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To

Shri. Anil Kumar Bhardwaj,
Advisor (B & CS)-II,
Telecom Regulatory Authority of India (TRAI),
Mahanagar Door Sanchar Bhawan,
J.L. Nehru Marg, (Old Minto Road)
New Delhi - 110002, India

Respected Sir,

Sub: Interoperability of Set Top Box (STB) – reg.,
Ref : Consultation Paper of TRAI & Press Release No. 122/2019 dated 09nd December, 2019.

With reference to the above subject, I am sending the following information for your kind consideration as per queries raised in Consultation Paper of TRAI dated 11th November 2019.

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

Yes, Merging/Integration of available Technologies is very necessary to reduce space, use of additional wires to change/connect, power consumption and e-waste. Successful implementation lies with multiple usage of a product with simple, precise, concise, reliable, unique & secured data features. Further, Robustness needs to be achieved through Extensibility & Scalability features, helping citizens to receive all DVB-S/S2/S2X/H/T/T2/C/C2 signals and view DD FTA Channels, even in absence subscription to pay channels & CAS smart card module...!

Some common features may be incorporated in New Interoperable STB :

Compliance: DVB Technology : Decoding S/S2/S2X, T/T2, C/C2 signals. (using All-in-one Chip decoder that are available) with atleast 2-3 co-axial input & 1 output cable F-type connectors.

Legacy A/V ports: Composite, Component, 3.5mm Headphone, 2/7.1 Channel Surround Sound

Ports: Display Port 1.4a, HDMI 2.0, USB 3.1 (A type), 3.1 Gen 2(C-Type) OR Thunderbolt 3

Inbuilt Features: AM/FM Tuner for better localisation/failure of above.

Software: Latest Firmware & Middleware should be available in website for download & install.

Play back : Include all feasible standard Audio & Video formats, Include PDF Files to read.!

Support: Maximum storage of Transponders, Channels, process DVB Modulations, Frequency ranges, using latest DiSEq module, able to view in different variable aspect ratios, PVR & Playback functions using external storage of enduser like HDD, SD Card, USB & PnP device, Convenient Blind search function with simple & easy Graphical User Interface(GUI).

Universal Remote: Scanning, Enabling/Disabling different above mentioned features/options.

Warranty: 2-3 years for set-top box and 1 month for its accessories.

Subscription: Particular channel(s) from service providers, instead of bouquet of channels.

Reception : Using External/Internal Antenna covering wider angle/Satellites.

View : Multi/Split Screen View OR Picture in Picture(PIP).

Note :

Type C port can be used for accessing/sending data as well as for powering/charging devices.

Display port doesn't need any royalty and can be used for higher resolutions UHD 4K/8K (Pls. check with ISA).

Legacy A/V ports reduces immediate e-waste - Maximum use of old working technologies.

Advanced STB features include eSATA USB Hybrid Port/EUHP, HDMI(ARC), RJ45, Bluetooth, Wifi Direct.

Contd.,

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.

Yes, its desirable to have both in one, without compromising individual privacy i.e., not to collect viewership details without written consent or by adopting a secured means/protocols. Hence, each STB should have a unique ID embedded in SoC, identifiable by QR code/RFID tag.

Integration of CDOT developed technologies that are being used in its Hybrid HD STB(CB 100), Hybrid HD STB (DT 100), CAS STB & OTT STB into a Universal STB, will do wonders! The universal accessibility/interoperability problem faced by the viewers/subscribers with the existing STBs can be avoided by a Universal STB having good product stability and proper support. Many of the features mentioned above can be achieved with the existing available technologies/manpower.

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

Support the Government agencies like C-DOT to design, DGQCA/Other Government Agencies for Testing, PSUs as Electronic component manufacturers/integrators like BEL, ITI, etc./State Electronic Corporations for mass/large scale production, that benefits the exchequer.

Distribution through Regional Doordarshan Kendras/Corporations/Municipalities/Village Panchayats would be better OR Citizens may place order online directly to manufacturer & get delivered through Department of Posts. This will help the manufacturer in proper planning in executing production, sales, delivery & maintenance mechanism, avoids additional storage spaces & unnecessary piling up of products at different places/excess production, than the demand.

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

Yes, introducing STB interoperability helps in reducing e-waste. Other method would be to upgrade the present functional/working STB, by disabling the specific proprietary module chip/chipset's circuit power, divert the input signal to the new mounted chip/chipset & channelling/integrating the new processed output signal to earlier output circuit and upgrade the Firmware, Middleware & GUI by the Manufacturer/Service Provider/by OTT. Yes, it not easy!.

The best option would be to introduce all future TV sets with an inbuilt PCMCIA like slot/testing jigs/PCI like common slot, where the user just need to upgrade hardware technology like a Plug and Play(PnP) device/add-on card. This extensibility/scalability feature will help the viewers/citizens in optimum use of their Display & other inbuilt electronic components/circuits without additional external power & wires, thus reducing immediate e-waste. Rest is end user freedom...Everything become interoperable...! Anyone can use it, Anywhere & Anytime till the validity.

I don't feel that I have mentioned something new, which others/you are not aware off. Hope it's a desire of a Millennial is to get things at one shot...Create Once, Use Many..! Too much is too bad...like the advanced STB features mentioned above. Finally, I request to pardon me for all the mistakes/blunders written and inconvenience caused if any, in advance. Awaiting for your critics/suggestions/comments on above.

Kindly e-acknowledge.

Thanking you,

Yours faithfully,

Date : 18th-Dec-2019.

Place : BBSR-19.

BIJU.K