DEN Networks Limited's response to Consultation Paper on STB Interoperability.

<u>PREAMBLE:</u>

At the outset we would like to express our gratitude to the Authority for providing us with an opportunity to respond to the Consultation Paper on Set Top Box (STB) Interoperability. The instant response being submitted by us is with respect to the technical issues and commercial challenges surrounding interoperability..

It is pertinent to note that in terms of the license granted by the Ministry of Information and Broadcasting (MIB), Direct to Home (DTH) operators, have been mandated since inception to architect interoperable STBs, but the same has remained on paper and has not been strictly adhered to, ever since, due to various reasons. More over only few STBs with the provision of insertion of CAM Module were purchased by the DTH Operators for compliance purposes, but the same were never commercially exploited, because the cost of CAM Module is similar or more than the cost of STB and thus interoperability in DTH has never been truly effected. Therefore, before proceeding further with this consultation paper the Authority should first ensure the adherence of License Conditions of the DTH Operators and analyse the behaviour of subscribers in the DTH regime.

Further, due to non-interoperability of STBs, even after the merger of Videocon and Dish TV, the platforms are till date, maintaining their separate systems and separate set top boxes with no interoperability. Another such example is the case of Independent TV which also demonstrated a similar scenario when the existing set top boxes of the DTH player were not interoperable with other DTH players (Videocon, Airtel Digital, Dish TV, Sun Direct, Tata Sky) and viewers had to compulsorily invest in the purchase of new set top boxes to continue availing of broadcasting services, since the previous STBs were non-interoperable. Therefore it is requested that the Authority should get compliance of License Conditions from DTH Operators and then study the behaviour of Subscribers with respect to migration from one DTH Player to another and thereafter such consultation be done if at all there is any need.

Approximately 40 million households, who are availing broadcasting services from Free DISH are using the non- interoperable STBs which the subscribers have purchased leading to an additional cost for the subscribers in the event they want to shift to alternate service provider/ DPO. Again investment of interoperable STBs would be a burden for Subscribers and would lead to further increase in consumer price for viewing Cable Services.

Furthermore, MSOs have already invested a huge amount of capital in the entire STB ecosystem to adapt to the new set of regulatory regime that was introduced during digitisation, and if at this stage any change is required to be made to achieve interoperable STBs, it will dent the financial state of affairs of the MSOs involving huge deployment of manpower and funds at a large level.

In view of the above, our response on the issues raised in the Paper is given below:

Q1. In view of the implications of non-interoperability, is it desirable to have interoperability of STBs? Please provide reasoning for your comment.

DEN's Response:
It is submitted that MIB, vide the license conditions, mandates DTH operators to architect their devices in a manner that they are interoperable and compatible with devices of other DTH operators. However, the same has not be adhered to till date, in reality. Therefore, if the concept of interoperable STBs has to be introduced, the same must be made applicable to the DTH industry and the subscriber behaviour under the DTH regime may be analysed. The concept of architecting STBs that are interoperable for MSOs is not desirable as it poses technical and commercial challenges. It cannot be viewed in isolation as execution of interoperability may pose practical difficulties and more financial implications.

Bringing about Interoperability of STBs comes with mainly following challenges:-
  ➢ First and foremost, the commercial viability/sustainability of the project itself is under scanner considering the huge cost implications it poses. If the Authority intends to introduce downloadable CAS, and other components like key ladder and crypto firewall, the cost of the STB will be extortionate, thereby, increasing the cost to service the customers. Further, the MSOs, in compliance with the regulatory regime fixed by

the Authority introducing various features in the STBs, have already invested huge sums of money and if the concept of interoperability is now into place at this juncture, the MSOs will be forced to shift the financial burden to the customers;

➢ The types of set-top boxes (STBs) that are used by various MSOs and DTH operators are widely different from one another in terms of architecture and functionality. Such STBs incorporate features that are widely distinct from one another in terms of the following:

(i) Compression technology: MPEG 2 and MPEG 4;

(ii) Transmission technology: DVB C/C2, DVB-S/S2;

(iii) Different encryption technologies: NDS, Nagra, Irdeto, Conax, Verimatrix etc.

(iv) Different EPG software.

(v) Different SI systems.

➢ Considering the distinct technologies (as stated above) at play with respect to MSOs and DTH operators, there is a lack of solution architecture of technically interoperable STBs. Before launching a full-fledged project on interoperability, TRAI will have to fix and freeze the solution architecture of technically interoperable STBs with detailed deliberation on the subject, as has been highlighted by the Authority in para 2.14 of the consultation paper on STB interoperability--*"C- DoT has designed the interoperable STBs and tested it under lab conditions, testing with commercial CAS systems and STBs and demonstration of interoperability is still pending"*. It is incumbent upon the Authority to fix and freeze standards with respect to compression, encryption, modulation, resolution and middleware.

➢ Questions like minimum features that may be made available to end consumers, tune of financial burden to be borne by consumers with upgrades in their boxes due to either advancement in technology platforms or additional interactive services provided by operators, dependency on consumer for upgrading their set top boxes will not hinder technological advancements/services provided by operators, which today are provided free of cost (FOC) basis to consumers;

➢ Issues relating to holding CAS and SMS providers for proprietary breach, considering there isn't any licensing body regulating these providers in India, loom large at the

moment. Further, control mechanism/security standards may have to be put in place for such operators as most of them are foreign entities;

➢ The Authority may have to look into the issue of setting up a nodal body for processing porting requests by consumers and the aspects relating to cost of such porting, running and handling of complaints for such an agency, if put in place;

➢ Different interactive and innovative features developed by different operators and consequent development of STBs is what gives these operators a competitive edge in the market. Such service delivery and product differentiation capability are inbuilt in the STB, and such innovative solutions is what the end consumer values the most. Therefore, by mandating interoperable STBs, we will be denying the consumers to enjoy additional interactive services provided by various operator;

➢ While we appreciate the concern of the Authority regarding increasing e-waste, wherein, it has mentioned that 54 million STBs are lying idle or unused in DTH segment and in the cable segment as well, it may be pertinent to mention that STBs have the potential of being recycled, however, because of lack of policy in this regard and lack of willingness on part of consumers, even though these boxes are property of the MSOs, the same are not retuned and therefore go to waste;

➢ Further, DTH license has an inherent clause of provision of interoperable set top boxes, and as understood many DTH players have started providing interoperable set top boxes, then why is it that 54 million STBs are lying idle;

➢ With the advancement in technology and interactive services, the STBs will further be discarded and e-waste will generate substantially.

In view of the above, we would request the Authority to resolve the preliminary issues like solution architecture, framework, CAS and SMS registration, security standards, standardizing middleware software, collection and control mechanism of STBs, central agency for STB hardware complaints etc. before delving into possible solutions that may be adopted for interoperability of set top boxes.

Q2. Looking at the similar structure of STB in cable and DTH segment, with difference only in the channel modulation and frequency range, would it be desirable to have universal interoperability i.e. same STB to be usable on both DTH or Cable platform? Or should there be a policy/ regulation to implement interoperability only within a platform, i.e. within the DTH network and within the Cable TV segment? Please provide your comment with detailed justifications.

DEN's Response:

Interoperability of STBs comes along with technical and commercial challenges and its execution poses practical difficulties.

It may be pertinent to mention that DTH operators, vide their license terms, have already been mandated to come out with interoperable STBs. Since, they are already mandated to put in place interoperable STBs, the concept of interoperability may be easier to introduce in the DTH segment and subscriber behaviour in the DTH regime be analysed.

Q3. Should interoperable STBs be made available through open market only to exploit benefits of commoditization of the device? Please elaborate.

DEN's Response:

As pointed out earlier, the concept of interoperability is not desirable for MSOs as such because of the huge cost implications and restrictive technical conditions surrounding the architect of an interoperable STB. Further, the Authority may consider resolving primary issues like solution architecture, framework, CAS and SMS registration, security standards, standardizing middleware software, collection and control mechanism of STBs, central agency for STB hardware complaints etc., before any decision on STBs being made available through open market is arrived at. Further, it is pertinent to highlight that piracy of content and piracy via unencrypted signal has also increased significantly. Interoperability and commoditization of STBs will fuel the piracy.

At present, the operators are offering the STBs at subsidized rates. If the Authority decides to introduce the concept of interoperability, the cost of servicing the subscriber will increase and

the subscribers will be constrained to approach STB vendor and the service provider to avail services. Therefore, if the STBs are available in open market, the subscribers, unlike at present, will have two points of contact: i.e. firstly the STB dealer who will provide the subscriber with the box and secondly the service provider who will provide services through one of the technologies proposed in the current Consultation Paper. In case of any issues with the STBs, the subscriber will have to approach both the dealer and the service provider, as the subscriber will not be in a position to ascertain if the technical malfunction is of the box or of the service provider. At present, all such technical concerns are resolved on a single platform, i.e. by the service provider. Such a situation will lead to a scenario where grievances regarding technical issues will remain unresolved and that could be a major cause of inconvenience to the subscribers.

In a situation where the STBs are available in open market, adequate backup support and aftersales service will have to be ensured by the STB manufacturers including service centres/ call centres in every town/ city (as applicable), to ensure easy accessibility to the subscribers. Additionally, it also needs to be ensured that such interoperable STBs are replaced by the manufacturers/ distributors/ retailers, within the defined timeline as per the regulatory framework, if such STBs are meted out with technical complications.

From the MSO's point of view, the process of migration of such interoperable STBs will entail deregistration/ registration in the Subscriber Management System (SMS) of the respective MSO. The systems and processes for such deregistration/ registration in the SMS should also be defined by the Authority and a platform similar to mobile number portability (MNP) should be set up under a competent authority.

Q4. Do you think that introducing STB interoperability is absolutely necessary with a view to reduce environmental impact caused by e-waste generated by non-interoperability of STBs?

DEN's Response:

MSOs have been pumping in money to keep up with the technical developments that take place in the market. As a result of which, new and improved STBs with varied and interactive services have been invested into.

The average life span of an STB is quite high and therefore STBs as such would not be responsible for adding to the ever increasing e-waste. Further, if the consumer decides to switch to another operator, thereby, discarding their STBs, the same boxes have the potential of being reused by the MSOs and being the property of the MSO, the said boxes, if returned to them, can be put to use again, thereby not adding to the e-waste. The fact that MSOs have to deal with consumers through LCOs, it adds to the set of challenges that may stand in the way of reusing these STBs. E-waste is being caused because there is theft of property. If e-waste is the problem we are trying to address, TRAI may want to come up with a policy, whereby, the STB if not used by the consumers may be returned to their operator, so that the same can be reused and recycled.

New and improved STBs in the era of digitisation has already been architected by MSOs and are available to the subscribers at affordable prices. If at this juncture, MSOs are mandated to come out with interoperable STBs with a deadline, the existing (recyclable and reusable) STBs will have to be discarded and thereby adding to the e-waste.

Q5. Is non-interoperability of STBs proving to be a hindrance in perfect competition in distribution of broadcasting services? Give your comments with justification.

DEN's Response:
No, non- interoperability of STBs is not proving to be a hindrance in competition in distribution of broadcasting services. In this regard, we would like to highlight that, at present, cable industry is facing a monthly churn rate of around 2~3% and is also witnessing a drop in its subscriber base. With interactive services and features being introduced by different operators and other up and coming OTT players providing innovative services and content, consumers are already free to opt for a particular service provider considering factors like service delivery, QoS parameters and other benefits accrued to them.

Q6. How interoperability of STBs can be implemented in Indian markets in view of the discussion in Chapter III? Are there any software based solution(s) that can enable interoperability without compromising content security? If yes, please provide details.

DEN's Response:

In the instant consultation paper, the Authority has elaborated on the solutions like "Separation of CAS from STB", DVB CI, DVD CI+2, Downloadable CAS, Embedded Common Interface, connected TV, Hybrid Set top box, TV key, TV key cloud etc. and has also arrived at a conclusion that given the present framework, interoperability of STBs is not possible and the same has to be implemented on a prospective basis, if at all it has to be implemented.

It is of utmost necessity to form a committee of technical experts, security experts from the cable industry/e-commerce industry which shall deliberate and devise a solution which is both technically and commercially viable.

It is further submitted that software-based solutions for interoperability have not been tried and tested here. Such software-based solutions require extensive trials before the implementation and deployment of interoperable STBs and are not desirable at all at this juncture. Further, STB as a device is considered more vulnerable to an attack by a hacker and in case the STB software is compromised content of channels will be at stake. For instance, in case of Oreo TV, all contents of pay channel are available free of cost. A single instance of such nature can compromise and adversely affect the security of the content. Therefore, software-based solution to interoperability is not desirable considering security of the content and piracy threat.

Q7. Please comment on the timelines for the development of eco-system to deploy interoperable STBs for your recommended/ suggested solution.

DEN's Response:
Before suggesting timelines for the development of eco-system to deploy interoperable STBs, the Authority may want to decide the standards of interoperable STBs, two three technology groups/committees may have to be formed, the basic minimum format may have to be fixed on among other things. Further, our response regarding setting up of a pilot project is reiterated.

Q8. Do you agree that software-based solutions to provide interoperability of STBs would be more efficient, reduce cost of STB, adaptable and easy to implement than the hardware-based solutions? If so, do you agree ETSI GS ECI 001 (01-06) standards can

be adopted as an option for STB interoperability? Give your comments with reasons and justifications.

DEN's Response:

The Authority may look into the important issue of maintaining security of the platform as software based solutions heighten the risk of piracy. The Authority needs to maintain diversity of security solutions and avoid a single standardised solution, as such a solution can potentially be prone to hacking.

Q9. Given that most of the STB interoperability solutions become feasible through a common agency defined as Trusted Authority, please suggest the structure of the Trusted Authority. Should the trusted authority be an Industry led body or a statutory agency to carry out the mandate? Provide detailed comments/ suggestion on the certification procedure?

DEN's Response:

Introduction of a Trust Authority institutes an additional layer of regulation/function which may add procedural and commercial costs to the solution.

Q10. What precaution should be taken at planning stage to smoothly adopt solution for interoperability of STBs in Indian market? Do you envisage a need for trial run/pilot deployment? If so, kindly provide detailed comments.

DEN's Response:

We would like to suggest that in order to make the STBs interoperable, firstly Authority should enforce the License conditions of DTH with regard to inter operability and thereafter study the behaviour of the consumer with regard to inter operable STBs.

Due to different types of Conditional Access System with varying features, operator specific chipset keys, it would be very difficult to implement the same with MSOs

The Authority may also consider forming a committee of technical and commercial people who would set out the guidelines and technical framework for the STB interoperability. They should be from MSO/DTH/STB vendors/CAS vendors.

Q11. Interoperability is expected to commoditize STBs. Do you agree that introducing white label STB will create more competitions and enhance service offerings from operator? As such, in your opinion what cost reductions do you foresee by implementation of interoperability of STBs?

DEN's Response:

As has been pointed out earlier, before any concrete decision on any aspect of interoperability is arrived at, the Authority may form a committee of technical and commercial experts which would set out the guidelines and technical framework for STB interoperability.

In addition to above, as mentioned in our response to Question No. 5, monthly churn rate of 2~3%, and enhanced service offerings by operators upgrading in almost every six months, signifies no dearth of competition in the industry.

Q.12 Is there any way by which interoperability of set-top box can be implemented for existing set top boxes also? Give your suggestions with justification including technical and commercial methodology?

DEN's Response:

Even though interoperability is an important objective, the architecture comes with massive technical and commercial challenges and poses practical difficulties in execution of the said functionality in future STBs. It appears difficult to implement the same with respect to existing STBs without causing a dent on the financial affairs of the MSOs.