

**BY ELECTRONIC MAIL**

03.06.2020

To,  
Advisor (B&CS)  
Telecom Regulatory Authority of India,  
Mahanagar Doorsanchar Bhawan,  
Jawahar Lal Nehru Marg,  
Old Minto Road,  
New Delhi – 110 002

Dear Sir,

**Re: Submissions to Telecom Regulatory Authority of India (“TRAI”) in response to the Consultation Paper on “Framework for Technical Compliance of Conditional Access System (CAS) and Subscriber Management System (SMS) for broadcasting & cable services”**

At the outset, we would like to thank the Authority for giving us an opportunity to tender our views on the on the Consultation Paper on “Framework for Technical Compliance of Conditional Access System (CAS) and Subscriber Management System (SMS) for broadcasting & cable services”.

With regard to the present consultation process, we hereby submit that we have perused the said Consultation Paper and we hereby submit our comments as attached in the Annexure. The said comments are submitted without prejudice to our rights and contentions, including but not limited to our right to appeal and / or any such legal recourse or remedy available under the law and equity.

The same are for your kind perusal and consideration.

Yours Sincerely,

DocuSigned by:  
  
F6059618ACF7445...  
Ms. Mansha Shukla

Director – Legal Affairs South Asia

Discovery Communications India

**Encl: As above**

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**RESPONSE ON BEHALF OF DISCOVERY COMMUNICATIONS INDIA (“DCI”) TO THE CONSULTATION PAPER ON FRAMEWORK FOR TECHNICAL COMPLIANCE OF CONDITIONAL ACCESS SYSTEM (CAS) AND SUBSCRIBER MANAGEMENT SYSTEMS (SMS) FOR BROADCASTING & CABLE SERVICES DATED 22.04.2020 (“Consultation Paper”) ISSUED BY THE TELECOM REGULATORY AUTHORITY OF INDIA (“Ld. Authority / TRAI”)**

At the outset, DCI would like to thank the Ld. Authority for providing them the opportunity to tender their views on the Consultation Paper. Before proceeding with our comments / observations on the contents of the Consultation Paper, DCI would like to set out some preliminary observations on the issues addressed in the Consultation Paper.

**1. Preliminary comments**

- 1.1 At the outset, we would like to re-appraise the Ld. Authority that DCI alongside other service providers and consumer, has approached the Hon'ble High Court of Delhi by way of writ petitions challenging the legality, validity and propriety of the Telecommunication (Broadcasting and Cable) Services Interconnection (Addressable Systems) Regulations, 2017 (“**Interconnection Regulations**”) and the Telecommunication (Broadcasting and Cable) Services (Eighth) (Addressable Systems) Tariff Order, 2017 issued by TRAI on 03.03.2017 (collectively, the “**New Regulations**” or “**NTO**”). These writ petitions are presently pending consideration of the Hon'ble High Court of Delhi. Any comments / suggestions of DCI on the present Consultation Paper is without prejudice to its right and contentions in the pending proceedings.
- 1.2 It is pertinent to highlight that DCI and other stakeholders had, since the very stage of consultation process of the NTO leading to the ultimate implementation of the new regulatory framework by TRAI on 01.02.2019, pointed out some of the concerns with regard to effective implementation of NTO framework without the requisite preparations in terms of hardware and software, thereby exposing broadcasters to malpractices by distribution platform operators (“**DPOs**”). DCI had even written to TRAI about these concerns that it was facing on ground while implementing the NTO framework. However, TRAI had been repeatedly

claiming that all systems and stakeholders were ready for roll-out of NTO regime. After more than a year of the implementation of NTO, DCI's concerns have been echoed by TRAI in the present Consultation Paper as well as in other consultation papers that have been issued by TRAI in the past few months. In the process, DCI as a small and niche broadcaster, has suffered losses on account of the unplanned migration to NTO regime.

1.3 TRAI has itself acknowledged at various places in the present Consultation Paper, the fact of deployment of sub-standard conditional access system (“CAS”) / subscriber management system (“SMS”) by DPOs, and the implications and possible threats from deployment of sub-standard CAS / SMS systems to the consumers, broadcasters and DPOs as follows:

- (a) Consumers: Sub-standard CAS may result in frequent disruptions and hence poor quality of service for the end consumer. The consumers get locked in with set-top boxes (“STBs”) with limited functionality due to sub-standard proprietary software, which in turn results in the wastage of money as they may have to replace such STB several times during the subscription period.
- (b) Broadcasters: Broadcasters and content developers are impacted directly by deployment of sub-standard CAS / SMS as the security of their content is compromised. It leads to content piracy and redistribution without the knowledge and permission of the broadcaster and the operator. Sub-standard CAS / SMS deployment further results in an increase the probability of misreporting the usage and subscription numbers which may result in revenue loss to the broadcaster and disputes with the operators in cases of under / excess billing.
- (c) DPOs / Multi System Operators (“MSOs”): Since most of the MSOs lack technical expertise since they have migrated from the analog cable TV regime, they fall prey to sub-standard solutions and face support issues subsequently. This increases their operational costs as technical issues arise and their flexibility to extend features is reduced. Additionally, this

may lead to disputes with broadcasters due to potential manipulation / misrepresentation of subscriber data which may affect the revenue for all parties concerned due to excess / under billing.

- 1.4 The aforesaid admissions made by TRAI in the Consultation Paper, as well as the issuance of audit manual by TRAI subsequent to the implementation of the New Regulations, demonstrate the detrimental effect that hurried regulation-making, ignoring the concerns and submissions made by numerous stakeholders with respect to the aforesaid issues, can have on the entire broadcasting sector. TRAI had proceeded to enforce the New Regulations with undue haste for inexplicable reasons, without first putting the essential building blocks of the new regulatory regime - complete nationwide digital addressability, employment of standard and upgraded CAS and SMS systems by DPOs, and a proper audit mechanism - in place. This has cost the entire broadcasting sector, especially small and niche broadcasters like DCI.
- 1.5 During the pendency of the proceedings challenging the legality of the New Regulations before the Hon'ble High Court of Delhi, DCI as well as other stakeholders had time and again requested the Hon'ble Court to grant stay on operation of the New Regulations since the implementation of the New Regulations was being rendered unworkable due to lack of seamless implementation of the CAS and SMS systems by smaller DPOs and LCOs. However, such requests for stay of operation of the New Regulations were always opposed by TRAI on the ground that the requisite infrastructure used by DPOs was upgraded and that the consumers were ready for migration to the new regulatory framework.
- 1.6 It is submitted that the new regulatory framework is still plagued with the same teething issues which were brought to the notice of the Ld. Authority and which the Ld. Authority is now grappling to address at this stage, i.e. more than a year since the implementation of the new regulatory framework on 01.02.2019. Such issues have been elucidated below, in addition to DCI's response to the specific issues / queries raised in the Consultation Paper.

**2. Implementation challenges of cable digitization continue to remain: Billing issues faced by broadcasters and non-compliance of DPOs and MSOs with parameters of digital addressability**

2.1 TRAI has made a number of conclusive statements in the present Consultation Paper as well as in previous consultation papers issued by it, and has consistently maintained, that digitalization in the cable sector was completed all over the country by 31.03.2017. TRAI has even stated in its affidavit dated 06.02.2019 filed before the Hon'ble High Court of Delhi in a batch of writ petitions challenging the NTO framework that *“The digitization of cable services started in 2012 and concluded in March 2017... Today, all consumers of TV channels receive TV signals in digital addressable mode,”* and reiterated the same in its affidavit dated 20.02.2019 filed before the Hon'ble High Court of Delhi stating that *“...the country is completely digitised and addressable since 31.03.2017.”*

2.2 It has been pointed out by numerous stakeholders, including DCI, during the process of consultation on the New Regulations that the seamless implementation of digital addressable systems (“**DAS**”) is still a far cry on the ground. DCI has reiterated time and again that the entire edifice of the New Regulations is based on digital addressability, and on the underlying conditions of compliance with the DAS including CAS and SMS by the DPOs, and proper and seamless implementation of SMS and CAS along with necessary upgradation / implementation of systems, which has not been achieved in case of a number of smaller DPOs. TRAI has itself acknowledged in paragraph 5 of its Explanatory Memorandum to the Interconnection Regulations that till now, digitization of the cable services has been completed in most of the urban areas only.

2.3 DCI has already brought to TRAI’s notice the several day-to-day operational challenges and billing constraints faced by DCI on account of the unpreparedness of DPOs to implement the New Regulations vide letters dated 12.12.2018, 09.01.2019 and 26.03.2019, and at a meeting with the learned officials of TRAI on 22.03.2019. Some of the aforesaid major challenges and impediments, which have adversely affected DCI’s business as well as the broadcasting sector, concern: (i) billing constraints; (ii) issues pertaining to audit; and (iii) non-

compliance of DPOs with digital addressability, which remain unresolved as on date, i.e. fifteen months after the new regulatory dispensation under the New Regulations was ushered in on 01.02.2019.

2.4 Per force, the absence of digitization dents the entire basis of the NTO framework. Broadcasters' revenue is derived from two streams: (i) subscription charges; and (ii) advertisement revenue, and subscriber base is thus a primary factor in determining the revenue from both these sources. Under the Interconnection Regulations, the monthly invoice to be raised by the broadcaster for his share of the maximum retail price ("MRP") is dependent on a complete and accurate monthly subscription report ("MSR") required to be generated by DPOs through the subscriber management system ("SMS"). The Interconnection Regulations therefore require every DPO to ensure that its DAS / SMS meet the technical parameters as specified in Schedule III to the Interconnection Regulations.

2.5 It is now an admitted position by TRAI in the present Consultation Paper that the process of creation of MSR for many of the DPOs is non-existent / compromised on account of usage of sub-standard STBs etc. As a result, the entire stakeholder chain from the DPO to the broadcaster, has suffered losses and difficulties on account of lack of standardization of parameters for implementation of SMS and CAS. While many of the DPOs have taken undue advantage of the situation by under-declaring subscribers, there are many DPOs who despite having spent substantial amounts in setting up their network / systems, are admittedly not in a position to secure compliance with strict SMS and CAS parameters on account of sub-standard equipment. In the absence of MSRs which correctly report a broadcaster's subscriber base, there is no basis for raising or verifying monthly invoices, which causes severe revenue leakage. Further, in the absence of such MSRs, the question of auditing such DPOs remains out of question. It would have been a prudent regulatory practice to first address these technical issues before forcefully ushering in a regime, dependent heavily on SMS and CAS. As a result, the entire industry has been left a casualty, including the viewers, who have been forcefully opted out of their long-standing choice of bouquets and channels.

- 2.6 DCI has additionally repeatedly brought to TRAI's attention that several MSRs suffer from discrepancies and irregularities, viz. (a) non-adherence of several MSRs with format prescribed in Schedule VII to the Interconnection Regulations; (b) failure of MSRs to provide the subscription base in the DPOs' respective target areas; and (c) discrepancy vis-à-vis subscriber numbers, considering DCI's subscriber base, and inclusion of its channels in base packs. The aforesaid inconsistencies in MSRs have further restricted DCI from issuing invoices to DPOs, thereby causing immense revenue loss. Such issuance of inaccurate MSRs can only arise due to deployment of sub-standard equipment by DPOs.
- 2.7 It was imperative for TRAI to ensure that DPOs employed proper and certified equipment to support functional CAS and SMS systems, in order to be able to faithfully record and disclose correct subscriber base and adhere to other compliances before implementing the NTO regime, so that the commercial interests of broadcasters were protected. However, TRAI did not carry out the requisite survey with respect to state of preparedness of DPOs and MSOs in employing standard CAS and SMS systems which, it is mandated to do in law and had not carried out any impact survey of the NTO regime before changing over from the earlier regime. In fact, as it stands today based on TRAI's own statements in the Consultation Paper, the broadcasting sector is still being operated *de facto* at par with an analogue system, at the whims and fancies of the DPOs, since majority of them do not have a fool-proof DAS.

### **3. Issues pertaining to audit**

- 3.1 DCI has, from time to time, intimated TRAI of the challenges faced by broadcasters in auditing DPOs, such process being time-consuming, commercially unviable and onerous for a smaller broadcaster such as DCI, especially given the large number of DPOs and the consequential cost vis-à-vis the limited market and revenue that DCI has for its channels compared to dominant broadcasters.
- 3.2 The right of broadcasters to conduct audit of DPOs' systems under Regulation 10(7) of the Interconnection Regulations is intended to be used in exceptional circumstances where there is a possibility of incorrect reporting of subscribers by

one / few DPOs in the ordinary course of business. Auditing of DPOs cannot by itself provide a solution to gross non-compliance and violation of the Interconnection Regulations by almost 80% of the DPOs with whom DCI has executed interconnection agreements. Since the process of auditing itself is quite long, even if a sufficient number of auditors are empanelled by TRAI, the aforesaid issue will not be resolved and DCI will be unable to exercise its right to cause audit of DPOs' systems effectively given the time, cost and logistical challenges involved in an auditing process.

3.3 It is respectfully submitted that it was only after an order was passed by the Hon'ble High Court of Delhi for addressing the issue of auditing, that TRAI issued an official consultation paper on creation of audit manual on 29.03.2019 and convened an open house discussion to deliberate upon stakeholder comments to the same. However, the process of empanelling of auditors by TRAI commenced only in September, 2019, in spite of the assurances given by TRAI in March of that year that in about 3-4 weeks, 40-50 more auditors would be empanelled so that audit process of DPOs could commence. Further, the audit manual was only published by TRAI on 08.11.2019, i.e. nine months after the commencement of the NTO framework.

#### **4. Issues pertaining to signal piracy**

4.1 Apart from the aforesaid serious issues presented by the new regime, broadcasters, including DCI, have also faced the added issue of cable piracy which stands to put the interests of all broadcasters at grave risk. Though the New Regulations purport to induce transparency in the sector by providing for furnishing of MSRs by DPOs to broadcasters at regular intervals, which would ensure accurate declaration and accountability of the number of subscribers viewing a channel, however, contrary to its intended object, the new regime has led to perpetuation of cable / signal piracy.

4.2 It is submitted that cable piracy occurs whenever there is an instance of unauthorised transmission / re-transmission of broadcast channels due to, *inter alia*, unencrypted feed, unauthorised sharing of broadcasters' signals, etc. DCI has, in the past, had to deal with DPOs / MSOs unauthorisedly and illegally



distributing DCI's channels to its subscribers in an unencrypted form, in violation of the New Regulations. As per the New Regulations, a DPO is bound by law to distribute channels to subscribers in an encrypted form only which ensures accountability in the CAS and the SMS systems of the number of subscribers viewing a channel.

4.3 However, when a channel is distributed to subscribers in unencrypted form, the number of subscribers receiving such channel will not be reflected in the CAS and SMS systems of the DPO. As a result, such subscribers will not be reported by the DPO to the broadcaster, amounting to under-declaration which cannot be identified through audits. Such under-declaration not only impacts the broadcasters, but also denies the government the ability to tax the DPO, causing severe revenue leakage for both the broadcasters and the government. Unfortunately, the new regulatory regime, which is claimed to be the comprehensive and all-encompassing code on interconnection between service providers in this sector, admittedly fails to provide a system of checks and balances and address this critical issue of cable piracy on account of lack of standardized parameters for implementation of SMS and CAS, strict compliance and surveillance, and proper sensitization and instructions to DPOs. In the bargain, it is the broadcasters, and more so the small and niche broadcasters like DCI, which have suffered losses.

4.4 It is important to highlight that signal piracy decisively hampers the interests of smaller broadcasters with a limited market and source of revenue as they do not have the economies of scale of larger broadcasting organizations. We wish to highlight that DCI produces channels which carry esoteric and educative content, and which serve a unique purpose in catering to a specific and limited set of subscribers. However, loss of revenue due to signal piracy would affect broadcasters', including DCI's, ability to produce innovative and quality content. Consequently, signal piracy will affect the interests of the subscribers as well by depriving them of access to such quality content and information.

4.5 The Ld. Authority has acknowledged the issue of cable piracy in the present Consultation Paper and has stated that it "*receives hundreds of complaints every*

*year from various broadcasters as regards the piracy and distribution of pirated signals... However, as per analysis much of such piracy occurs due to deployment of CAS that do not fully comply with security protocols as per extant standards and regulatory provisions.”* TRAI has stated, at various instances in the Consultation Paper, that the employment of cheaper / sub-standard CAS systems by DPOs expose their networks to piracy which is why it is important to establish a framework to ensure compliance with minimum technical specifications for CAS and SMS systems. As is evident from TRAI’s own statements, the Indian broadcasting sector is still operating on an analogue model despite the repeated claims of TRAI that the entire sector stands digitized and is ready to implement DAS with SMS and CAS.

- 4.6 Though we appreciate the initiative taken by the Ld. Authority to address this grave issue vide the issuance of the present Consultation Paper, it is submitted and reiterated that the Ld. Authority should have ensured that all DPOs were deploying standardised CAS and SMS systems before the commencement of the new regulatory regime in order to negate the risk of signal piracy in the first place, and so that the huge monetary loss that has been caused to the broadcasters due to the change in the entire contractual and operational framework under NTO could have been avoided.

## **5. TRAI Regulation Making Approach - Intuitive**

- 5.1 It is pertinent to note that in spite of repeatedly bringing to the attention of the Ld. Authority the several critical issues and implementation constraints that are adversely affecting the broadcasting industry as well as other stakeholders, the Ld. Authority proceeded with the implementation of the new regulatory regime under the New Regulations without taking note of these concerns. It is most respectfully submitted that any regulation-making process should pay close attention to the concerns raised by the stakeholders as the stakeholders are involved in day-to-day ground level operations and their survival depends on the well-being of the sector. The formulation of framework *de hors* the concerns of the stakeholders would result in inefficient regulation-making. The present Consultation Paper is a confirmation of this position.

5.2 DCI, without prejudice to its rights in the pending proceedings, proceeded to comply with the New Regulations to the extent feasible, and accordingly published its reference interconnect offer, declared the MRPs of its channels, and signed interconnection agreements with DPOs on the basis of the Ld. Authority's repeated claims that most stakeholders were ready for implementation of the new regulatory framework and therefore suffered significant losses due to the outcome of hurried implementation of the NTO framework.

5.3 DCI has repeatedly raised the issue before the Hon'ble High Court of Delhi that the New Regulations were issued without carrying out any market research or study on, or providing any empirical data or records on: (i) the state of existing DAS in India; (ii) the number of DPOs having necessary SMS system, the time period required to implement SMS systems, and the process of migration and its challenges in terms of logistics and cost; (iii) the preparedness of market for a change in regime; (iv) cost-benefit analysis for all concerned stakeholders in terms of implementation of New Regulations; and (v) completion of digitization across all regions in India. In fact, DCI had vide its communications to TRAI repeatedly requested TRAI to institute a survey on the levels of compliance by DPOs and LCOs, not only in urban areas but also in suburban and rural areas. However, the New Regulations were issued by TRAI without conducting any such market research with respect to DAS compliance.

5.4 Similarly, the repeated insistence of TRAI on doing away with the bouquet system and to bring in choice of individual channels, is yet another example where TRAI has proceeded on intuitions and presumptions without having regard to the vast literature and studies that have been carried out in different jurisdictions on the economic efficiencies of bouquet formation for broadcasters. As a result, small and niche broadcasters having high quality and costly productions, find it difficult to sustain their business in the most commercially prudent manner.

5.5 It is humbly reiterated that numerous stakeholders, such as broadcasters (including DCI), consumer associations, DPOs and MSOs had raised concerns relating to the New Regulations during the consultation process and thereafter and challenged the implementation of the New Regulations before various forums.

However, TRAI did not carry out detailed analysis / examine such issues in-depth to address those concerns at the regulation-making stage, and often provided a standard response which demonstrated lack of application of mind to the concerns of the stakeholders, or no response at all in some cases. The process of regulation-making adopted by TRAI was intuitive, without proper research and impact assessment, lacked objectivity and fairness of approach and did not meet the standards of transparency required for such a process as laid down in settled principles of law. The Regulator in its Intuitive approach has failed to consider the operational realities of the broadcasting sector as a whole, and as a result, now there are repeated consultation papers that are being brought by TRAI to fill up the gaps in the system.

- 5.5 It is submitted that framed regulations cannot be intuitive in nature and the outcome of mere guesswork. TRAI, in issuing the present Consultation Paper and several others earlier, has attempted to address stakeholder concerns in a piecemeal manner by placing the proverbial “cart before the horse”, i.e. implemented the New Regulations without first ironing out the fundamental issues raised by stakeholders.
- 5.6 Further, the New Regulations fail the test of “proportionality” propounded in various judgments of the Hon'ble Supreme Court of India which provides that: (a) the measure should be designated for a proper purpose; (b) the measure should be rationally connected to the fulfilment of the purpose; (c) there should be no alternative less invasive measures; and (d) there should be a proper relation between the importance of achieving the aim and the importance of limiting the right. It is respectfully submitted and reiterated that the New Regulations have failed to achieve the objectives of transparency and consumer interest that have been the purported primary consideration of the Ld. Authority while framing the New Regulations. It has failed to address the concerns under the analog system, and while the New Regulations claim to be based on effective DAS, the Consultation Paper itself is witness to the fact that the DPOs continue to enjoy the same liberties that they had enjoyed under the analog system. Consequently, the New Regulations gravely and adversely affect the interests of broadcasters such

as DCI as well as the interests of the subscribers, without any change in the operations of the broadcasting industry.

**6. Response on specific issues / queries raised in the Consultation Paper**

**Q1. List all the important features of CAS & SMS to adequately cover all the requirements for Digital Addressable Systems with a focus on the content protection and the factual reporting of subscriptions. Please provide exhaustive list, including the features specified in Schedule III of Telecommunication (Broadcasting and Cable) Services Interconnection (Addressable Systems) Regulations, 2017?**

**Response:** In our opinion, the important features of CAS and SMS to adequately cover all the requirements of DAS should include the following, including the features specified in Schedule III to the Interconnection Regulations:

**Addressable Systems Requirements**

**A. Conditional Access System (CAS) and Subscriber Management System (SMS):**

1. The distributor of television channels shall ensure that the current version of the CAS, in use, does not have any history of hacking.
2. The SMS shall be independently capable of generating, recording, and maintaining logs, for the period of at least immediate preceding two consecutive years, corresponding to each command executed in the SMS including but not limited to activation and deactivation commands.
3. It shall not be possible to alter the data and logs recorded in the CAS and the SMS.
4. The distributor of television channels shall validate that the CAS, in use, does not have the facility to activate and deactivate a STB directly from the CAS terminal. All activation and deactivation of STBs shall be done with the commands of the SMS.

5. The SMS and the CAS should be integrated in such a manner that activation and deactivation of STB happen simultaneously in both the systems. Necessary and sufficient methods shall be put in place so that each activation and deactivation of STBs is reflected in the reports generated from the SMS and the CAS terminals.
6. The seamless coordination of the CAS and SMS and their operational parameters should be certified by an independent agency such as the Autonomous Body (*refer to Response to Q 5(a), point 5*), before the operator procures the system, software or equipment. In this manner, the operators will also be protected against sub-standard systems.
7. The distributor of television channels shall validate that the CAS has the capability of upgrading STBs over-the-air (“OTA”), so that the connected STBs can be upgraded.
8. The fingerprinting should not get invalidated by use of any device or software.
9. The CAS and the SMS should be able to activate or deactivate services or STBs of at least five percent (5%) of the subscriber base of the distributor within 24 hours.
10. The STB and Viewing Card (“VC”) shall be paired from the SMS to ensure security of the channel.
11. The CAS and SMS should be capable of individually addressing subscribers, for the purpose of generating the reports, on channel by channel and STB by STB basis.
12. The SMS should be computerized and capable of recording the vital information and data concerning the subscribers such as:
  - (a) Unique customer identification (ID)
  - (b) Subscription contract number
  - (c) Name of the subscriber
  - (d) Billing address
  - (e) Installation address
  - (f) Landline telephone number
  - (g) Mobile telephone number
  - (h) E-mail address

- (i) Channels, bouquets and services subscribed
  - (j) Unique STB number
  - (k) Unique VC number.
13. All data recorded by SMS should be published by DPOs on monthly / quarterly basis on the website of such DPO and the Autonomous Body.
14. The SMS should be capable of:
- (a) Viewing and printing of historical data in terms of the activations and the deactivations of STBs.
  - (b) Locating each and every STB and VC installed.
  - (c) Generating historical data of changes in the subscriptions for each subscriber and the corresponding source of requests made by the subscriber.
15. The SMS should be capable of generating reports, at any desired time about:
- (a) The total number of registered subscribers.
  - (b) The total number of active subscribers.
  - (c) The total number of temporary suspended subscribers.
  - (d) The total number of deactivated subscribers.
  - (e) List of blacklisted STBs in the system.
  - (f) Channel and bouquet wise monthly subscription report in the prescribed format.
  - (g) The names of the channels forming part of each bouquet.
  - (h) The total number of active subscribers subscribing to a particular channel or bouquet at a given time.
  - (i) The name of a-la carte channel and bouquet subscribed by a subscriber.
  - (j) The ageing report for subscription of a particular channel or bouquet.
16. The CAS shall be independently capable of generating, recording, and maintaining logs, for the period of at least immediate preceding two consecutive years, corresponding to each command executed in the CAS including but not limited to activation and deactivation commands issued by the SMS.
17. The logs in the SMS and CAS should be password-protected with a key. Every time there is an access to the log, there should be an automatic alert

sent to an operator-specific account maintained by TRAI or any other designated independent agency such as the Autonomous Body. This account should be available for inspection by broadcasters.

18. The CAS shall be able to tag and blacklist VC numbers and STB numbers that have been involved in piracy in the past to ensure that such VC or the STB cannot be re-deployed.
19. It shall be possible to generate the following reports from the logs of the CAS:
  - (a) STB-VC pairing / de-pairing
  - (b) STB activation / de-activation
  - (c) Channels assignment to STB
  - (d) Report of the activations or the deactivations of a particular channel for a given period.
20. The SMS shall be capable of generating bills for each subscriber with itemized details such as the number of channels subscribed, the network capacity fee for the channels subscribed, the rental amount for the customer premises equipment, charges for pay channel and bouquet of pay channels along with the list and retail price of corresponding pay channels and bouquet of pay channels, taxes etc.
21. The distributor shall ensure that the CAS and SMS vendors have the technical capability in India to maintain the systems on 24x7 basis throughout the year.
22. The distributor of television channels shall declare the details of the CAS and the SMS deployed for distribution of channels. In case of deployment of any additional CAS / SMS, the same should be notified to the broadcasters by the distributor.
23. Upon deactivation of any subscriber from the SMS, all programme/ services shall be denied to that subscriber.
24. The distributor of television channels shall preserve unedited data of the CAS and the SMS for at least two years.

**B. Fingerprinting:**



1. The distributor of television channels shall ensure that it has systems, processes and controls in place to run finger printing at regular intervals.
2. The STB should support both visible and covert types of finger printing. Provided that only the STB deployed after coming into effect of the Interconnection Regulations shall support the covert finger printing.
3. The fingerprinting should not get invalidated by use of any device or software.
4. The finger printing should not be removable by pressing any key on the remote of STB.
5. The finger printing should be on the top most layer of the video.
6. The finger printing should be such that it can identify the unique STB number or the unique VC number.
7. The finger printing should appear on the screens in all scenarios, such as menu, Electronic Programme Guide (EPG), settings, blank screen, and games etc.
8. The location, font colour and background colour of fingerprint should be changeable from head end and should be random on the viewing device.
9. The finger printing should be able to give the numbers of characters as to identify the unique STB and / or the VC.
10. The finger printing should be possible on global as well as on the individual STB basis.
11. The overt finger printing should be displayed by the distributor of television channels without any alteration with regard to the time, location, duration and frequency.
12. Scroll messaging should be only available in the lower part of the screen.
13. The STB should have a provision that finger printing is never disabled.
14. The watermarking network logo for all pay channels shall be inserted at encoder end only.

Provided that only the encoders deployed after coming into effect of the Interconnection Regulations shall support watermarking network logo for all pay channels at the encoder end.

**C. Set Top Box (STB):**

1. All STBs should have a Conditional Access System or Digital Rights Management (“**DRM**”) for content protection.
2. The STB should be capable of decrypting the conditional access messages inserted by the head-end. In case of DRM, the STB should be capable of decrypting the messages inserted by the DRM.
3. The STB should be capable of doing finger printing. The STB should support both Entitlement Control Message (“**ECM**”) and Entitlement Management Message (“**EMM**”) based fingerprinting. In case of DRM, the STB should also be capable of doing finger printing and the STB should support both particular channel wise and all channel fingerprinting commands.
4. The STB should be individually addressable from the head-end. In case of DRM, the STB should be individually addressable from the SMS / DRM.
5. The STB should be able to receive messages from the head-end. In case of DRM, the STB should be able to receive messages from the SMS / DRM.
6. The messaging character length should be minimal 120 characters.
7. There should be provision for global messaging, group messaging and the individual STB messaging.
8. The STB should have forced messaging capability including forced finger printing display.
9. The STB must be compliant to the applicable Bureau of Indian Standards.
10. The STBs should be addressable over the air to facilitate OTA software upgrade.
11. The STBs with facilities for recording the programs shall have a copy protection system.

**D. Digital Rights Management and Subscriber Management System (SMS):**

1. The distributor of television channels shall ensure that the current version of the DRM, in use, does not have any history of hacking.

Explanation: A written declaration available with the distributor from the DRM vendor, in this regard, shall be construed as compliance of this requirement.

2. The SMS shall be independently capable of generating, recording, and maintaining logs, for the period of at least immediate preceding two consecutive years, corresponding to each command executed in the SMS including but not limited to activation and deactivation commands.
3. It shall not be possible to alter the data and logs recorded in the DRM and the SMS.
4. The distributor of television channels shall validate that the DRM, in use, do not have facility to activate and deactivate a Set Top Box (STB) directly from the DRM terminal. All activation and deactivation of STBs shall be done with the commands of the SMS.
5. The SMS and the DRM should be integrated in such a manner that activation and deactivation of STB happen simultaneously in both the systems.

Explanation: Necessary and sufficient methods shall be put in place so that each activation and deactivation of STBs is reflected in the reports generated from the SMS and the DRM terminals.

6. The distributor of television channels shall validate that the DRM has the capability of upgrading STBs over-the-air (OTA), so that the connected STBs can be upgraded.
7. The DRM and the SMS should be able to activate or deactivate services or STBs of at least 10% of the subscriber base of the distributor within 24 hours.
8. The DRM and SMS should be capable of individually addressing subscribers, for the purpose of generating the reports, on channel by channel and STB by STB basis.
9. The SMS should be computerized and capable of recording the vital information and data concerning the subscribers such as:
  - (a) Unique customer identification (ID)
  - (b) Subscription contract number
  - (c) Name of the subscriber
  - (d) Billing address
  - (e) Installation address
  - (f) Landline telephone number

- (g) Mobile telephone number
  - (h) E-mail address
  - (i) Channels, bouquets and services subscribed
  - (j) Unique STB number
  - (k) Unique VC number.
10. The SMS should be capable of:
- (a) Viewing and printing of historical data in terms of the activations and the deactivations of STBs.
  - (b) Locating each and every STB installed.
  - (c) Generating historical data of changes in the subscriptions for each subscriber and the corresponding source of requests made by the subscriber.
11. The SMS should be capable of generating reports, at any desired time about:
- (a) The total number of registered subscribers.
  - (b) The total number of active subscribers.
  - (c) The total number of temporary suspended subscribers.
  - (d) The total number of deactivated subscribers.
  - (e) List of blacklisted STBs in the system.
  - (f) Channel and bouquet wise monthly subscription report in the prescribed format.
  - (g) The names of the channels forming part of each bouquet.
  - (h) The total number of active subscribers subscribing to a particular channel or bouquet at a given time.
  - (i) The name of a-la carte channel and bouquet subscribed by a subscriber.
  - (j) The ageing report for subscription of a particular channel or bouquet.
12. The DRM shall be independently capable of generating, recording, and maintaining logs, for the period of at least immediate preceding two consecutive years, corresponding to each command executed in the DRM including but not limited to activation and deactivation commands issued by the SMS.
13. The DRM shall be able to tag and blacklist STB ID that has been involved in piracy in the past to ensure that such STB cannot be re-deployed.

14. It shall be possible to generate the following reports from DRM:
  - (a) STB activation / de-activation
  - (b) Channels Assignment to STB
  - (c) Report of the activations or the deactivations of a particular channel for a given period.
15. The SMS shall be capable of generating bills for each subscriber with itemized details such as the number of channels subscribed, the network capacity fee for the channels subscribed, the rental amount for the customer premises equipment, charges for pay channel and bouquet of pay channels along with the list and retail price of corresponding pay channels and bouquet of pay channels, taxes etc.
16. The distributor shall ensure that the DRM and SMS vendors have the technical capability in India to maintain the systems on 24x7 basis throughout the year.
17. The distributor of television channels shall declare the details of the DRM and the SMS deployed for distribution of channels. In case of deployment of any additional DRM / SMS, the same should be notified to the broadcasters by the distributor.
18. Upon deactivation of any subscriber from the SMS, all programme/ services shall be denied to that subscriber.
19. The distributor of television channels shall preserve unedited data of the DRM and the SMS for at least two years.

**E. Additional features to be covered in the CAS & SMS framework:**

1. Auditor must be given direct access to the CAS & SMS database for data extraction for reconciliation of the subscribers.
2. Cable operator should share inventory list containing smart card / set-top boxes' unique IDs purchased by such operator.
3. With changing times, security should have stronger encryption to be secure from online attacks since hackers are continuously involved in breaking weak / old encryption systems and misusing pay TV signals for their own profit. Advance encryption is much stronger than substandard CAS using 64-bit encryption. As technology moves ahead, it should be mandated that

industry standard will have to shift to higher bit encryption for secure layer protection.

4. Operators should provide complete accurate schematic diagram of their head end, earth stations, systems and processes for audit and auditing purpose.
5. Operator should submit and confirm the number of multiplexer units (“MUX”) installed with active transport stream (“TS”) outputs. This should include physical audit of head end, earth station and analysis of TS stream from the MUX.
6. All TS from MUX should be encrypted for the territory.
7. It is also suggested that the CAS and SMS vendor system, if found to be tampered in any manner resulting in any incorrect technical or commercial reports, then in such case, the CAS and SMS company / vendor should be blacklisted.
8. STB should be paired with viewing card on chip set level and viewing cards should not be portable. There should be hardware protection so that control words cannot be extracted from any point in the STB.
9. The SMS and the CAS should be integrated in such a manner that activation and deactivation of STB happen simultaneously in both the systems.
10. Reconciliation of CAS database (active cards, service wise and package wise) with SMS database should be extracted by the auditor or CAS vendor and not by the operator.
11. Super administrator passwords of the operator’s CAS & SMS must be provided by the operator to the auditor for extracting of database, logs, etc.
12. The CAS company should be known to have capability of upgrading the CAS in case of a known incidence of hacking.
13. The SMS & CAS should be able to handle at least one million concurrent subscribers on the system. SMS & CAS must be of large and reputed company with proven capacity for at least one million subscribers per network.
14. Both CAS & SMS systems should be of reputed organization and should have been currently in use by other pay television services that have an aggregate of at least one million subscribers in the global pay TV market.

SMS & CAS should be of large and reputed company with proven performance.

15. The CAS system should be independently capable of generating log of all activation and deactivation for the past 2 years. However, in the event of default, the DPO's registration and license should be revoked. Log of all activation & deactivations are required from SMS as well, for comparison with same logs of CAS to ensure there is no underreporting of subscribers by the DPO.

**Q2. As per audit procedure (in compliance with Schedule III), a certificate from CAS / SMS vendor suffices to confirm the compliance. Do you think that all the CAS & SMS comply with the requisite features as enumerated in question 1 above? If not, what additional checks or compliance measures are required to improve the compliance of CAS/SMS?**

**Response:** In our view, Schedule III to the Interconnection Regulations which specifies 'addressable systems requirements' at the present provides for a detailed list which operators are mandatorily required to comply with. Although the said list is exhaustive in itself, it does miss out on a number of technical requirements which a DPO / MSO may not fulfil in order to evade the purview of the Interconnection Regulations. In our opinion, TRAI should ensure that the DPO / MSO uses technical systems that are validated by an appropriate authority. The Department of Telecommunications ("DoT"), Ministry of Communications / Broadcast Engineering Consultants India Limited ("BECIL") should test the systems and issue validation certificates as per TRAI's regulatory framework.

In order to achieve efficiency, transparency and neutrality at DPOs' end, additional points or compliance measures need to be covered by TRAI. We note below certain technical specifications which TRAI must include in order to secure broadcasters' content and also make Schedule III to the Interconnection Regulations a more effective list:

1. As technology moves ahead, TRAI must mandate that industry standards should shift to higher bit encryption for secure layer protection. With

changing times, security should have stronger encryption to be secure from online attacks as hackers are continuously involved in breaking weak / old encryption systems and misusing pay TV signals for their own profit.

2. DPOs / MSOs should share complete inventory list with the auditor containing smart card / set-top boxes' unique IDs purchased by such DPO / MSO which should also be verified by the set-top box supplier sharing invoices or purchased, custom clearance documentation.
3. Encryption logs: In the current DAS regime, DPO's unencrypt channels from MUX at their own requirement & show content to all subscribers. If one channel is unencrypted, then control word (CW) may not be received by CAS and the same can be checked in ECM / EMM logs. TRAI should mandate the generation and storage of ECM / EMM table logs during the audit.
4. We are of the view that all SMS & CAS getting deployed in different DPO headends should be type approved by a neutral government agency. This will ensure that no sub-standard products are deployed in any of the DPO networks, and will certainly bring down deadlocks during audit. Some of the agencies which TRAI could refer to for type approval are listed as follows:
  - (a) The Wireless Planning & Coordination Wing (“WPC”) is a wing of the DoT under the Ministry of Communications, Government of India. The department is responsible for issuing amateur radio licenses, allotting the frequency spectrum and monitoring the frequency spectrum. Permission from WPC is required for importing any radio equipment in India, including walkie-talkie, RC cars / boats, drones / UAV, ZigBee, bluetooth devices, etc. Imports of radio equipments into India, without prior permission from WPC, will be confiscated by customs at point of entry. Individual WPC permission is not required for phones, computers and routers. The certification process includes the application, evaluation and testing of the product before the WPC certificate and Equipment Type



Approval (ETA) certification number is issued. There is currently no factory inspection needed and the tests can also be conducted by an accredited testing facility outside of India.

- (b) Bureau of Indian Standards (“**BIS**”) requires registration of electronics and information technology goods in 15 categories, including audio / video equipment, IT equipment, and household and similar electrical appliances. Testing must be performed against Indian standards at a BIS recognized laboratory. Separate registration is required for each factory at which a product is manufactured.

- 5. Schedule III to the Interconnection Regulations should provide that CAS should be able to independently generate records and maintain logs corresponding to each command executed. Thus, providing only a certificate will not be in consonance with the Interconnection Regulations. This piece of information is very critical for an auditor to verify channel-wise active subscriber count reported by the operator.

**Q3. Do you consider that there is a need to define a framework for CAS/ SMS systems to benchmark the minimum requirements of the system before these can be deployed by any DPO in India?**

**Response:** Yes, we definitely feel that there is a need to define a framework for CAS / SMS systems and that such measure will be beneficial for DPOs and other stakeholders. This has been clarified in our response to Q1 itself.

It should be noted that since each installation of a new head-end by the operator involves new processes, therefore the system might lose out on complying with certain requirements as have been mandated under the Interconnection Regulations during the process of installation. Exempting type-approved CAS and SMS systems from further audit before provisioning of signals should not be allowed, since this would give the DPOs / MSOs an upper hand and a reason to evade compliance with the requirements of the Interconnection Regulations. Further, it is very important to establish proper integration of CAS and SMS at

each head-end. Functionality of CAS and SMS anti-piracy features depend on STB compatibility and manner of offering of channels may differ from MSO to MSO. Further, type approval of CAS & SMS will only ensure the elimination of sub-standard products from the market. Post the purchase of CAS, SMS & STB by a DPO, the integration of all three need to be checked and validated before providing signals as the features adopted / purchased by each DPO will vary.

As provided above, even if two DPOs own the same combination of CAS, SMS and STB, each DPO will still opt for different features as per their economic & functional dynamics, due to which integration of the three may display different results, especially with middle-ware application interface where integration needs to be checked for each combination of CAS and SMS. We do not believe that the systems having the same make, model, and version that have already been audited in some other network and found to be compliant with the laid down specifications, need not be audited again before providing signals.

Therefore, the only methodology to ensure that the DPO satisfies the minimum specified conditions for addressable system is that the broadcaster should visit and ensure the complete integration and compliance of the systems deployed by each DPO, before giving them signals.

The existing Interconnection Regulations already prescribe the audit mechanism. Additionally, we can look at having suitable upgradation of CAS and SMS system which should be undertaken by the vendors on a periodic basis. As has been discussed above, in view of various issues that the broadcasters had faced in the past with DPOs with respect to the subscriber numbers being under-declared, the audit process becomes a critical part in ensuring smooth running of the business of the broadcasters and also to ensure that there is no loss of revenue to the government because of under-declaration of the subscriber numbers by the DPOs. The audit primarily is a mechanism to ensure the compliance of contractual stipulations including authentication of periodic reports by the digital MSOs / DTH service providers so as to safeguard the subscription revenue of the broadcasters.

If empanelled auditors conduct audit of the CAS and SMS systems of the DPOs on behalf of the broadcasters, then all issues raised by the DPOs before TRAI in respect of audit can be resolved. Further, such exercise of audit can be allowed up to a maximum of two times a year, and the report so generated by the audit firm can be provided to all the member broadcasters except for broadcaster specific numbers, which can be divulged, shared and audited by each broadcaster separately. The broadcasters invoice the DPO on the basis of subscriber reports provided to them by the DPOs. In the event it is found that the subscriber reports so submitted to the broadcasters have been manipulated, the license of the said DPO should be revoked. Further, such DPO should be obligated to pay penalty to the broadcasters. In addition to blacklisting and revocation of the license, such DPO should also be tried for the offence of cheating as manipulating the data clearly amounts to cheating under Section 420 of the Indian Penal Code.

**Q4. What safeguards are necessary so that consumers as well as other stakeholders do not suffer for want of regular upgrade / configuration by CAS / SMS vendors?**

**Response:** In our view, the following safeguards are necessary so that consumers as well as other stakeholders do not suffer for want of regular upgrade / configuration by CAS / SMS vendors:

1. It should be mandatory for every DPO / MSO to report to the broadcaster all the changes made to their addressable system as these may have commercial implications. Additionally, several complaints have also been received by TRAI from broadcasters regarding piracy and illegal distribution of signals of television channels. Such rampant piracy is due to deployment of non-compliant CAS and SMS making the system vulnerable to hacking, putting content security at risk.
2. In the event of technical changes made to the systems all such changes should also be notified to TRAI, Ministry of Information and Broadcasting (“MIB”) and broadcasters such as, *inter alia*:

- (a) Addition or deletion of CAS and SMS systems or relevant systems, etc.
- (b) Using advance encryption system by the DPO.
- (c) CAS must have secure boot loader in the STB.
- (d) STB should be paired with viewing card on chip set level and viewing cards should not be portable. There should be hardware protection so that control words cannot be extracted from any point in the STB. In standard CAS, control word is protected by encryption in entitlement control messages (ECM).
- (e) ECM and EMM must be encrypted form in CAS.
- (f) Addition or deletion of STB; change in STB model.
- (g) Change in location of CAS and SMS to be notified to broadcaster.
- (h) Change in LCN, addition or deletion of package.
- (i) Change or addition of service / coverage areas.
- (j) Addition and deletion of information in operator web site, customer grievance numbers.
- (k) CAS reports and database must generate authentic reports in non-editable formats with date and time stamp.
- (l) CAS database must not be accessible to the DPO. Only CAS vendor must have the admin password to open the database.
- (m) OTA software upgradation of the STBs and processes.
- (n) Consumer Application Form details updating in SMS.
- (o) Billing systems modifications should not be allowed.
- (p) Recorded content should be encrypted and not play on any other devices.
- (q) STB pairing function - Customer ID is paired with the STB number and the smartcard number (for card-based STB) or chip ID number. This in an important functionality related to activation / deactivation or blacklisting of STB and must be mandated by the regulator.
- (r) Identifying substandard CAS in the eco-system and replacing with standard CAS having at least 128-bit secure encryption.
- (s) Limited functionality of DPOs' STB because of substandard CAS and middleware functions which is why elimination of issues

relating to quality of service on ground such that consumers have uniform services is of paramount importance.

- (t) Mandatory provision of channel 999 as consumer information channel – inability of certain DPOs to provide sufficient feature-based information on channel no. 999 due to limitations of their systems.
3. Prior to the commencement of the commercial / technical audit by the empanelled auditor, a walkthrough module & workflows by CAS and SMS vendors and experts only should be mandated for at least one day. The presence of CAS and SMS vendors during the commercial and technical audit will be very beneficial.
  4. To understand the declaration report generation process by performing a walkthrough of processes and underlying systems (to understand completeness and accuracy of subscriber report generation process):
    - (a) Generation of reports for subscriber declaration for channels/ bouquets.
    - (b) Any reconciliations / checks / adjustments carried out before sending the declarations.

**Q5. a) Who should be entrusted with the task of defining the framework for CAS & SMS in India? Justify your choice with reasons thereof. Describe the structure and functioning procedure of such entrusted entity.**

**Response:** We are of the opinion that all SMS and CAS getting deployed in different DPO head-ends should be type-approved by a neutral government agency. This will ensure that no sub-standard products are deployed in any of the DPO networks and will certainly bring down deadlocks during audit.

1. Telecommunication Engineering Center (“TEC”): TEC issues interface approval against its interface requirements (“IR”) standards. IR standards are organized by functional equipment type and usually specify network interfaces. Equipment to be connected to public network services requires approval. TEC issues type-approval against its Generic Requirements

("GR") standards. Like the IR standards, GR standards are organized by functional equipment type. Approval requires in-country telecom testing and may also require environmental and EMC testing. Infrastructure assessment of the applicant's test and repair facilities in India are also a requirement. Kindly refer to <http://www.tec.gov.in/type-approval/> for more information.

2. Standardisation Testing and Quality Certification ("STQC") Directorate: STQC Directorate is an attached office of the Ministry of Electronics and Information Technology, Government of India, which provides quality assurance services in the area of electronics and IT through countrywide network of laboratories and centres. The services include testing, calibration, IT & e-governance, training and certification to public and private organizations. STQC laboratories have national / international accreditation and recognition in the area of testing and calibration. Besides testing and calibration, STQC has specialized institutions such as Indian Institute of Quality Management (IIQM) for quality-related training programs and Centre for Reliability (CFR) for reliability-related services. In the area of IT & e-governance, STQC provides quality assurance services for software testing, information security and IT service management by conducting testing, training, audit and certifications.
3. WPC: The WPC Wing of the Department of Telecommunications issues approval of radio devices operating in unlicensed frequency bands. Generally, approval is based on review of foreign standard test reports and approval certificates. Radio devices operating in licensed frequency bands require a separate set of licenses. For radio equipment that operates in licensed frequency bands, the importers, dealers and users of the equipment must obtain licenses from WPC. The application processes for these licenses are complex and time consuming, but Compliance International can support them. Kindly refer to <http://www.wpc.dot.gov.in/> for more information.

4. BIS: BIS requires registration of electronics and information technology goods in 15 categories, including audio / video equipment, IT equipment, and household and similar electrical appliances. Testing must be performed against Indian standards at a BIS recognized laboratory. Separate registration is required for each factory at which a product is manufactured. Kindly refer to <http://www.bis.org.in/> for more information.
  
5. Autonomous body for technical accreditation, operational framework, management and compliance: An independent, autonomous, neutral body (“**Autonomous Body**”) should be set up consisting of the representatives of broadcasters / DPOs / CAS and SMS vendors. This body shall be entrusted with the task of accreditation, upgradation of specifications with the involvement of technical experts, and through a consultative process with relevant stakeholders, defining the framework for CAS and SMS. The technical standards set by the Autonomous Body will be prescriptive for all stakeholders and shall be the source of technical recommendations to the regulatory authorities. The Autonomous Body would focus its capacity in solving quality and technical issues for CAS / SMS framework for television broadcasting services and will perform the following functions:
  - (a) Prepare an operational framework for specifying the common standards regarding CAS and SMS systems for broadcasting services.
  - (b) Every 12 months or earlier, if required, furnish various recommendations, resulting from its technical research and testing modalities, on various upgrades and updates that shall be implemented in the CAS, SMS and STBs to make the complete ecosystem robust and to ensure quality customer experience and satisfaction.
  - (c) To come up with new ideas and policy recommendations for TRAI and MIB after studying the practical implementation of CAS and SMS, and technical and operational factors with ways to resolve on-ground issues, with a focus on the broadcasting services television ecosystem.

- (d) Develop expertise to imbibe the latest technologies and results of research and development including a possible block chain mechanism.
- (e) Provide technical inputs to TRAI and Telecom Disputes Settlement Appellate Tribunal (“**TDSAT**”).
- (f) To issue accreditation certificates to CAS and SMS vendors post carrying out testing of the CAS and SMS systems, and the certificates will be issued with an expiry date of 6 months. Thereafter, it shall be the responsibility of the CAS and SMS vendors to get themselves re-certified from the Autonomous Body every 6 months. The CAS and SMS vendors shall always ensure validity of their certificate.
- (g) Manage the empanelment and compliance by the CAS and SMS vendors after issuance of accreditation certificate by the Autonomous Body.
- (h) Publish reports pertaining to certification / re-certification of the CAS and SMS system on its website.
- (i) To obtain complete and accurate logs from CAS and SMS vendors for the period under audit at the request of the broadcaster in the event the broadcaster is not satisfied with the audit report received from the DPO. The said logs shall then be provided to the empaneled auditor appointed by the broadcaster for carrying out audits under first proviso to Regulation 15(2) of the Interconnection Regulations.
- (j) To explore technology supported solutions, including block chain solution to ensure that there is complete transparency of the number of subscribers connected to any DPO. This system, if implemented properly, will be very close to eliminating under-declaration faced by the industry. (A suggested approach to the block chain mechanism could be that every transaction that a DPO does with his subscriber will be recorded, transparently available to all stakeholders, and will be conducted through the “miners” in the block chain. The movement of a subscriber from one DPO to another will be possible once all dues owed to the DPO are cleared. Without



clearing the dues, if the LCO / DPO attempts to migrate the subscribers from one DPO to the other, the transaction would not complete due to existing uncleared dues and so on in the block chain solution. Eventually, all subscribers and the channels subscribed information will be available transparently to all the stakeholders. Information of any DPO who might be delisted would be available transparently as it would not be possible to execute any transaction with that DPO. In short, this mechanism will benefit the entire ecosystem and all its stake holders.)

- (k) To maintain a list of decommissioned CAS and SMS systems to ensure that such decommissioned CAS and SMS installations are not re-deployed. All CAS and / or SMS vendors who have decommissioned their installations at any DPO shall be accountable to inform the same to the Autonomous Body, which shall inform, for the record, the broadcaster and TRAI. On the date of decommissioning the CAS and SMS installation, the list of final subscriber report, logs, etc. shall be shared by the vendor with the Autonomous Body, with a copy to the broadcaster. If during any audit, such decommissioned system is found to be operational and not reported to the Autonomous Body in advance, it would be a violation of Schedule III to the Interconnection Regulations and, subject to an opportunity for the vendor to prove its lack of involvement or wrongful deployment by the DPO, within limited time frame, the following actions shall be taken:
- (i) Removal of CAS and SMS vendors from empanelment with the Autonomous Body;
  - (ii) The CAS / SMS vendors shall be placed on the defaulters list of disqualified CAS and SMS vendors available on the website of the Autonomous Body; and
  - (iii) Autonomous Body will strongly recommend to the MIB for cancellation of the license of the distributor of television channel.

**Q5. b) What should be the mechanism / structure, so as to ensure that stakeholders engage actively in the decision making process for making test specifications / procedures? Support your response with any existing model adapted in India or globally.**

**Response:** In our view, it is a joint responsibility of the Ld. Authority, seeker and stakeholders to engage actively in the process of making test specifications and producers for CAS and SMS technical framework. In our view, the onus of completing the task should not squarely lie with the broadcaster itself. The task of completing the task lies equally on the seeker of signal as well. It is important to point out that reference interconnect offers of the broadcaster cover every aspect of the technical requirements including the prerequisite parameters clearly spelt out leaving practically no scope for misinterpretation by the seeker. It has been found on numerous occasions that the seeker of signal is not fully compliant with the CAS and SMS which is the bare minimum requirement to be eligible to operate in DAS areas. We are of the opinion that TRAI should introduce a mechanism to ensure that any applicant seeking license to operate in the DAS areas is completely compliant before any license is granted by MIB. This will ensure that licenses are not granted unless the seeker is cleared by TRAI as being technically eligible for such license. For ensuring the pre-licensing check, the Ld. Authority may empanel professionals not only from BECIL but also from the general pool of eminent technologists rendering such services to ensure speedy completion of the process with minimal time spent on technical audit by the broadcasters. A pre-defined fee structure may also be introduced by TRAI for such services. In our view, it is a joint responsibility of the Ld. Authority, seeker as well the provider in curtailing the delay in completing the technical audit and thereby ensuring speedy interconnection.

**Q6. Once the technical framework for CAS & SMS is developed, please suggest a suitable model for compliance mechanism.**

a) **Should there be a designated agency to carry out the testing and certification to ensure compliance to such framework? Or alternatively should the work of testing and certification be entrusted with accredited testing labs**

**empanelled by the standards making agency/ government? Please provide detailed suggestion including the benefits and limitations (if any) of the suggested model.**

**Response:** In our view, one or two firms or individuals should be appointed as a common agency / gateway on behalf of all stakeholders which should be mandated or enabled for testing and certification. We firmly believe that a common pool agency should be formed with expertise in technical training and certification to public and private organizations and broadcasting and distribution business under a central facility. The agency so appointed in a central facility shall undertake the testing exercise on a rotational basis.

In view of the above proposed recommendations intended to build a robust, transparent and credible CAS / SMS framework, the moot requirement is to ensure true and correct reporting, coupled with fact finding audit exercise, which credibly reveals the actual number of subscribers serviced by a DPO.

1. TEC: TEC issues interface approval against its IR standards. IR standards are organized by functional equipment type and usually specify network interfaces. Equipment to be connected to public network services requires approval. TEC issues type-approval against its GR standards. Like the IR standards, GR standards are organized by functional equipment type. Approval requires in-country telecom testing and may also require environmental and EMC testing. Infrastructure assessment of the applicant's test and repair facilities in India are also a requirement. Kindly refer to <http://www.tec.gov.in/type-approval/> for more information.
2. STQC Directorate: STQC Directorate is an attached office of the Ministry of Electronics and Information Technology, Government of India, provides quality assurance services in the area of electronics and IT through countrywide network of laboratories and centres. The services include testing, calibration, IT & e-governance, training and certification to public and private organizations. STQC laboratories are having national / international accreditation and recognitions in the area of testing and calibration. Besides testing and calibration, STQC has specialized

institutions such as Indian Institute of Quality Management (IIQM) for quality related training programs and Centre for Reliability (CFR) for reliability related services. In the area of IT & e-governance, STQC provides quality assurance services for software testing, information security and IT service management by conducting testing, training, audit and certifications.

3. WPC: The WPC Wing of the Department of Telecommunications issues approval of radio devices operating in unlicensed frequency bands. Generally, approval is based on review of foreign standard test reports and approval certificates. Radio devices operating in licensed frequency bands require a separate set of licenses. For radio equipment that operates in licensed frequency bands the importers, dealers and users of the equipment must obtain licenses from WPC. The application processes for these licenses are complex and time-consuming, but Compliance International can support them. Kindly refer to <http://www.wpc.dot.gov.in/> for more information.
4. BIS: BIS requires registration of electronics and information technology goods in 15 categories, including audio / video equipment, IT equipment, and household and similar electrical appliances. Testing must be performed against Indian standards at a BIS-recognized laboratory. Separate registration is required for each factory at which a product is manufactured. Kindly refer to <http://www.bis.org.in/> for more information.
5. Autonomous body for technical accreditation, operational framework, management and compliance: *Kindly refer to response to Q 5(a), point 5 above.*

**b) What precaution should be taken at the planning stage for smooth implementation of standardization and certification of CAS and SMS in Indian market? Do you foresee any challenges in implementation?**

**Response:** It is of paramount importance to develop Indian standards for content security in digital addressable systems in India and to achieve this, Standard

Development Organizations must be involved in the process of developing or formulation of standards, testing and certification.

It has been observed that a lot of CAS and SMS vendors and in-house products have been implemented which have no standards and uniformity. Many of the CAS and SMS systems do not even have basic security features and means of authenticity of reporting. It is therefore recommended that the Ld. Authority appoint a designated agency to carry out the testing and certification to ensure compliance to such framework and lay down guidelines for CAS and SMS systems and the vendor should take certification from the agency before the product (with specific version) can be deployed in any DPO in India.

Since most of the addressable systems are one-way systems and the broadcaster depends completely on the accuracy of SMS and CAS systems maintained and deployed by the DPO, it is important that the systems and subscriber - reporting should be correct and should not be prone to manipulation by both the DPO and the system vendor. While there should be un-editable logs for every activity in standard format to prevent any misuse, the vendor should be responsible for misuse of system by himself in connivance with DPO or any wrongdoing done by DPO himself.

All DPOs should be also made responsible for all downstream operators for maintaining sanctity of CAS and encryption systems. If any DPO is found indulging in manipulation of data or found aiding a DPO in manipulation of data, he and his associate companies should be blacklisted for a minimum period of 5 years and he should be allowed to operate in India after he proves technical changes in product which prevent himself or the DPOs from manipulating data.

We recommend the following additions to the present regulatory framework:

1. On-field verification should be an integral part of audit exercise since the operations of MSOs are not confined merely to the control room. The network through which channels are delivered is spread over a huge area.
2. Broadcasters should be allowed to record TS outputs from MSO's network without prior intimation and such recording of the broadcaster should be considered as part of the audit exercise.

3. Appropriate clarification needs to be issued by TRAI clarifying that the broadcaster can collect field samples comprising of STBs and viewing card number (VCs) from the ground and validate them with the subscriber data base provided by the MSO during an audit.

**c) What should be the oversight mechanism to ensure continued compliance? Please provide your comments with reasoning sharing the national/international best practices.**

**Response:** The regulatory framework at present provides for a detailed list which operators are mandatorily required to comply with. The list, although being exhaustive in itself, misses out on a number of technical requirements which the operator may not fulfill in order to circumvent the purview of the Interconnection Regulations. In our view, the Ld. Authority should ensure that the operator uses technical systems that are validated by an appropriate authority. STQC Directorate, BECIL, DoT, the Autonomous Body etc. should issue test certificates after validation as per the regulatory framework.

**Q7. Once a new framework is established, what should be the mechanism to ensure that all CAS / SMS comply with the specifications? Should existing and deployed CAS / SMS systems be mandated to conform to the framework? If yes please suggest the timelines. If no, how will the level playing field and assurance of common minimum framework be achieved?**

**Response:** We strongly believe that deployed CAS / SMS systems be should mandated to conform the new regulatory framework. It is submitted and reiterated that there have been plenty of cases where the DPO does not account its true subscriber report to the broadcaster with respect to the number of subscribers that have been catered to during a particular month. The DPOs, while accounting the subscriber base to the broadcasters, take into account the subscriber number at the beginning of the month. DPOs must be held liable to account for the entire subscriber base.

As has been suggested by TRAI, a common standard format of the audit may be prescribed to be maintained by all the stakeholders in order to enable the parties

to keep a check on the subscriber base of a particular DPO and also to verify from time to time if the technical and other requirements are met with by the DPOs. The regulatory framework as on date mandates that the SMS, CAS, fingerprinting and STBs meet the minimum requirements as enumerated in the Telecommunication (Broadcasting and Cable Services) Interconnection (Digital Addressable Cable Television Systems) Regulations, 2012 dated 30.04.2012 issued by TRAI. However, at times, the basic dispute between the parties is whether these requirements are met or not. Since these requirements are technical in nature, and sometimes the technology is so complicated, it is hard to prove that the requirements are not met with. In order to address this issue, the primary obligation that must be cast upon the DPOs is that only standard equipment and technology that has received prior approval from TRAI must be used. The purpose of conducting audit is to ascertain that the system so used meets with the requirements specified in Schedule III to the Interconnection Regulations. However, at times a situation so arises that after the audit is conducted, the DPO changes its system completely, thereby defeating the whole purpose of conducting audit. The number of audits that is allowed to a broadcaster also gets exhausted and the broadcaster is left with no other option but to approach the Hon'ble TDSAT for effective adjudication of the disputes.

Given that different broadcasters have different requirements, the format of the subscriber report shall be determined by the broadcaster basis the commercial arrangement with the DPO. A common format might not be able to cover all the reporting requirements of various stakeholders.

The methodology prescribed in the existing Schedule III to the Interconnection Regulations suggests the opening and closing of each month need to average for the invoicing purpose. But this methodology presents a drawback when a subscriber is active for the first 28 days and gets de-activated on the 29<sup>th</sup> day of the month. To overcome this drawback, we suggest that three days' count for each month be taken on the 10<sup>th</sup>, 20<sup>th</sup> and last day of the month. This will help DPOs as well as broadcasters to minimize the standard deviation in subscriber base.

In our opinion, the subscription audit methodology prescribed needs review. Currently, the audit methodology prescribed under Schedule III to the Interconnection Regulations is as follows:

1. Number of audits: Two times a year by broadcaster or its authorized agency
2. If found dissatisfactory: MSO to resolve issue within 14 business days.
3. If there is no satisfactory result after 14 days: broadcaster may disconnect signal until MSO rectifies such issue to the satisfaction of the broadcaster.
4. MSO is required to bear the cost for such non-compliant audit.

The current framework does not give clarity with respect to whether can signals can be switched off immediately after 14 days or after serving 21 days' notice. Maximum number of attempts should include first visit plus two revisits and the expense of both revisits should be borne by the DPO.

Audits of system should be carried out by a team created by all the broadcasters. However, commercial audits should be carried out separately by each broadcaster for their respective channels.

For delay in making available the subscriber reports, the DPOs / MSOs should be liable to pay the broadcasters a penalty as may be prescribed by the Ld. Authority. This would act as a deterrent for the DPOs / MSOs and would inculcate some discipline amongst them, which in turn may ensure timely receipt of subscriber reports.

In our opinion, the suggestion of the Ld. Authority to appoint a neutral third-party auditor is a good initiative and we have given our recommendation hereinabove in this regard.

**Q8. Do you think standardization and certification of CAS and SMS will bring economic efficiency, improve quality of service and improve end- consumer experience? Kindly provide detailed comments.**

**Response:** Yes, we believe standardization and certification of CAS and SMS will bring economic efficiency, improve quality of service and improve end-consumer experience.



According to the Interconnection Regulations, every distributor of television channels is required to conduct audit once every year of its subscriber management system, conditional access system and other related systems by an empanelled auditor to verify monthly subscription reports made available by the distributor to the broadcasters with whom it has entered into an interconnection agreement. The audit is required to provide confirmation of self-reported numbers of the systems owned and under physical control of the DPOs. It is relevant to bring to the notice of the Ld. Authority that fifteen months have passed since the implementation of the new regulatory framework but the delay in conducting of audit has been adversely impacting the commercial interest of the broadcasters due to the inaccuracy of the system data. TRAI needs to accelerate the audit process which would help broadcasters realize their true business potential and make informed business decisions. This would also help usher the stated goals of the regulatory framework.

**Q9. Any other issue relevant to the present consultation.**

**Response:** In our opinion, the following issues also merit the immediate attention of the Ld. Authority:

1. Non-compliance of DPOs with provisions of QoS Regulations: The Ld. Authority should ensure that quality of service is enforced and strictly complied with by the DPOs in full spirit at the ground level to meet the real objective of the new regulatory framework, i.e. consumers having the freedom to choose the channels as per their choice. Although TRAI has itself issued directions to various DPOs citing non-compliance of the provisions of the Telecommunication (Broadcasting and cable) Services Standards of Quality of Service and Consumer Protection (Addressable Systems) Regulations, 2017 (“**QoS Regulations**”), the situation has not improved on the ground level. It is submitted that the QoS Regulations stipulate that every DPO shall adopt consumer friendly methods, including but not limited to website and telephonic call to customer care center, for requesting subscription of broadcasting services related to television. However, a majority of DPOs do not have an operational website with a

consumer corner, call centers, consumer care center, etc. DCI has intimated TRAI of such non-compliance by DPOs with the provisions of the QoS Regulations numerous times through several communications.

It is important to note that these are the basic prerequisites prescribed under the QoS Regulations, which DPOs must mandatorily comply with before providing broadcasters' channels to consumers. Numerous complaints have been registered by the consumers over the course of implementation of the new regulatory framework on not being able to make real choice of TV channels and non-cooperation by the DPOs while exercising their choice. TRAI needs to strengthen the power granted to consumers through the new regulatory framework by forcing the DPOs to follow the timelines stipulated by the QoS Regulations on consumer grievance redressal so that the complaints received are addressed in a timely manner. Thus, TRAI needs to enforce the QoS Regulations at the ground level and ensure that DPOs strictly comply with the provisions of such regulations.

2. Third party app for consumers: The purpose of the Ld. Authority to facilitate easy channel selection by the consumers can be institutionalized through a channel selection mechanism enabled through third-party application.

A single application with friendly user interface where consumers have access to all information such as MRP of broadcasters, distributor retail price declared by DPO, network capacity fee charged by the DPO, etc. can simplify the channel selection process and help consumers make effective and informed choices regarding the television channels they want to watch. The app must also represent all the DPOs which are registered with the MIB. Additionally, consumers must be able to exercise their choice of channels through the app. The choices made by the consumers through the app should be updated by the DPOs instantly or within a stipulated time period. A single channel selection app would also help reduce the number of consumer complaints and improve the time involved in grievance redressal. It is submitted that implementation of a proper system will help in standardizing channel selection process across different platforms.

3. It is also suggested that if the CAS and SMS vendor system is found to be compromised / tampered in any manner resulting in any incorrect technical or commercial reports, then in such case, the CAS and SMS company / vendor should be penalized.

## **7. Conclusion**

- 7.1 Complete digitization and proper implementation of technically sound CAS and SMS systems is a must in order to safeguard broadcasters' revenue and for preventing revenue leakage of broadcasters; however, this has not yet been achieved. The implementation of the New Regulations by TRAI without first ensuring complete compliance of DPOs with SMS and CAS was therefore not only premature but also onerous, arbitrary and directly incompatible with the interests of stakeholders.
- 7.2 Though we appreciate the Ld. Authority's effort to address issues arising out of deployment of sub-standard SMS and CAS systems vide the issuance of the present Consultation Paper, we respectfully submit that the implementation of the New Regulations requires interdependency between all stakeholders and, therefore, they cannot be implemented in a piecemeal manner, without first addressing all issues, including those highlighted above.
- 7.3 In light of the same, we respectfully urge you to bestow your immediate attention to the implementation issues noted above and address them at the institutional level to facilitate smooth implementation of the New Regulations. We, therefore, humbly seek the Ld. Authority's valuable assistance and guidance in addressing the aforesaid concerns adequately and effectively and arriving at a solution that is conducive to the interest of all stakeholders.

The comments / views of DCI are without prejudice to their rights and contentions in the proceedings pending before the Hon'ble Delhi High Court in W.P. (C) No. 6915 of 2017, W.P. (C) No. 9431 of 2019 and W.P. (C) 2284 of 2020.