**Broadcom's comment on Consultation Note on  Solution Architecture for  Technical Interoperable Set Top Box**

**Date: Aug 18, 2017**

Broadcom has reviewed the Consultation Note paper from TRAI regarding STB Interoperability, dated 11th August 2017.

Annexure-A discusses the reasons for technical non-interoperability of STB's. The following C-DOT framework and feature requirements in Annexure-B give some methods of addressing the non-interoperability issues.

The C-DOT proposal assumes a general CAS flow that most CAS companies follow. In addition to this, C-DOT has added a Trusted Authority (TA) that will assign authentication codes to OEM's and Operators.

Details need to be looked into at this stage by CAS vendors as this encompasses most of the framework for operation as proposed by C-DOT.

In addition in the C-DOT proposal, Section 6.a gives the requirements to be met by SoC vendors. Though this section seems generic, Broadcom will need to closely work with CAS vendors to go through the details

and see if any additional implementation needs to be done. In addion, from Broadcom's perspective it would need to look at supporting multiple CAS systems on selected chip families that will be used in India.

Currently, our chips do support this, though it is limited to e ups with CAS companies and Operators who request this for specific designs. Interoperability has not been studied yet, and this needs to be a two way discussion. With regards to section 6.c that gives middleware requirements, Broadcom will need to discuss this with Middleware Companies/OEM's/Operators to further comment on the architecture of such a system.

As Broadcom is a silicon supplier, these issues will need to be first ironed out by the stakeholders mentioned, and then additional silicon requirements need to be specified.

These discussions will include the following

· CAS companies need to resolve any issues they have with TRAI's proposal with CDOT and section 6.b which are requirements they need to meet.

· Currently Middleware is tightly tied to silicon architecture, and is not easily decoupled. For interoperability, how will this be ported across silicon vendors? Section 6.c needs to be reviewed by Middleware vendors.

· STB architecture in terms of hardware specifications to satisfy basic Zappers/PVR/Hybrid/Android differ largely between silicon vendors. What is TRAI looking at for interoperability?

This need to be reviewed by OEM's and is specified in section 6.d.

· Once the above stakeholders review their respective sections and come up with a common framework, Broadcom can then comment on any feasibility issues that would exist and prevent current silicon from achieving them.