which a particular channel is placed at periodic intervals”.

**(ESPN Software India Pvt Ltd, Delhi)**

- 7.2 MSO's and their franchisees shall keep adequate records or have in place a system to generate information on the frequencies at which a channel was placed at different points of time and the number of times the frequencies of a channel has been shifted.**

Comments of Stakeholders

- A. MSOs will accept the above responsibility for records but cannot do so for the franchisees that must maintain records to the satisfaction of the regulator / authorized officer. **(IMCL, Mumbai)**

- 7.3 In no circumstances unless it is beyond the control of the MSO and their Franchisees a channel positioned in a particular frequency shall be taken off without giving prior notice of 4 weeks along with the reasons for taking off the air. This notice must be given to all consumers individually and also through an advertisement in two local newspapers.**

Comments of Stakeholders

- A. For digital the system is easy to monitor through favorites etc and in case of CAS same can be given as a 1 week notice. However, cannot be guaranteed for analogue FTA due to operational and technical exigencies. **(IMCL, Mumbai)**

B. As feasible on best effort basis. **(M/s. Hathway Cable and Datacom Private Ltd, Mumbai)**

**7.4 No Cable Operator shall disconnect for whatever reason a Cable Television Subscriber without giving notice of atleast 30 days clearly indicating the specific reasons for disconnection.**

Comments of Stakeholders

A. Though acceptable but in some cases this may not be possible for the reasons that the subscriber may be not be physically available to receive the notice or refuses to accept notice or customer defaults payments making frivolous complaints. All the above can be stipulated as guidelines in the beginning phase and should become standards after one year of post CAS. **(IMCL, Mumbai).**

B. This should be made subject to no outstanding dues from the subscriber as mentioned in the application form, QOS on input services available from broadcasters and Force Majeure conditions **(M/s. Hathway Cable and Datacom Private Ltd, Mumbai)**

C. Mode of notice of disconnection to be amplified. This will always remain sensitive with subscribers particularly in cases of payment defaults. The question is in case of payment defaults what will constitute notice deemed to be administered. **(Col (Retd) V.C Khare, a cable TV Industry Observer, Mumbai)**

**8.1 A Multi System Operator and cable operator shall match the technical standards set by the Bureau of Indian Standards (BIS) for cable TV Network.**

Comments of Stakeholders

A. A paper on 'Reliability and Quality of Services in Cable TV Industry' is attached which refers to various BIS Standards and international reliability standards. **(COFI, Delhi)**

**Annexure referred to in the gist of comments in respect of response of  
COFI to clause 8.1 of the draft Regulation**

**Reliability and Quality of Services in Cable TV Industry**

**Lt. Col. (Retd.) K K Sharma**

With the digital technology becoming cheaper and fast developments in the telecom and broadcast field, the cable television industry in India is undergoing a vital change, from a disorganised mom and pop service to a much organised affair on a large scale. Surprisingly it is not the new comers who are initiating the changes, instead it is the same unorganised units who started this industry, who are fast upgrading their networks keeping in mind the future requirements. CAS or conditional access regulation has been the biggest prime mover for this second revolution in the cable TV industry. It is only with CAS that people realised the importance of digital networks and economy of scale. All the big MSOs are transforming their analog networks to digital with the result that their franchisees have to maintain the same standards to provide better services to their subscribers.

Although quality of service plays an important role in any service oriented industry, yet cable operators, by the very inherent style of their working did not realise this so far. They had recovered their payments from subscribers in their own way, by creating monopolies or under cutting each other and cutting down their expenses to make their systems viable de-grading their services. Whereas in an organised industry things work in a more transparent way. Government's attitude towards telecom industry, that is making it private and liberal is bringing in large corporate houses into the field of converging technologies of computers, broadcasting and telecommunications where integration of these services is very important to bring in additional revenue to provide better services in the competitive world. This has necessitated all players in the cable television field to change their attitude too, to join the bandwagon of large scale service providers and make the quality and reliability of their services the main focus of their business. Some other factors necessitating these changes are :

1. Digital Technology is becoming affordable.
2. Rates of fiber optic cables and equipment have crashed.
3. Establishment of HFC networks by the MSOs and large independent cable operators.
4. Customers expectation of service quality in CAS implemented areas will go up.
5. Last mile operators will require to provide all channels with good quality otherwise payments will be held up.
6. To recover heavy initial expenses on CAS equipment and digital networks, operators will resort to value addition providing services like internet,



video-on- demand, VOIP etc for additional revenue further necessitating better quality networks. Considering the above, reliability and quality of cable TV services will gain a lot of importance. Gone are the days when operators made do with cheap equipment and cables to expand their customer base, in some cases, even doing without proper taps and splitters using hand joints. Quality of amplifiers will also be an important factor in utilising the largest possible bandwidth. Most important of all, due care will be given to design of the network, HFC or plain co-ax.

### **Network Requirements for Better Service**

1. Transmission quality: Bureau of Indian Standards (BIS) has already laid down the minimum standards of service that the operators must ensure at the customer end. These are :

- (a) C/N > 44 dB - depends on input levels to amplifiers.
- (b) Minimum Carrier level 60 Db $\mu$ V
- (c) Maximum Carrier level 80
- (d) Slope < 12 dB- depends upon quality of Coax cable and passives used.
- (e) X-Mod better than 57 dB -depends upon output level of amplifier (higher the level lesser the cascading limit and hence the radius of operation).
- (f) CSO better than 57 dB -depends upon output level of amplifier (higher the level, lesser the cascading limit and hence the radius of operation).

2. Effective Bandwidth: Effective bandwidth of the network must cater for all the channels provided by the network as well as a minimum of 10% additional channels for future enhancement. In the metres, 750 MHz has become the industry standard and networks introducing V-O-D will require full bandwidth of 860 MHz. All components in the network including taps and splitters must have this bandwidth capability to ensure better service.

3. Service Reliability: This is the probability that a system will survive without interruption for a defined period. Network reliability should also take "degraded services" into account and not focus on complete failure of a service.

4. Outage Rate: This is the average rate at which service interruptions occur.

5. Availability: This is the percentage of time the service is available.

\* Availability Objectives:

International availability objectives for different industries are given below

- (a) Telephony Industry - 99.99% (53 minutes per year)
- (b) Cable Industry / Broadcast video - 99.7% (26.3 hr per year)

- (i) Traditional HFC Plants - 99+% (3.7 days/year)
- (ii) Broadcast Video - 99.7% (26 hrs/year)
- (iii) Cable Modems - 99.8% (13 hrs/year)
- (iv) Primary Line Telephony -99.99% (53 mns/year)
- (v) Secondary Line Telephony -99.7% (26 hrs/year)

## **CAUSES OF SERVICE INTERRUPTIONS**

In home local wiring is largest single cause of service outage for CATV industry. This brings us to the importance of better drop cable wiring in the customer home. This includes use of better cable, tap and splitters and RF connection to the television/ modem. Main causes of service interruption in a network can be listed as below:

1. Signal Quality
2. Commercial Power Problems
3. Equipment failure
4. Interfering signals
5. Network capacity
6. Customer misuse

**Signal Quality:** The following types of interruptions can be experienced in signal quality.

- (a) **Digital Video**
  - (i) Blocking the freeze frames.
  - (ii) Loss of detail with heavy compression.
  - (iii) Advances like HDTV will also increase expectations of Standard Digital Video.
- (b) **Cable Modem**
  - (i) Availability of cable modem service is already important to many customers.
  - (ii) Home users will demand higher availability as "reliable" service providers offer alternative technologies at similar prices (xDSL, Satellite/ISPs).
- (c) **Telephony**
  - (i) Hard for many people to leave existing reliable phone service
  - (ii) Decide to market as Lifeline or Secondary Services
  - (iii) However, proliferation of cell phones and Internet telephony (not VoIP) have gotten people used to lesser quality phone service.

Signal Quality can be made better by pro-active plant maintenance, RF monitoring test equipment and making use of intelligent agents in the network like Set-Top-Boxes and Cable Modems.

## **COMMERICAL POWER**

This is something which is not in direct control of the operators. However, stand by power systems in the form of battery, generators and mobile generators must be installed to cater for this interruption. Also operators

have to ground their equipments to protect them from lightening strikes and equipment failure.

### **EQUIPMENT FAILURE**

To avoid equipment failure the following steps must be taken.

- (a) Install high quality reliable equipment
- (b) Employ a good network architecture so that minimum number of subscribers affected by single point of failure.
- (c) Deploy monitoring equipment to isolate failure, decreasing repair time
- (d) Deploy redundant hardware.
- (e) In an HFC network use concept of self healing rings.
- (f) Cater for sufficient number of spares: -

### **INTERFERING SIGNALS**

Major problems encountered from interfering signals are:

1. Ingress from -
  - (a) CB Radios
  - (b) Automobile Ignition
  - (c) Consumer Electronics
2. Internally generated signals-
  - (a) CSO - composite second order interference
  - (b) CTB - composite triple beat
  - (c) XMOD - cross modulation
  - (d) C/N - carrier to noise ratio
  - (e) Common Path Distortion
  - (f) Improperly balanced plant
  - (g) Equipment failures (active and passive)
3. Interfering signals can be avoided by using -
  - (a) Cut-off switches (Located in taps, nodes or amplifiers)
  - (b) Ingress monitoring test equipment
  - (c) Use intelligent agents (STB's, CM's) distributed in network
  - (d) Frequency Agility
  - (e) Highly trained technicians
  - (f) Develop ingress mitigation techniques
  - (g) Pre-test of equipment and signal loading to verify margins in system engineering calculations and manufacturers specifications.

### **Network Capacity**

This is more relevant when providing internet, telephony and other broadband services on cable TV networks. It generally refers to slow POP to internet, no dial tone and back haul congestion. This can be dealt with by proper traffic engineering and monitoring.

## **CUSTOMER MISUSE PROBLEMS**

The following problems are experienced at customer end:

- (a) Power off to Cable Modem or Set-Top-Box
- (b) PC's not configured properly
- (c) Not connected properly

Customer misuse can be avoided by properly training the customers, making call centre based technical support system, providing equipment literature and giving online assistance.

## **CUSTOMER EXPECTATION**

With the advancement in technology consumer expectations have also grown over the years. Ten years ago television sets were not capable of displaying full resolution of cable TV signals. With better and flat screen television sets and also availability of large screen television, video impairments become more evident and customers less tolerant. With the introduction of VCDs and DVDs customer expects a similar experience from cable TV signals too. This expectation will further grow with the introduction of High Definition (HD) TV. Providing good service and making the networks more reliable is an ongoing effort where no laxity can be tolerated. By following the above mentioned solutions operator can have a peaceful and profitable business environment