Response to Consultation Paper on

Infrastructure sharing in Broadcasting TV Distribution sector (20/2016)

Submitted by Zee Network

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1. Introductory Comments

The Zee Network is pleased to place its response to the consultation paper before the Authority. At the outset, we would like to state that we are in favor of voluntary sharing of infrastructure to be enabled. However success of this initiative will depend on many factors which we would like to highlight in our response. In fact such sharing of passive infrastructure is already permitted in case of HITS where the policy and the license agreements expressly permit passive sharing. The policymakers have been very careful in explicitly stating that such sharing of infrastructure should only be of passive satellite capacity and have refrained from giving a Carte-Blanche for any authorized operator to start sharing channels given to it under trust of a broadcaster for delivery to customers.

To begin with, we would like to place our comments on the macro-environment as outlined by the Authority in Section 1 and more specifically in section 1.3 (MIB licensing requirements for uplinking/ downlinking). In view of the fact that these recommendations propose to address MSO and DTH services, with potentially long license periods of 10-20 years, the macro environment needs to be assessed more accurately as we move ahead into the future.

We would like to point out at the outset that any notion that the MIB controls the availability of channels on various platforms such as DTH, IPTV or MSO by virtue of it granting licenses, and that only such channels are being shown, is a myth.

DTH and MSO platforms are increasingly resorting to providing platform services which are not subject to any license. As given in Annexure-1, such platform services can comprise of 10% to 25% of channels which such platforms carry and in future will dramatically increase in number with locally inserted channels in Cable Networks and Near VoD channels proliferating. These channels take the form of Active cineplexes, devotion & religion, music. Movie showcases, eLearning, cooking, science, Sports, comedy, movies-on-demand etc. with multiple channels in each genre.

Some Platforms have now resorted to carrying channels ABC TV+1 indicating channel ABC TV channel but delayed by an hour. Such trends may extend, to + or minus 24 hours or 7 days as already being shown on some IPTV platforms masquerading as closed networks. These already include popular GEC channels and movie channels, and will extend to a large number of channels in near future, as it is an alternative to watching your program without limitation of specific hour and minute.

Thus if the premise of Infrastructure sharing is that about 300-400 channels can be uplinked using common infrastructure, and the remaining few channels which are unique to any platform would be uplinked by them separately but on same satellite, is no longer valid today. With platform services going up from a few tens to above hundred on a platform, the infrastructure sharing option is now steadily receding into oblivion.

Not to speak of the fact that such forays play havoc with many metrics which media planners employ to buy advertising on platforms.

Once again, Zee Network would like to qualify that we are not against such “platform services”, but the fact that there should not be a misplaced notion that there is a significant importance of uplink downlink process being laboriously carried out by the MIB which is becoming less and less relevant and will be totally irrelevant in near future with connected devices.

1.2 It is at this stage necessary to examine the very process of MIB uplink and downlink guidelines as well. MIB is under a misplaced notion that only those channels will be seen on cable and DTH platforms which are being licensed by them. However, they have completely ignored the devices (e.g connected TVs) on which these Cable and DTH networks are finally connected including the set-top boxes which enable connectivity.

For example as devices move from Plain old TVs to connected TVs channels from any country can be watched irrespective of the DTH or Cable TV content. While MIB has banned say Pakistani channels on Indian pay TV networks, such channels are freely available on thousands of websites, one example being livenewsbox.com. Such channels are free and with broadband and Wi_fi being declared a national infrastructure priority, aces to such content is widespread. Moreover many platforms carry uncensored and porn content and there is a definitive trend towards having connected devices to widen the scope of programs which can be viewed.

Similarly On demand services such as Netflix , Hooq, Erosnow, Hotstar, DittoTV and many others provide an alternative to TV channels in the Cinema Genre amongst others. Television viewing is already significantly redefined with feature such as Google cast which allow websites such as Youtube or Netfix to be cast on TVs. There are other entrants such as Amazon Prime Video which are planning to redefine television viewing in India still further, and next 2-3 years will see a complete change.

It would have perhaps been brought to the notice of the Authority that Relance Jio has launched a high speed 4G-LTE based data service and also a service called Jio TV which purportedly can be seen only in a closed network of Jio users. However it is simple matter to connect to a large screen TV to watch such content either via an MHL cable or via Wi-Fi and as such the channels including delayed content over a week can be watched comfortably on a large screen TV with the Jio phone being used only as a conduit.

Our objective here is merely to point out that such developments which are significant but draw no intervention from the Authority are potentially degrading and making worthless any initiatives of the Authority such as infrastructure sharing to a very large extent as the overall C&S services architecture gets undermined.

1.3 The absence of any significant participation by the Dept. of Space which finally allocates any and all resources for DTH and HITS infrastructure such as satellite orbital slot, satellite capacity, number of transponders etc. makes any such shared implementation very challenging. Just as the Authority has been kind enough to lay down the macros applicable to the TV industry, it would also have been appropriate to bring out the macro environment and the plans of the Dept. of Space in a single

document to give it higher credibility of a possibility of implementation. Though Zee Network amongst others would like to see such initiatives succeed, we would like to state that a very different type of spectacles are needed to take a panoramic view of the industry rather than in segments.

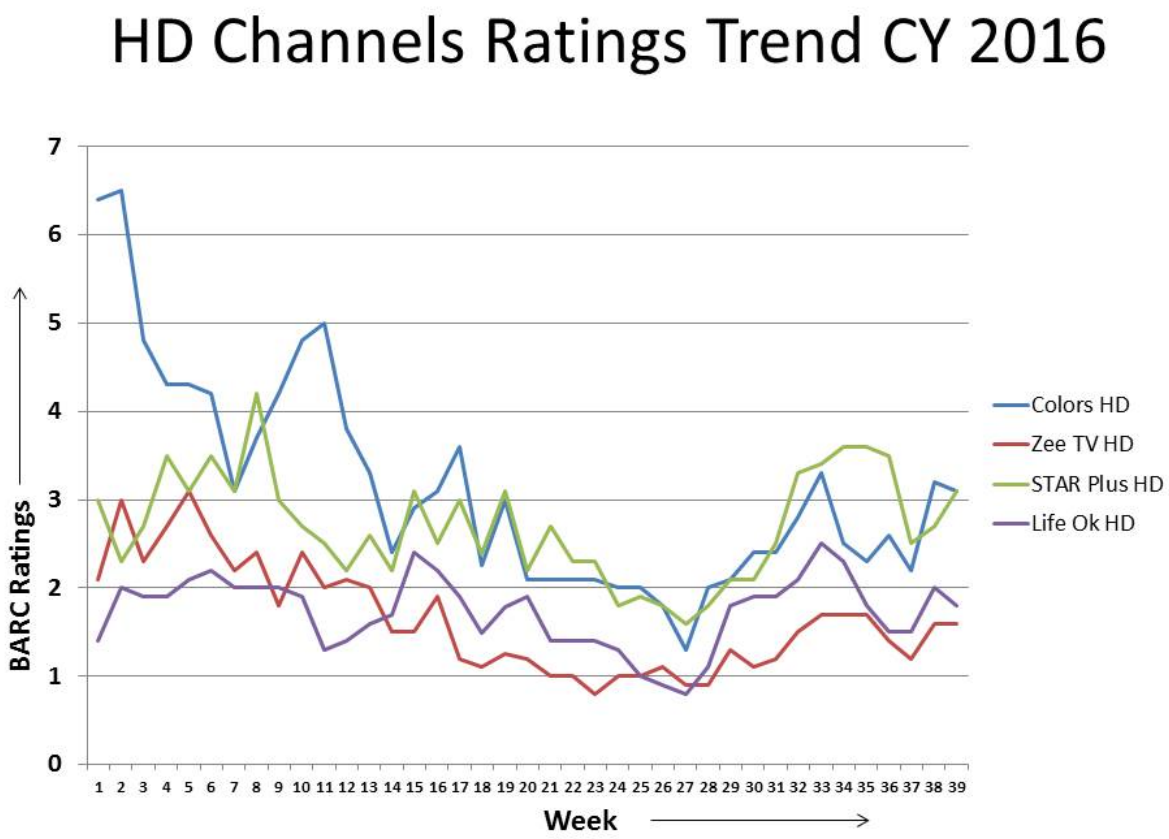
The TRAI is well aware that there is a very steep growth in the number of HDTV channels coinciding with the flat panel HDTVs being sold in millions and regional HDTV channels being launched by every major broadcaster. Most of the HD channels have had a very low viewership in the past but the situation is changing now towards increasing TRPs and advertising at least in the urban markets though we see this extending to rural markets in the future. At present DTH platforms devote nearly 50% of their platform capacity to HD channels against 5% TRPs enjoyed by such HD channels. This is only for brand differentiation and investment in future which prompts the DTH platforms to carry HD channels. Moreover 10% of top 400 channels (i.e. 40 channels) have 80% of the measured TRPs(See table).

	BARC Ratings of SD and HD Channels with same content						
		HSM Urban 4+		HSM 4+ U+R		HSM Rural 4+	
Genre	Channel	Wk 35	Wk 36	Wk 35	Wk 36	Wk 35	Wk 36
	STAR Plus	225.6	221	168.3	164.3	111.4	108
	STAR Plus HD	3.6	3.5	2.1	2	0.6	0.6
	Colors	163.5	174.2	118.8	127.4	74.3	81
	Colors HD	2.3	2.6	1.5	1.6	0.7	0.5
	Sony Entertainment Television	121	117.9	83.3	84.2	45.9	50.7
Hindi GEC HD	Sony Entertainment Television HD	2.3	2.4	1.4	1.5	0.4	0.6
	Life Ok	118.9	119.5	91	91.1	63.3	62.9
	Life Ok HD	1.8	1.5	1.3	1	0.8	0.6
	Zee TV	151.5	144.3	132.1	127.9	112.8	111.5
	Zee TV HD	1.7	1.4	1.1	0.9	0.4	0.4
	&TV	70.6	67.4	47.8	47.2	25.3	27
	&TV HD	1.2	1.1	0.7	0.6	0.2	0.2

The position with movie channels is similar:

	BARC Ratings of SD and HD Channels with similar content						
		HSM Urban 4+		HSM 4+ U+R		HSM Rural 4+	
Genre	Channel	Wk 35	Wk 36	Wk 35	Wk 36	Wk 35	Wk 36
	STAR Gold	91.4	107.2	76.3	84.4	61.4	61.8
Hindi Movie HD	STAR Gold HD	1.3	1.8	1.3	1.3	1.3	0.8
	Zee Cinema	92	87.3	79.1	75.9	66.2	64.5
	Zee Cinema HD	1	1	0.8	0.9	0.7	0.8
	Sony MAX	109.5	112.9	91.6	95.1	73.8	77.5
	Sony Max HD	0.8	0.9	0.6	0.8	0.5	0.7
	&pictures	54.5	55.9	44	44.6	33.6	33.5
	&pictures HD	0.8	0.6	1	1	1.3	1.4

To carry diversified content with low TRPs, DTH platforms need large capacities and in principle we would like to see enabling policies for infrastructure sharing on a voluntary basis especially for HD channels.



1.4 FTA DTH Platforms and Pay TV Platforms supported by Govt. Investment

The Authority also needs to take into its cognizance the FTA DTH platforms being run by Government funding, i.e DD-Direct, and we believe that it should have been highlighted in the macro environment for the industry.

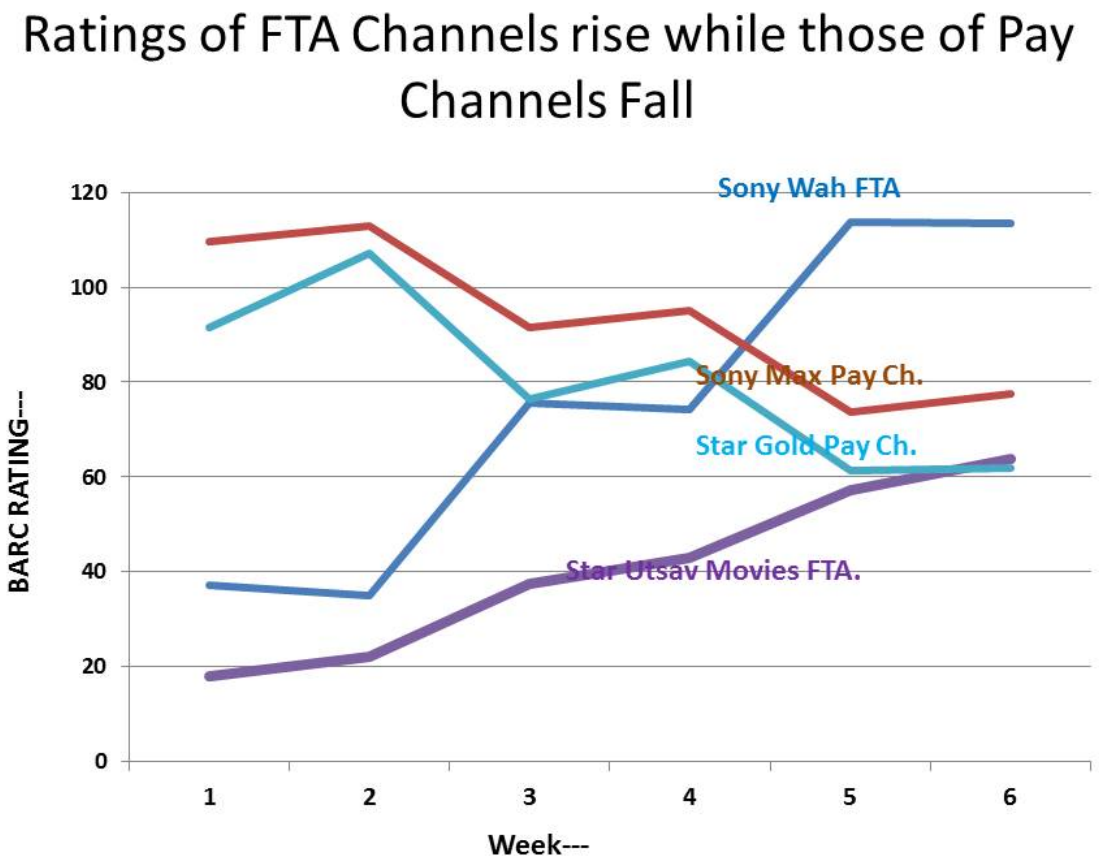
Needless to say that being free, they have garnered a large number of subscribers and as a result channels on this platform command a high TRP and viewership. As per our understanding and information and as widely reported, DD-Direct is in the process of launching a FTA DTH service using a common encryption called iCAS with 5 to 6 transponders in operation. This will add to the current DD-Direct FTA service of 5 transponders with about 100 FTA channels, bringing the total to 12 transponders in operation and a total of about 250 channels.

BARC Ratings Pay Chs and FTA Chs on DD-Direct		HSM Urban 4+		HSM 4+ U+R		HSM Rural 4+	
Genre	Channel	Wk 35	Wk 36	Wk 35	Wk 36	Wk 35	Wk 36
Hindi Movie FTA DD-Direct	Sony Wah	37.1	35.1	75.5	74.3	113.8	113.4
Hindi Movie FTA DD-Direct	Zee Anmol Cinema	0	20.2	0	52	0	83.6
Hindi Movie Pay Ch	Sony MAX	109.5	112.9	91.6	95.1	73.8	77.5
Hindi Movie Pay Ch	Zee Cinema	92	87.3	79.1	75.9	66.2	64.5
Hindi Movie FTA DD-Direct	Star Utsav Movies	17.9	22.1	37.6	43	57.1	63.8
Hindi Movie Pay Ch	STAR Gold	91.4	107.2	76.3	84.4	61.4	61.8
Hindi Movie FTA DD-Direct	Rishtey Cineplex	28.6	27.9	37.9	41	47	54
Hindi Movie Pay Ch	&pictures	54.5	55.9	44	44.6	33.6	33.5
Hindi Movie Pay Ch	Movies OK	56.4	49	45.1	40.2	33.9	31.4
Hindi Movie Pay Ch	UTV Movies	42.3	41.1	32.4	33.3	22.6	25.6
Hindi Movie FTA DD-Direct	B4U Movies	14.2	14.6	19.5	19	24.7	23.5
Hindi Movie Pay Ch	Sony MAX 2	40.6	39.7	32.8	30.7	25.1	21.7
Hindi Movie Pay Ch	Zee Classic	36.7	36.1	29.6	28.1	22.5	20
Hindi Movie Pay Ch	UTV Action	35.7	30.2	27.7	24.5	19.8	18.9
Hindi Movie FTA DD-Direct	Cinema TV	12.3	11.6	16.3	14.9	20.3	18.2
Hindi Movie Pay Ch	Zee Action	18.5	18.5	15.9	14.7	13.4	11.1

Now the question is that why should this Platform (DD-Direct) not be considered for infrastructure sharing and other DTH operators be permitted to say simulcrypt the same transponders or to be provided keys for enabling iCAS in their STBs. As the DD-Direct service is an FTA service and likely to remain so in future(FTA or free-Encrypted), the Government arm which functions under the MIB should have no objection, especially when such a topic is being discussed at a national scale. Unfortunately as they do not respond to the consultations, we do not have a benefit of their views, which when clubbed with ISRO and DoS who also do not respond, raise a question mark on the result of the entire consultation process when major players do not take part and later choose to implement their own ideas in sharing or otherwise of the resources. As decisions on types of STBs, encryption and satellite capacities involve large investments, the lack of clarity on regulation as well as the position of major resource arbiter, ISRO, makes any potential decision by any operator fraught with serious risks if it ventures into such sharing arrangements.

As DD Direct being FTA has garnered a large viewership, they have correspondingly a large carriage fees which is realized by DD-Direct by way of Auctions, well advertised from time to time. On the average a channel has a carriage fee of Rs 4.5-5 Crores on a FTA DTH Platform which is almost equal to the rental of a full transponder. This positioning of DD-Direct is now distorting the Television Pay TV market space.

The BARC ratings of all TV channels which have been launched as FTA on DD-Direct have seen a sharp rise, going above those of Pay channels in some cases.



Going ahead this factor of carriage fees cannot be ignored when infrastructure sharing is concerned as this forms a significant part of platform revenues and the participants in an infrastructure sharing arrangement will not give up these rebvenues. The case is the same in case of MSOs.

To summarize our views on this section of infrastructure sharing, we believe that the FTA phenomenon with DD-Direct supported by Government funding has a potential to distort the markets significantly and impact long term business prospects of pay TV platforms, both DTH and MSO. In order to save content costs, DTH operators and MSOs are investing heavily in Platform services as Pay channel content cost is becoming unviable and ratings falling. The combination of increasing platform channels coupled with significant distortion in the markets created by DD-Direct which collects carriage fees will impact whether there can be a successful Infrastructure sharing model at all.

2. Introductory Comments on HITS Infrastructure Sharing

Under the Infrastructure sharing specifically related to HITS, we note that the MIB in its reference has set forth the following requirements:

(i) These are acceptable to all stakeholders.

(ii) No HITS operator/MSO/Local Cable Operator (LCO) is able to transmit any channel of any Broadcasters without an appropriate interconnection agreement with the broadcaster/MSO/HITS operator as the case may be.

(iii) No MSO/LCO is able to transmit or re-transmit any channel, including local and own channels, without encryption.

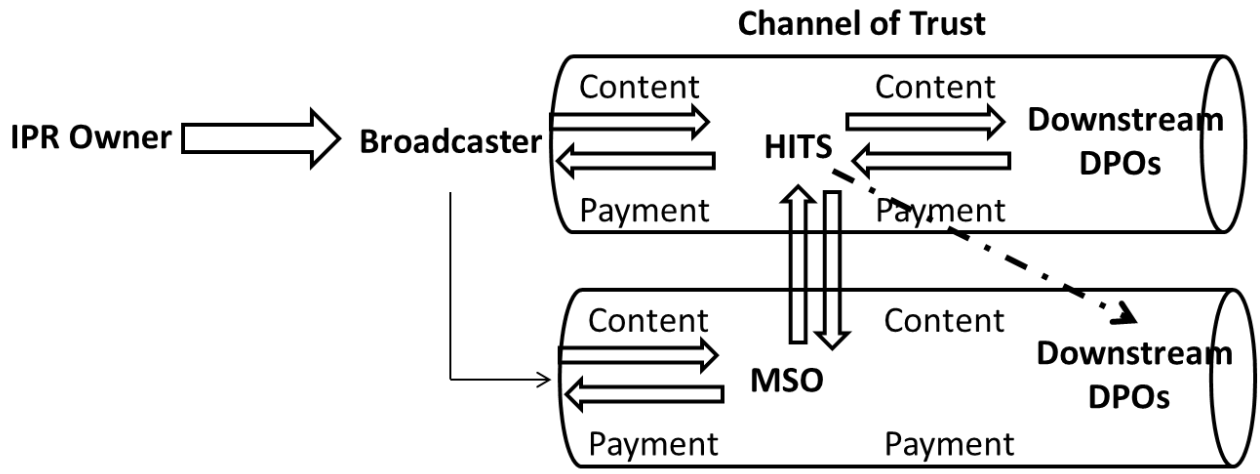
(iv) Authorized officers of the State Governments and their representatives are also able to access the system of MSOs/LCOs to ensure that there are no violations of the provisions of the Cable Act/Rules and TRAI Regulations and also to cross-check the reported number of subscribers/total collection from subscribers for the purposes of entertainment taxes etc.

We would like to state at the outset that HITS by itself is designed as a platform for Infrastructure sharing. The MSOs receive an active encrypted feed which can be common to thousands of MSO/ Cable operators. The prime reason why MSOs wish to go away from this model of HITS and seek broadcaster signals which are provided to a HITS operator under a separate agreement for themselves requires them to have suitable Agreements with Broadcasters, where they will need to prove that the channel of trust whereby the payments are definitively remitted to broadcasters, despite their signals being routed via a third party (HITS) is maintained. We had provided the concept of the Channel of Trust under our response on the pre-consultation paper and we are providing the same here for the sake of completeness.

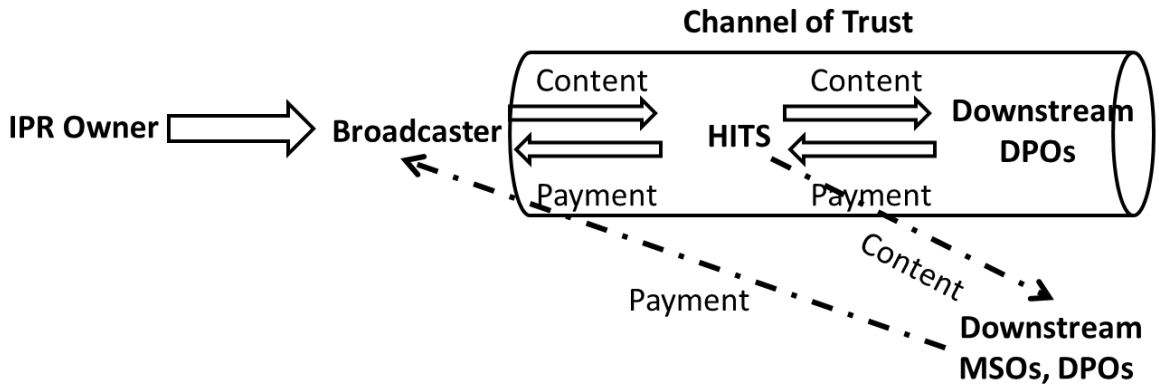
Channel of Trust between Broadcaster and Distributor

The reasons for such policy provisions are not hard to comprehend. The basic premise is that a broadcaster gives content to a distributor under a “Channel of Trust”. This implies obligations on the distributor to carry the content in a secure manner, deliver to end customers against considerations as per the interconnect Agreement, and in return for the Channels provided, make payments to the broadcaster as per the Agreement.

The channel of trust is maintained by the DPO in having a secure encryption system, and the ownership of the channel remains that of the broadcaster. This channel of trust is maintained when a DPO uses a passive infrastructure provided by an operator such as HITS as it is only a carriage pipe. A HITS operator is also another operator which operates under the same channel of trust from broadcaster to a number of MSOs or DPOs as it remains solely responsible for meeting obligations to broadcaster whosoever be its customer.



But the channel of trust is broken once the HITS operator gives the signal to a DPO but reneges on its trust obligations to a broadcaster to remit payments, and instead asks the broadcaster to deal directly with a DPO with which broadcaster may never have had any contractual relation.

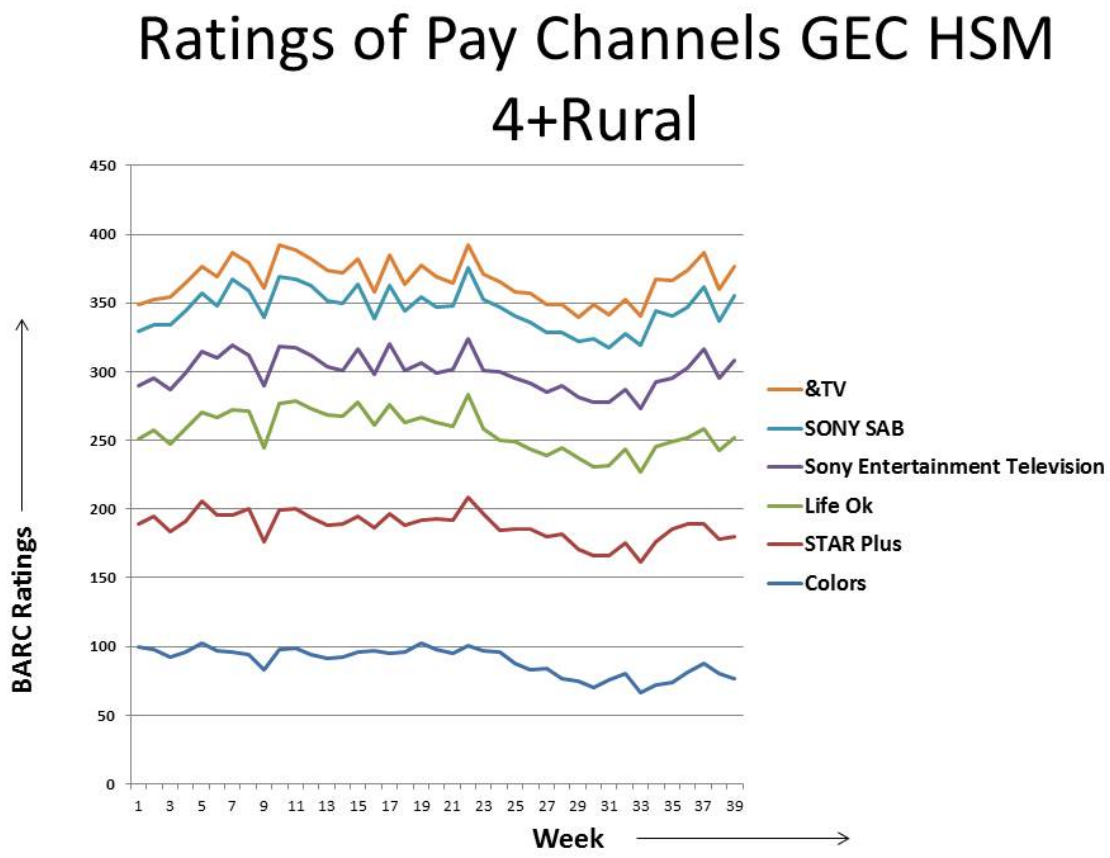


HITS operator giving Content to Third Party MSOs
Without itself taking payment obligation breaks Channel of Trust.

Making Infrastructure Sharing Policy workable

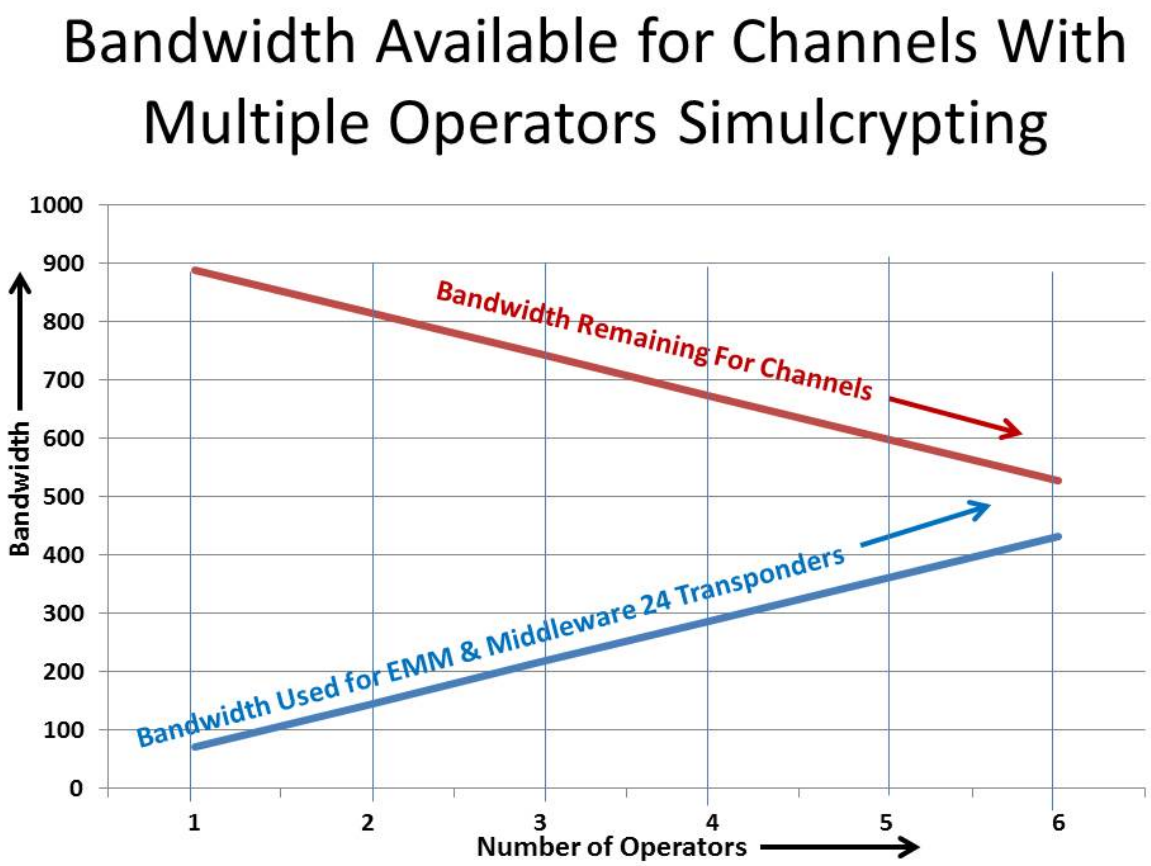
An infrastructure sharing policy can be workable if the channel of trust is not broken between the broadcaster and a DPO in whichever mode (HITS, DTH or MSO). It cannot be workable, if by virtue of a misconstrued policy, a downstream party (DPO) which would normally have been obligated with making payments to the broadcaster is set free of such obligations, or a convoluted channel of payments is implied, for which synchronicity of data and is not maintained while receiving content by a DPO from HITS.

The data on Pay Channels (GEC) BARC ratings shows that the viewership is flat to negative for Calendar Year CY 2016 for all the weeks till now (Oct 2016).



Our comments to this consultation paper are therefore based on constructive mechanisms whereby the channel of trust can be maintained.

While in case of DTH, due to the differences in uplink technology (DVB-S/DVB-S2), Compression (MPEG-2/ MPEG-4), and limited number of operators being available (6), the possibilities of infrastructure sharing are somewhat limited, the issues in case of MSOs being allowed to share a common system say HITS need consideration on another ground as well. This relates to the bandwidth used per transponder for the Encryption System ECMs/ EMMs which run at about 3 Mbps per transponder for about 450 services and 10 Million customers. For a 24 transponder system this amounts to 72 Mbps out of a total nominal bandwidth of 24 Transpondersx40 Mbps per transponder=960 Mbps(As example). However even ignoring bandwidth for on-demand services, middleware bandwidth and upgrades/ EPG, if the system is Simulcrypt with 6 Operators, a bandwidth of 432 Mbps will be used for 6 Operators. Taking into account VoD and subscription traffic figures are likely to be much higher. Hence increasing numbers of simulcrypting MSOs essentially brings down a system as depicted.



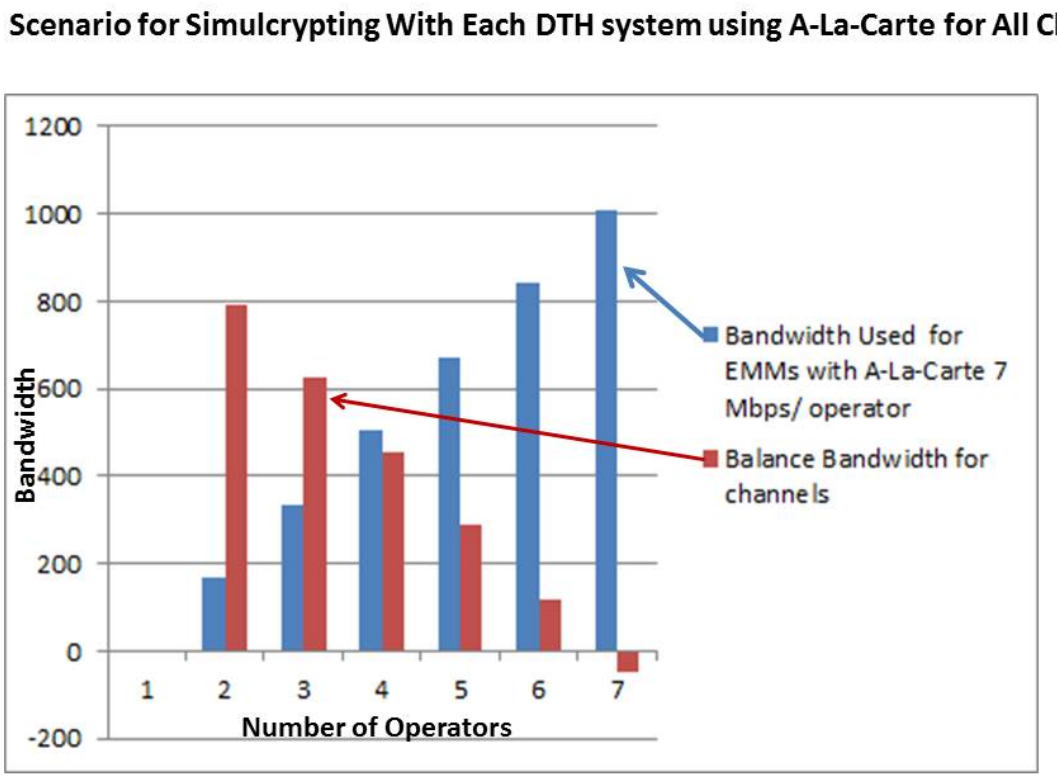
Scenario with New Draft Tariffs and Draft Interconnection Order

Subsequent to the issue of this consultation paper, two consultation papers – on Draft Tariffs and Draft Interconnection have been also issued by the TRAI, along with the draft QoS guidelines. It is critical to understand their impact on infrastructure sharing.

In case of customers being allowed to take all channels a-la-Carte, as per computations, it will be necessary for each customer to be served by at least 3 EMMs for authorization of services. This number is just one at present due to creation of bouquets and subscription of all channels of a bouquet.

Typically one EMM (with all types of queues technically required) needs 3 Mbps of bandwidth which is shown in the chart above. In case of A-La-Carte selection of channels with the same cycle time (activation time) the bandwidth goes up to 7 Mbps per transponder.

In this scenario with a platform with 24 Transponders (960 Mbps), only two operators can operate, and even then, the bandwidth available for channels drops by 50%.



3. Issues for Consultation

ISSUES FOR CONSULTATION

Infrastructure sharing among Cable TV and HITS operators

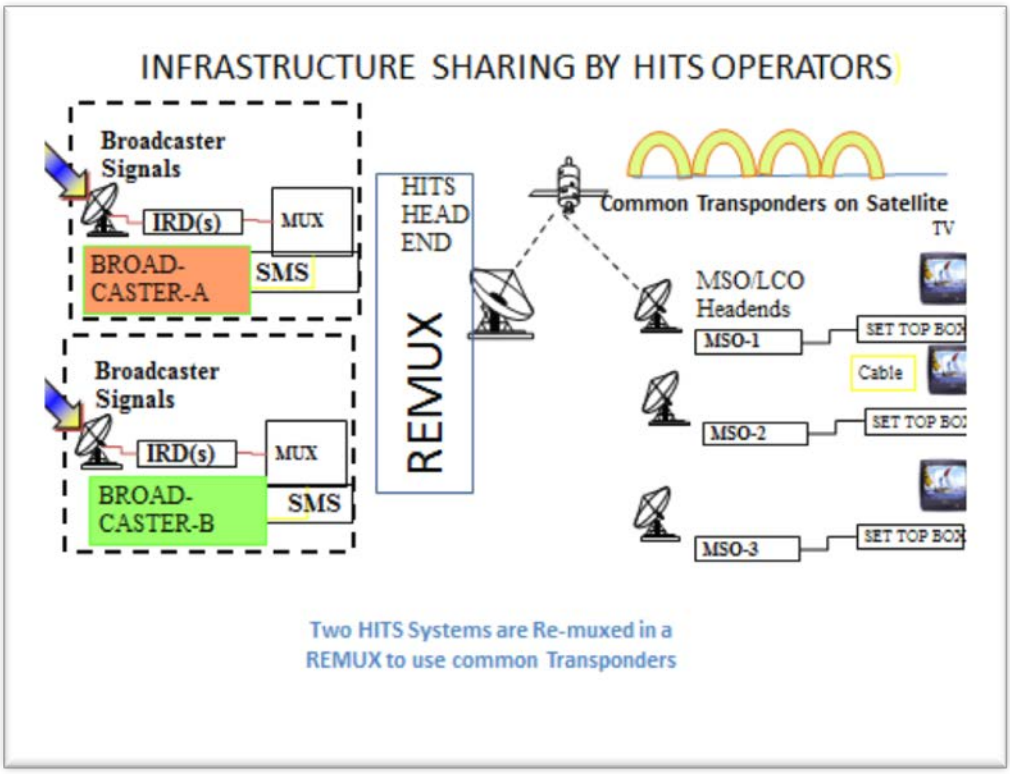
(1) Is there a need to enable infrastructure sharing among MSOs and HITS operators, or among MSOs? It is important to note that no mandate for such infrastructure sharing is being proposed.

We would like to state that HITS by itself is designed as a platform for Infrastructure sharing. The MSOs receive an active encrypted feed which can be common to thousands of MSO/ Cable operators.

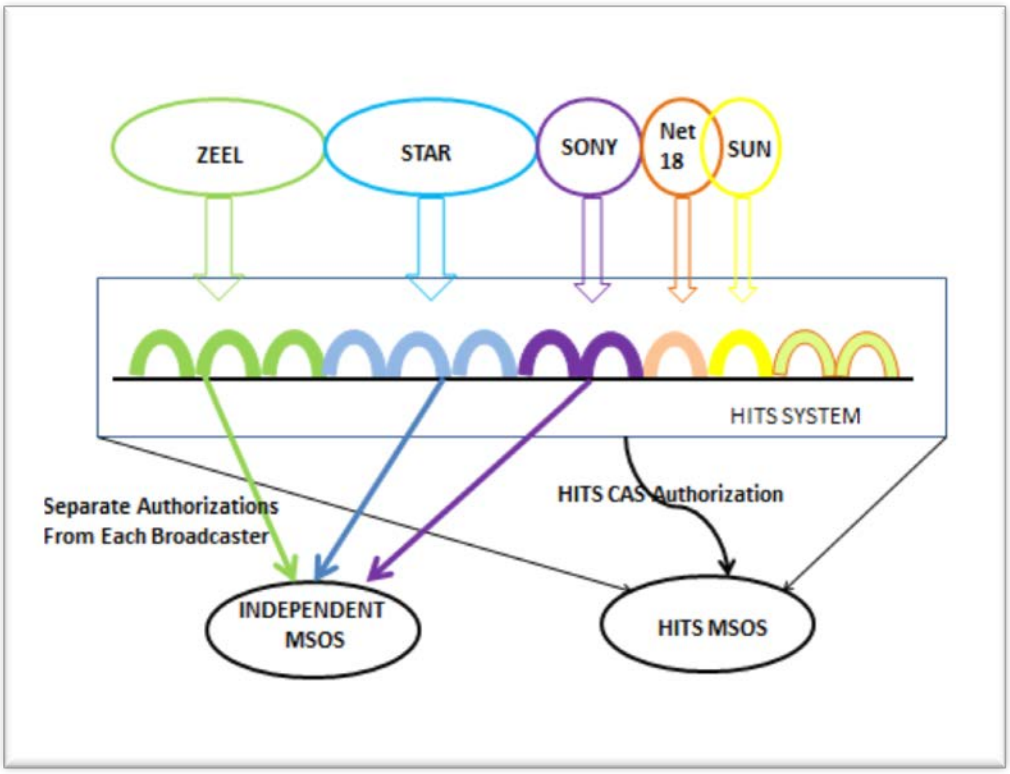
In addition, even if the MSOs desire to continue using their own encryption to retain the types of STBs they use, it is straightforward as the majority of channels are from 5-6 major broadcasters, where they can put trans modulators just as they would to receive a HITS trans modulator. Hence the headend complexity is similar whether it is a HITS headend or an MSO headend due to the concentration of channels with a few broadcasters.

Major broadcasters in India such as Zee, Star, Sony, Eeanadu, SUN account for more than 200 Channels, which is the bulk of pay channels carried by the HITS system. On a voluntary basis HITS operators should allow broadcasters to also simulcrypt their channels on the HITS system. By this mechanism they will be able to enable/ disable MSOs based on their own SMS and payment obligations.

We also would like to suggest that the DTH operators, which operate an identical headend as the HITS operators be permitted to share the feed with MSOs in a manner identical to HITS headends.



In this architecture, all elements of the Channel of trust are maintained. For example, in case of default by an MSO, the broadcaster can issue suitable warnings via its CAS and SMS, and can switch off channels as per requirements or subscription. At the same time the HITS system uses the same number of transponders. The HITS operator controls its own set of MSOs and can issue forced message via its own CAS and SMS.



The advantage of the HITS system in this case is retained as the MSOs still require only a small antenna and Trans-Mux units as is the case for the normal HITS. Only they will have five-six decoders which will get authorized by either HITS operator (if they are parented to HITS) or by each broadcaster, if they are "independent MSOs".

Broadcasters will retain control and the channel of trust with each MSO or the HITS operator, which is the basic requirement for a distribution system to operate.

We also would like to suggest that the DTH operators, which operate an identical headend as the HITS operators be permitted to share the feed with MSOs in a manner identical to HITS headends.

(2) Which model is preferred for sharing of infrastructure among MSOs and HITS operators, or among MSOs? Kindly elucidate with justification.

As pointed out above, the contention apparently made by some stakeholders, that HITS operators could have two ways to share the channels given by broadcasters- one by the HITS active feed, and second by offering the same feed to MSOs as if coming from broadcasters, with no obligation on MSOs to pay to Broadcaster via HITS operator is not correct.

HITS operator by its very nature is designed to serve thousands of MSOs. Moreover two or more HITS operators can share infrastructure identically on the lines of two DTH operators. In this case each one of them must only provide their active feed to MSOs for which they (HITS operator) are solely responsible. **It is not correct to mention that if only passive infrastructure is shared, then transponder space is not saved as additional transponders are used for each MSO or HITS aggregated feed. In fact the correct alternative mechanism in this case would be to permit broadcasters to also simulcrypt their feeds and provide service to MSOs using HITS.**

Infrastructure sharing among DTH operators

(3) Is there a need to <u>enable</u> infrastructure sharing among DTH operators?

Infrastructure sharing in all cases should be voluntary. It should be realized that if there an advantage in saving costs, it would be but natural for MSOs or DTH operators to take advantage of such policy. However if it is made mandatory, the arrangement will not work.

The other issues to be addressed are:

When DTH operators come together to share infrastructure, there would be many changes in regulations required which are elaborated in Q6 of this consultation paper.

Relevant issues in sharing of infrastructure

(4) What specific amendments are required in the cable TV Act and the Rules made there under to enable sharing of infrastructure among MSOs themselves? Kindly elucidate with justification.

MSO operators are differentiated from HITS operators on the aspect of being able to use a satellite uplink and sharing of channels. The MSOs carry their signals on Optical fiber cable from a headend to its other headends throughout India (or parts thereof). It is possible for MSOs also to simulcrypt their channels with two or more encryption systems which the consenting operators may share.

Our response to this question is that the Channel of Trust (as given in our preliminary remarks) should be maintained in a manner very similar to the HITS infrastructure sharing.

Hence:

(i) There need to be separate RIO agreements between two or more MSOs who are doing infrastructure sharing with respective broadcasters.

(ii) Broadcaster would retain control on how and when to switch off one or more of the MSOs who are found to be in default. For this purpose the Incumbant MSO needs to provide all facilities via a portal.

(iii) There would be audit of SMS and CAS systems which all consenting MSOs need to agree with suitable penalties for non-compliance.

(iv) Platform services of both operators would operate independently using common infrastructure.

(v) The incumbent MSO operator who permits a second or third operator to share the system would be responsible to negotiate the Carriage fees and the same can be distributed in proportion of verifiable subscribers by the incumbent operator at per its own computation & formula.

We also would like to suggest that the DTH operators, which operate an identical headend as the HITS operators be permitted to share the feed with MSOs in a manner identical to HITS headends.

(5) What specific amendments are required in the MSO registration conditions and HITS licensing guidelines in order to enable sharing of infrastructure among MSOs and HITS operators? Kindly elucidate with justification.

The issues to be addressed are summarized as below:

(a) Commercial Issues

Infrastructure sharing in all cases should be voluntary. It should be realized that if there an advantage in saving costs, it would be but natural for MSOs or DTH operators to take advantage of such policy. However if it is made mandatory, the arrangement will not work.

The other issues to be addressed are:

(i) It should be possible for all players to maintain the Channel of trust. In effect, broadcasters should be able to ensure that only those DPOs (including HITS) get their signals which commit to minimum standards of security, and payments can be realized from them.

(ii) The databases/ SMS maintained by each operator should be verifiable by an external auditing agency. All such information should be maintained at the headend as per policy guidelines.

(iii) In shared arrangements, where an operator (say DTH) shares its capacity with another DTH operator, payments for shared satellite capacity would be an essential component for arrangements to continue and should be secured by Bank Guarantees without recourse.

(b) Technical Issues

All DPOs should provide approved CAS and STBs. In case of any piracy detected, they should have a mechanism to upgrade their CAS/ Security algorithm or face disconnection.

All DPOs should deploy devices in the network, which will not mask the fingerprints generated by broadcaster feeds.

DPOs, if they use their own CAS should in addition have their own fingerprinting mechanisms.

(c) Operational Issues

(i) It should be possible for broadcasters to message, warn and isolate each MSO if in default on any count, as per guidelines, and ultimately if situation demand, disconnect it.

(ii) The databases should be auditable, verifiable and there should be a common website where all subscribers should be able to lodge complaints.

(iii) There should be extra efforts that each subscriber is given a number and it should be made mandatory for each DPO to paste such number on the decoder or STB provided to each customer. There should be a website address to which subscribers should be able to SMS their subscriber number and get details of all payments made. There should also be a regulated website operated by authority where subscribers should be able to SMS their operator name and Subscriber number if they feel they are not being officially billed/ acknowledged.

(iv) Every single case reported to authority should be investigated, and a penalty of Rs 1 Lakh levied for every subscriber undeclared, so detected on the MSO or HITS operator.

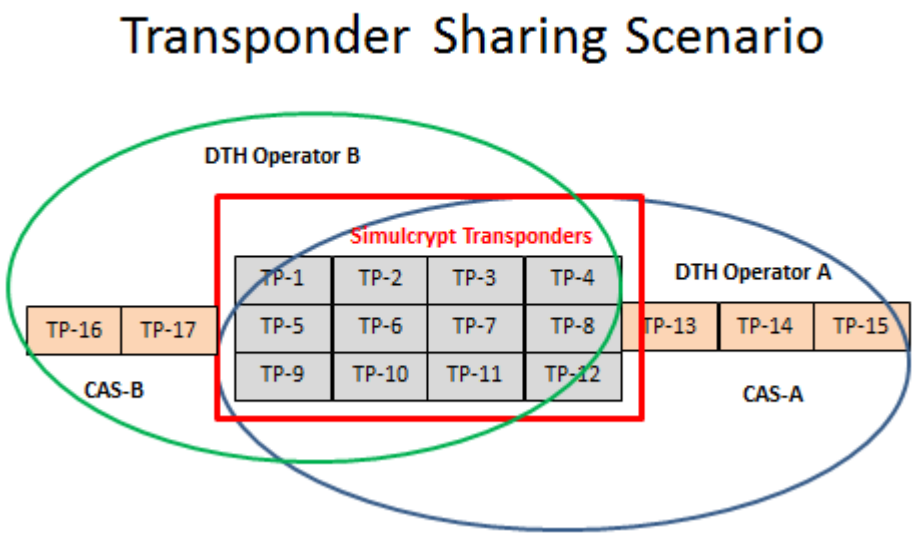
(6) What specific amendments are required in the guidelines for obtaining license for providing DTH broadcasting service to enable sharing of infrastructure among DTH operators? Kindly elucidate with justification.

Sharing of DTH Infrastructure implies that there will be sharing of Capacity of the satellites which may be with different encryption but with the same standards for encoding (MPEG-2 or MPEG4), DVB-S or DVB-S2 etc.

Factors to be considered for sharing of Satellite Capacity

The basic premise of transponder sharing is that there will be a number of core transponders which carry popular pay channels under simulcrypt mode with different CAS used by each such sharing operator.

In addition, each DTH operator may also have a number of channels which are not common and in addition to the Simulcrypt shared transponders, it may use additional transponders on the same satellite for channels which are unique to the DTH operator and for Active Services/ Home Transponder services, Local Platform Services and VoD.



The factors to be considered for sharing of satellite capacity are both technical and commercial in nature. These can be laid down as below:

2.1 Satellite Carriers

Sharing of satellite capacity is possible when the carriers have the same encoding and modulation. At present the following is the position:

Videocon, Airtel, T-Sky: DVB-S2, H.264, H.265 for 4K/UHD

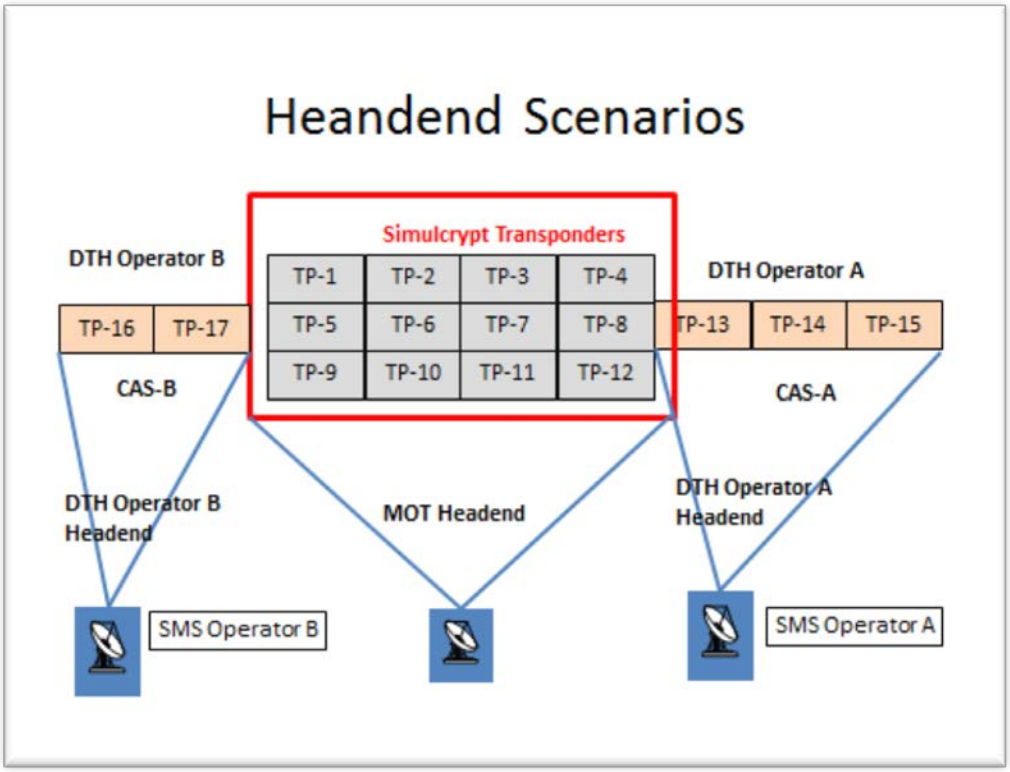
Reliance, SUN: DVB-S, H.264 for SD; DVB-S2, H.264 for HD **Dish TV**: MPEG-2,DVB-S for SD, H.264 DVB-S2 for HD

DD-direct: MPEG-2, DVB-S (present), H.264 DVB-S2- Possible future additions

This implies that there may be two or three groups of DTH operators, who may be practically in a position to share satellite platforms(partly or fully).

2.2 Headend

It is possible for two or more operators to share a multi-operator headend. In this scenario, the common-headend can be located at the premises of one the participating DTH operators or an external agency (MoT headend or multi-operator headend).



The MoT headend can transmit all the transponders which have common encryption. For the transponders which are unique to DTH operator A, the transmission can be either via the MOT, or the additional transponders can be uplinked by DTH operator A from its own headend, and likewise for DTH operator B.

Alternatively, the MoT headend, or a Headend at any of the DTH operators can uplink all the transponders, for both DTH operators as an outsourced service.

The MOT headend will have the necessary facilities to downlink all required channels, and uplink the same under two or more encryptions.

Channel Formats

The two DTH operators will need to broadly agree on the channel formats for the simulcrypt channels, which need to be identical e.g:

Audio Formats (Dolby or Stereo)
-Multiple audio languages if any
-Burnt Subtitling or closed subtitling on the channels
- On Screen Displays (Such as Dolby Digital Plus which require copyrights)

Network Tables

The MOT headend can transmit common network table (satellite transponder information) for the platform. The individual DTH operators can then authorize which of the satellite transponders should be tuned by their STBs in the Middleware. To summarize, the DTH operators will define their network which their STBs will tune, comprising of all the simulcrypt transponders and in addition the transponders which are unique to their own DTH network. These can be on one or more satellites.

Set Top Boxes

The set top boxes (STBs) will be distributed independently by each DTH operator, as in the case of a non-shared setup. As the DTH operators fully control the CAS and its corresponding ECMs, EMMs, the operations of each DTH system will continue to be governed by their own SMS and CRM systems as before.

Commercial Issues and Policy Amendments

A number of commercial issues can also arise out of the Passive Infrastructure Sharing which will need to be resolved as a part of commercial negotiations.

Allocation and Payment for Satellite Capacity:

Allocation of Satellite capacity, by Antrix, should be to individual operators. Sharing of transponders and cost should be left to the operators. There should be no regulation on commercial arrangement between operators.

Stipulations on Broadcasters

The TRAI policy would need to be modified to allow one IRD/PIRD for all broadcasters, as combined one for the Simulcrypt channels. The broadcasters, Likewise, should not be allowed to switch off the IRD in case of default by one or more sharing DTH operators, unless all the Sharing DTH operators have defaulted. However they can ask the defaulter to switch off the channel, and the same should be regulated by TRAI in order for sharing arrangement to be effective. Suitable amendments in the Interconnect regulations would be required.

New DTH Operators

In a regulated Satellite sharing, the question of a new DTH operator wanting to enter and seek sharing of satellite needs to be addressed and whether such an operator can seek entry of sharing arrangement without consent of currently sharing satellite sharing DTH operators. This possibility exists where a new operator makes an application for a new DTH system citing the existence of satellite capacity as a sharing arrangement to the MIB, which in return issues a license with Antrix advice. We are recommending that this be purely voluntary. Hence it will be an obligation of a new DTH entrant to talk to an incumbent DTH operator and come to satisfactory arrangements.

Policy Modifications Needed for Satellite Infrastructure Sharing by DTH Operators

The DTH policy will need to be modified in order that DTH operators can share satellite capacity. At present the pre-requisite for making a license application for DTH is to specify the satellite capacity which a potential DTH operator proposes to use, and provide a satellite capacity lease Agreement. Such capacity is today compulsorily being leased by Antrix as a canalization scheme, despite the DTH license agreement not having any such clause.

The following is the license clause in the DTH Agreement:

ARTICLE -11

PREFERENCE TO INDIAN SATELLITES AND INTERSYSTEM CO-ORDINATION

11.1 Though Licensee can use the bandwidth capacity for DTH service on both Indian as well as foreign satellites, proposals envisaging use of Indian satellites will be extended preferential treatment.

11.2 The Licensee shall ensure that its operation will conform to the provisions of inter-system co-ordination agreement between INSAT and the satellite being used by the Licensee.

In practice, the hiring of satellite capacity is being allowed only via Antrix. This has become unviable for DTH industry as Antrix is charging commission on such leased capacity at 7.5% (previously at 2% and later 4% now revised to 7.5%). Moreover such commission is charged post grossing of all withholding taxes and attracts service tax at applicable rate.

In order that satellite capacity sharing be practical, it is desirable that the DTH license clause be made applicable for hiring of Ku-Band satellite capacity on any satellite approved by Antrix/ISRO by DTH operators.

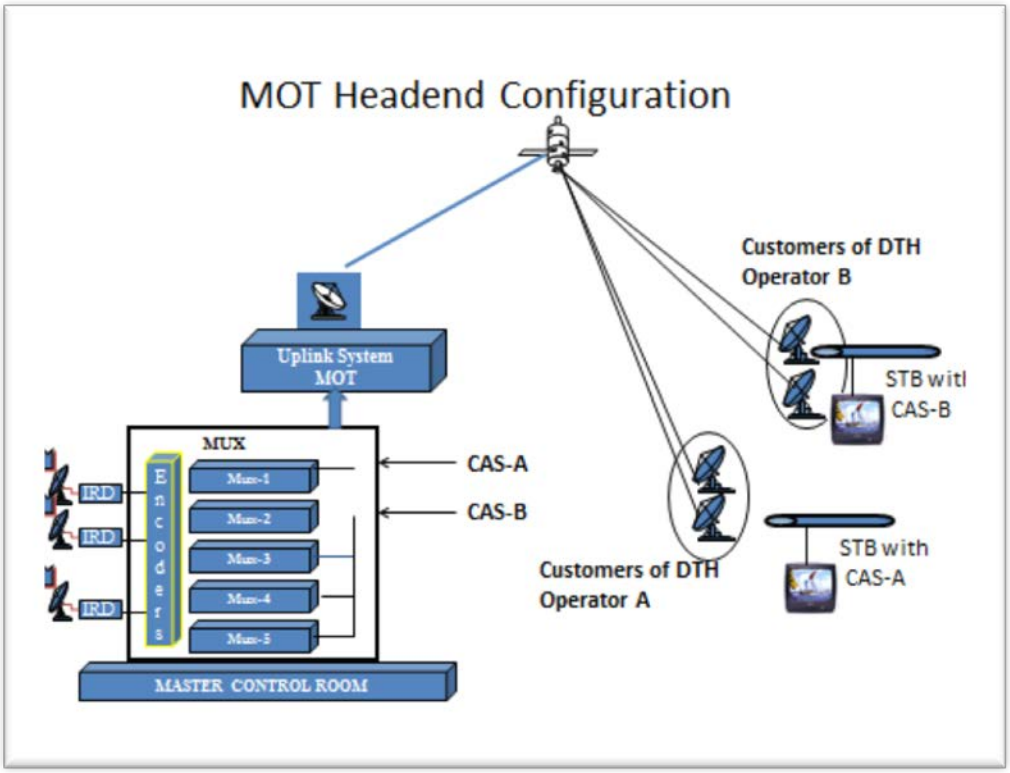
Definition and Technical Specifications of a Multi-Operator Teleport

At present the Teleport licensing guidelines are independent and separate from service licenses such as uplink, HITS or DTH. In order to facilitate third party multi-operator teleports, the Teleport Licensing guidelines should be amended to allow the use of same satellite capacity for multiple operators.

WPC endorsements and WPC Licenses

Satellite capacity is today endorsed on the DTH license after paying the applicable spectrum fees. The emission characteristics (such as DVB-S or DVB-S2, symbol rate, data rate FEC etc.) are also endorsed on the DTH licensee. The policy should be amended so as to allow sharing of spectrum and teleport. There should be flexibility at all times to change FEC rate and symbol rate with weather conditions and performance observed in different regions.

NOCC arrangements and applicable fees will also need to be suitable defined/ amended for multi-operator teleports.



The SMS and CAS systems can be managed by each DTH operator individually.

RIOs and Content Costs

The regulations on RIOs will need to be amended suitably such that both DTH operators irrespective of satellite sharing can file their own RIOs which may have different rates based on the number of subscribers. The content costs for the respective operators may also be different.

(ii) The databases/ SMS maintained by each operator should be verifiable by an external auditing agency. All such information should be maintained at the headend as per policy guidelines.
(iii) In shared arrangements, where an operator (say DTH) shares its capacity with another DTH operator, payments for shared satellite capacity would be an essential component for arrangements to continue and should be secured by Bank Guarantees without recourse.

Carriage Fees

If an incumbent operator permits a second or third operator, it would remain solely responsible for negotiation of carriage fees if any and may choose to distribute the same to other DTH operators in proportion to the number of active subscribers of that channel as accepted by the incumbent operator.

Platform Services

The incumbent operator and other operators may choose to operate their own platform services as usual. These will be carried on non-shared transponders.

(7) Do you envisage any requirement for amendment in the policy framework for satellite communication in India to enable sharing of infrastructure among MSOs and HITS operators, and among DTH operators? If yes, then what specific amendments would be required? Kindly elucidate with justification.

The answer to this question is already included on our response above.

(8) Do you envisage any requirement for amendments in the NOCC guidelines and WPC license conditions relating to satellite communications to enable sharing of infrastructure among MSOs and HITS operators, and among DTH operators? If yes, then what specific amendments would be required? Kindly elucidate with justification.

We do not envisage any major changes to the NOCC or WPC guidelines except in cases where additional transponders which are applicable to each respective DTH operator or MSO in a HITS passive sharing are uplinked from a separate teleport. In such cases the individual operators would be responsible for their own uplink compliances.

The sharing operators would naturally need to align their networks so that the transmitted powers etc are suited to the receivers of either of the operators.

The WPC would need to endorse common transponders on both DTH/ HITS licenses and unique transponders on the respective license holder. They would also charge the fees as only one incidence and not multiply charges for each WPC licensee, The same would be applicable for NOCC charges.

(9) Do you envisage any requirement for amendments in any other policy guidelines to enable sharing of infrastructure among MSOs and HITS operators, among MSOs, and among DTH operators? Kindly elucidate with justification.

We believe that this question can only be answered once there is clarity in space policy. As pointed out in detail in our introductory comments there would be a need for a large number of transponders at the sharing location due to the following:

(i) Large number transponders needed for HD and Platform services
(ii) Non-clarity on DTH operators to lease transponders on their own as per licenses.
(iii) Lack of Clarity from DoS and ISRO on use of additional bands at each orbital location. As the Authority is aware, DTH operators are bound to their respective orbital locations as all the ground dishes point in that direction. However in the normal Ku-Band there is limited capacity of about 24 transponders. The DOS has been insisting on the use of the INSAT band. However there are other bands (Plan bands) where substantial additional capacity can be made available. However the decision on the use of the same seems to be pending even though there are multiple satellites flush with capacity in these bands.

Hence before proceeding further on interoperability, we suggest that the Authority seek clarity from the DoS and ISRO on their own policy.

Further the next 2-3 years will be important for the industry in terms of two way services, use of Ka band and regional beams as on almost every other DTH platform in the world except India. Hence there need to be regulations on how this will be permitted without treating each DTH terminal as a VSAT terminal which will be a non-starter.

We have already provided responses to other points in our replies to questions above.

(10) What mechanisms could be put in place for disconnection of signals of TV channels of defaulting operator without affecting the operations of the other associated operators with that network after implementation of sharing of infrastructure among MSOs and HITS operators, among MSOs, and among DTH operators? Kindly elucidate.

As recommended by us, the infrastructure sharing would be on a voluntary basis and on the basis of specific agreements of broadcasters with each DTH or HITS operator to share its infrastructure.
The Incumbent operator has to give control of customer messaging and switching off of the defaulting sharing MSO or DTH operator to the respective broadcaster via an application which directly controls the encryption of the respective MSO or sharing DTH operator.
Moreover there should be no recourse to the incumbent DTH operator or HITS operator to switch on the signals pertaining to any broadcaster once they have been switched off. This facility should lie only with the broadcaster who would control such an operation being in compliance of TRAI regulations on notice periods etc.

(11)Is there any requirement for tripartite agreement to enable sharing of infrastructure among MSOs and HITS operators, among MSOs, and among DTH operators? Kindly elucidate with justification.

The requirement is outlined above in answer to Q 10. The same can be via a tripartite agreement as well.

Our response should be read with our initial comments wherein we have stated that there is no justification in a HITS environment to give separate control to MSOs as HITS by its very nature is a multiple MSO platform.

(12)What techniques could be put in place for identification of pirates after implementation of sharing of infrastructure among MSOs and HITS operators, among MSOs, and among DTH operators? Kindly elucidate.

Multiple encryption systems will be under serious threat of piracy as the breakdown of the weakest encryption will lead to the breakdown of the entire platform in a short time as other encryptions on the same platform will also be broken down using the keys obtained. Ordinary measures such as fingerprinting would be inadequate. Most pirates operate from outside the country and are not easy to identify or apprehend.

Piracy is a serious issue today and we would like to suggest that that there needs to be a strengthening of anti-piracy laws which should be taken forward by the TRAI so that piracy be treated as a cognizable offence under relevant sections of theft, tax evasion, copy-right violation amongst others. Today pirates, if caught are at most subject to seizure of equipment or shutdown of their signals but emerge immediately from different site. There were cases in India where pirates were raided, equipment seized but there was no law adequate to keep them in check.

We suggest that the TRAI should recommend India to sign bilateral agreements with the EU and other countries to have mutual protection of copyrights of each others content and actions against pirates jointly or severally.

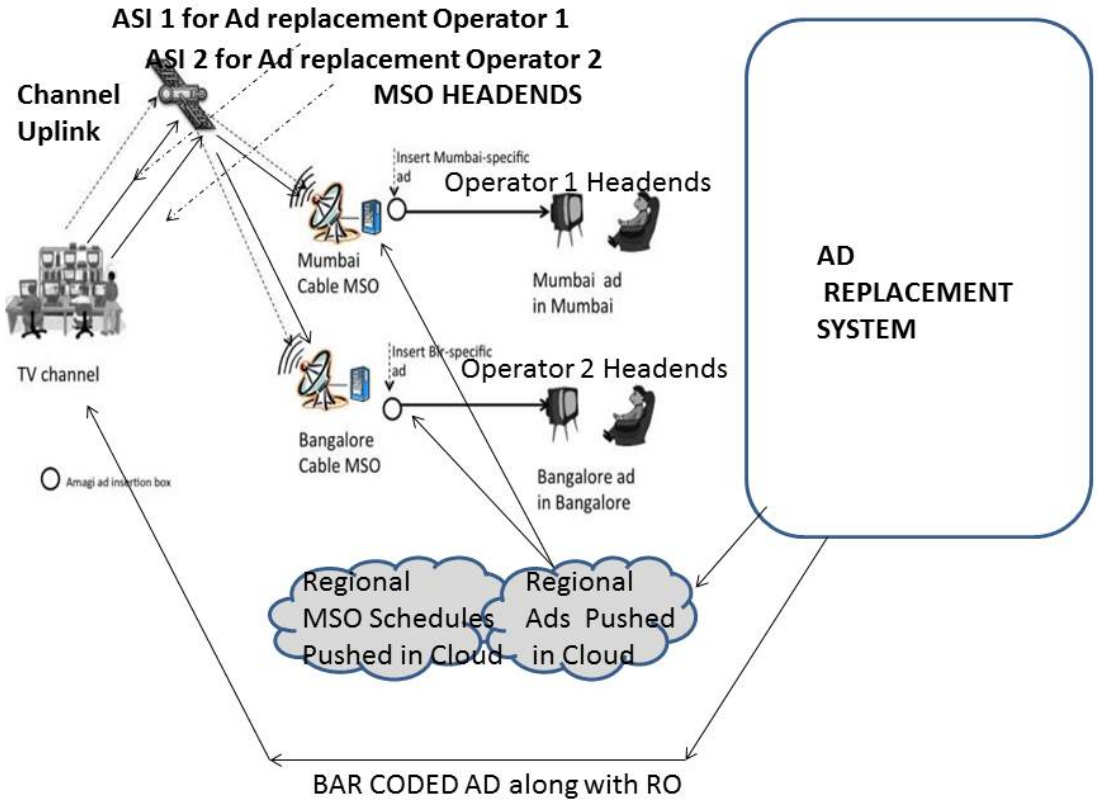
(13) Is there any need for further strengthening of anti-piracy measures already in place to enable sharing of infrastructure among MSOs and HITS operators, among MSOs, and among DTH operators? Kindly elucidate with justification.

Kindly see our response to question above.

(14) Is there a requirement to ensure geographically targeted advertisements in the distribution networks? If yes, then what could be the possible methods for enabling geographically targeted advertisements in shared infrastructure set up?

Geographically targeted advertisements are common in MSO and DTO/ HITS networks. These are implemented by transmitting the Playlist, target STB details and the ads which are to be placed in each region instead of the national Ads on an ASI stream which goes up on the satellite as a part of the DVB transmissions.

As such on shared systems there would be two such ASI streams one for each operator and they will target the respective boxes on their networks. We do not envisage any difficult in this regard.
Targeted Ads on DTH is not common today, as customers STBs do not support such feature.



(15) Whether it is possible for the network operator to run the scrolls and logo on the specific STBs population on request of either the broadcaster or the service delivery operator after implementation of sharing of infrastructure among MSOs and HITS operators, among MSOs, and among DTH operators? If yes, kindly elucidate the techniques.

At present we are not aware of any affordable technologies which enable either scrolls or logos to be targeted to specific targeted population. However it is possible to send messages

(On-screen displays) which are targeted box-wise or operator wise; with suitable database being available.

(16) Whether implementation of infrastructure sharing affects the differentiation and personalization of the TV broadcasting services and EPG? If yes, then how those constraints can be addressed? Kindly elucidate with justification.

The EPG and other differentiating features are the generated from middleware used (i.e. NDS, Open TV, WyPlay or others). The middleware provides an interface to the customer via the STB and all on-screen properties are generated by middleware.

Hence in infrastructure sharing where all the two or more operators will share transponders but retain their own encryption and Middleware systems will not be impacted by such sharing arrangements.

It is to be noted that if any change is made in operating parameters such as specific channels on a shared transponder, all the DTH or MSO systems will need to retune or power cycle their STBs to get the full scan of channels.

The two systems can maintain their respective NITs and LCN nos separately.

(17) Whether, in your opinion, satellite capacity is a limiting factor for sharing of infrastructure? If yes, then what could be the solutions to address the issue?

As provided in a detailed response in our introductory comments and also in response to questions above, the sharing of infrastructure to a large extent can be enabled only if sufficient no of transponders are available at a single orbital location.

We believe that this question can only be answered once there is clarity in space policy. There would be a need for a large number of transponders at the sharing location due to the following:

(i) Large number transponders needed for HD and Platform services

(ii) Active and MoDs, local channels, etc,

The issues are complicated due to:

(ii) Non-clarity on DTH operators to lease transponders on their own as per licenses.

(iii) Lack of Clarity from DoS and ISRO on use of additional bands at each orbital location. As the Authority is aware, DTH operators are bound to their respective orbital locations as all the ground dishes point in that direction. However in the normal Ku-Band there is limited capacity of about 24 transponders. The DOS has been insisting on the use of the INSAT band. However there are other bands (Plan bands) where substantial additional

capacity can be made available. However the decision on the use of the same seems to be pending even though there are multiple satellites flush with capacity in these bands.

Hence before proceeding further on interoperability, we suggest that the Authority seek clarity from the DoS and ISRO on their own policy.

Further the next 2-3 years will be important for the industry in terms of two way services, use of Ka band and regional beams as on almost every other DTH platform in the world except India. Hence there need to be regulations on how this will be permitted without treating each DTH terminal as a VSAT terminal which will be a non-starter.

We have already provided responses to other points in our replies to questions above.

Sharing of CAS and SMS

(18) Is there a need to permit sharing of SMS and CAS?

At present we do not recommend sharing of SMS and CAS. These ultimately distinguish the service providers, and their individual operation is important to ensure compliance of various regulations.

(19) If yes, then what additional measures need to taken to ensure that SMS data remain accessible to the tax assessment authorities and Authorized officers as defined in the Cable TV Act for the purpose of monitoring the compliance with relevant the Rules and the Regulations?

Not Applicable.

(20) Whether sharing of CAS can in any way compromise the requirement of encryption as envisaged in the Cable TV Act and The rules and the regulations.

If CAS is shared then any one operator can have access to the customers of the other operator. At present we do not see any justification for such sharing if the operators are to retain separate identities and confidentiality in their market operations, as would be warranted in separate operator identities.

(21) *In addition to the issues mentioned above, comments of stakeholders is also invited on any other issue relevant to the present consultation paper.*

We believe that in an important topic such as infrastructure sharing the inputs and commitments from agencies which are ultimately responsible for allocating resources such as DoS or ISRO, the Dept of Information Technology and Ministry of I&B are important.

In our introductory comments we have raised several issues which range from the very effectiveness of MIB uplink and downlink permissions in the face of multiplicity of platform services, local channels and channels delivered over high speed Internet.

As we have pointed out a new telecom operator has launched nationwide services which has garnered 16 million customers as on 10th Oct 2016, and is providing over 250 channels in high definition as a closed user group which can be cast to large screen TVs without any MIB license. There is no clarity on why Airtel Zero could not provide similar services at zero cost while a new operator can do so, along with internet content of international channels unlicensed by TRAI.

As pointed out by us in our introductory comments, DD-Direct a Free DTH operator is distorting the market in many ways which will be very detrimental to the entire sector. It would not be out of place to point out that when satellite operations were deregulated in US and Europe, entities such as Comsat were forced to merge into Panamsat and the Intelsat, an Inter-governmental organization at that time was forced to go private.

DD-Direct platform on the other hand with over 250 channels planned is a ready case for infrastructure sharing and it is to be seen whether the Authority will recommend that the ICAS be allowed to be receivable in other DTH systems so that these 250 channels need not be duplicated.

Finally we would like to point out that there are rapid developments in the sector, most of which can be very disruptive, and an open skies policy, VAS and two way DTH systems are very critical for Digital India.

Annexure-1 Example of Platform Services on Tata-Sky (Oct 10, 2016)

Sr.No	LCN	Platform Ser Name
1	805	Karoke
2	99	Tata Sky Welcome
3	100	Ch. 100
4		Tata Sky Comedy
5	701	Actve Smart Manager
6		Actve Comedy Audio
7		Actve Classroom App
8	653	Tata Sky Classroom
9		Classroom Enc Audio5
10		Classroom Enc Audio6
11		Classroom Enc Audio7
12		Classroom Enc Audio8
13		ClassR Enc Audio All
14		Classroom Game1
15		Classroom Game2
16		ASM Audio
17		Sabse Tez
18		Sports Mania
19		Actve Music Audio 11
20		Actve Music Audio 12
21	113	Actve Fitness
22	815	Actve Music
23		ACTVE MUSIC
24		ACTVE FUN LEARN
25		ACTVE STORIES
26		ACTVE FUN LEARN
27		Actve Music Audio 13
28		Actve Music Audio 14
29		Actve Fitness Audio
30		ACTVE FITNESS
31		HDAF Enc Audio1
32		Actve Music Audio 15
33		ZEETOS REWARDS
34		Wizkids 2
35		Wizkids 3
36		Wizkids 5
37		HDAF Enc Audio2

Sr.No	LCN	Platform Ser Name
38		Chartbusters
39		Actve Music Audio
40		Actve Music Audio 2
41		Actve Music Audio 3
42		Actve Music Audio 4
43		Actve Music Audio 5
44		Actve Music Audio 6
45		Actve Music Audio 7
46		Actve Music Audio 8
47		Actve Music Audio 9
48		Actve Music Audio 10
49		Actve Music Audio 16
50		Mumbai film festival Hd
51		FLP Audio
52		ACTVE VEDIC MATHS
53		Vedic Maths MCQ
54		ACTVE LEARNING
55	667	Kids Zone
56		ACTVE FUN LEARN
57		Program 1624
58		ACTVE COOKING
59		Actve Dance Audio
60		Dance Studio Alias
61	404	Showcase HD 4
62		HOME
63		JOKES
64	402	Showcase HD 2
65		Hungama Games3
66		ACTVE ENGLISH
67		ACTVE ENGLISH 2
68		ACTVE ENGLISH 3
69		ACTVE ENGLISH 4
70		ACTVE ENGLISH 5
71	150	ACTVE JAVED AKHTAR
72	112	TataSky Comedy
73		Actve Javed Akhtar
74		Dance Studio App

Sr.No	LCN	Platform Ser Name
75	123	Dance Studio
76		TATA SKY 4K
77		Star Sports 1 Link
78		Star Sports 3 Link
79		Showcase SD
80		ECN Audio 1
81		ECN Audio 2
82		Chn. 100
83		TATA SKY SCHOLARSHIP OLD
84		Active Fitness
85		Program 2184
86		Games 3
87		Games 4
88		Games Encryption
89	656	ACTVE SMART GAMES
90		Games1
91		Games2
92		Test BW1
93		Programe 2156
94		Programe 2107
95		Programe 2119
96		Programe 2155
97		Hindi ENT1
98		Hindi ENT2
99		Tata sky Bangla cinema HD
100	434	Showcase 4
101	1051	Actve Devotion
102		Ten 1 HD Link
103		Slide App EPG Audio
104		Actve Devotion
105		Actve Devotion Audio
106		Actve Devotion
107		Mumbai film festival Hd
108		ACTVE DARSHAN
109		ZEE TV HD +1
110		Service Quad 2
111	401	Showcase HD 1

Sr.No	LCN	Platform Ser Name
112	313	Sony Max + 1
113	142	Zee Tv +1
114		SS HD1 Slide
115		TS29_Trigger1
116		Push SD
117		SONY MAX HD +1
118	660	Kids Carnival
119	432	Showcase 2
120	435	Showcase 5
121	433	Showcase 3
122		Push HD 2
123		Star Sports Add On Service HD
124		Push SD
125		Actve Music plus
126		Actve Music plus 2
127		Actve Music plus 3
128		Actve Music plus 4
129		Actve Music plus data
130		Zee Cinema HD +1
131		Tata sky Music +
132	129	Sony +1
133	320	Zee cinema +1
134		Actve Cooking Trig
135	403	Showcase HD 3
136		Games Portal
137		Actve Cooking Encryption
138		Game Guru
139		Program 5000
140		DA VINCI LEARNING HD
141		MINIPLEX
142		SONY MAX HD +1
143	660	Kids Carnival
144	432	Showcase 2
145	435	Showcase 5
146	433	Showcase 3
147		Colors HD +1
148		SONY HD +1

Disclaimer: Interpretation on best assessment on nature of service. Some services may be network services.

Annexure-1 (Contd) Platform Services on Videocon

Sr.No	LCN	Platform Ser Name
1	913	d2h cinema HD
2		DATA ENGLISH 1
3		DATA HINDI 1
4		Data Carousel 1
5		DDA
6	940	d2h HOLLYWOOD HD
7	650	KANNADA Home Channel
8	600	MALAYALAM Home Channel
9		Sentimental Hitz
10		Gujrati devo.
11		Oriya Dev.
12		Bengali Devt.
13		Latest Hits Hindi
14		Rajasthani Geet
15		Radhe Krishna
16		Islamic Devo.
17		Bhakti
18		Romantic Hits
19		Sai Amrit
20		Ganapati Devt.
21		Mata ki Jai
22		Marathi Devt.
23		Gurbani
24		Punjabi Lounge
25		DJ HITZ
26		Shiv Bhakti
27		Ghazal
28		Air Vivid Bharti
29		FM Rainbow (Delhi)
30		FM Gold Delhi
31		FM Rainbow Bangalore
32		FM Rainbow Chennai
33		FM GOld Mumbai
34		Radio Kashmir
35		Hamar Geet
36	929	Star Sports select HD 1
37	930	Star Sports select HD 2

Sr.No	LCN	Platform Ser Name
38		DD Active
39		State Active
40		Darshan Active
41	519	D2H Music
42	502	D2H Rhymes
43	500	D2H Kids
44		Pronounciation
45		Active Games
46		Grammer
47		Active Science 2
48		Program 103
49		Program 106
50		Program 107
51		Program 108
52		Program 109
53		Program 110
54		Program 111
55		Program 112
56		Program 113
57		Program 114
58		Program 116
59		Program 117
60		Program 118
61		Vocabulary
62		Program 60
63		Grammer
64		Active Science 2
65		Program 100
66		Program 68
67		Religious
68		Mosaic Tamil Page 2
69		Today"s special
70		Chef special
71	800	BENGALI Home Channel
72	242	D2H Hollywood
73	786	D2H Sajda
74	700	TELUGU Home Channel

Sr.No	LCN	Platform Ser Name
75	422	Sports Info
76	550	TAMIL Home Channel
77	100	Home Channel 1
78	922	Sports Info
79	900	Home Channel 2
80	215	d2h movies CLASSIC
81	222	d2h CINEMA
82	213	d2h movies
83	897	Home HD
84		Sports
85	520	d2h spice
86	750	Marathi Home Channel
87	865	Gujarati Home Channel
88	825	Odia Home Channel
89		Welcome Page
90		Regional Home Page
91		Kids
92		Music

Annexure-1 (Contd) Platform Services of Airtel

Sr.No	LCN	Platform Ser Name
1		LAUNCHING GAMEZONE1
2		Retailer Demo
3	585	IDevotional Mosaic1
4	99	Airtel Offers 1
5		DU SD PVR
6		IFASAL_ITVTS
7		TICKER APP
8		Kannada New Channel No
9		Kannada New Channel No1
10		Kannada New Channel No2
11		Kannada New Channel No3
12		Kannada New Channel No4
13		iGoodlifeinvite
14		iLearn App (SES7)
15		TICKER APP2
16		REDBUGTS7
17		TICKER APP7
18		iTV home page
19		Games home page
20		Dynamic update2
21		iAstrology
22		Help app
23		Contest Application
24		DU PVR
25		Landing iDarshan
26		GAME2 SES7
27		GAME3 SES7
28		GAME4 SES7
29		GAME5 SES7
30		GAME6 SES7
31		GAME7 SES7
32		Customer Care
33		REDBUGTS3
34		TWITTERAPPTS3
35		REDBUGAPP2
36		REDBUGAPP3
37		launchidarshan

Sr.No	LCN	Platform Ser Name
38	162	MINIPLEX
39	163	MINIPLEX HD
40	164	Sadabahar Hitz
41	580	Punjabi Tadka
42		iKidsworld_Landing
43		Landing iEnglish
44		Radio On TV
45	379	iMusicSpace Radio Service
46		iExam 8th
47		iExam 9th
48		iExam 10th
49		My Cricket League
50		TICKER APP4
51		iMUSIC
52		iMUSICLauncher
53		iEnglish
54	361	iKids World
55	160	Airtel Movies 1
56	161	Airtel-Movies 2
57	100	Airtel HD Home
58	165	Sony Max SUPER HITZ
59	786	Mecca Madina 24x7
60		Airtel Offers 2
61	482	iKidsworld
62	98	Airtel SD Home
63		iKidsworld_Portal
64		Fundaa's Quiz
65		Fun Zone
66		IEXAM
67		iDD
68		My Cricket Leauge
69		iExam_Trigger
70		test 3
71		test 4
72		Migration Test
73		Test 2
74		Airtel 4K

Sr.No	LCN	Platform Ser Name
75		I Darshan_SES7
76		I Devotion
77		I Music Space
78		I DevotionMosaic 2
79		I Devotion Main App
80		I Cooking
81		I Devotion Launcher