CHAPTER 4
ISSUES FOR CONSULTATION

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

BNetzA: Interoperability of STB is an essential need for reducing fragmentation in the TV receiver market and thus avoiding platform-specific lock-in effects caused by proprietary CPEs (customer premises equipment). Interoperability based on open standards creates equal opportunities and increased competition for market participants associated with positive economy-of-scale effects for STB manufacturers. Consumers will profit from the ability to choose their own best-suited retail CPE, which serves as a single device for consumption for broadcast and multi-media content. The avoidance of multiple STBs in the customer´s home has also positive environmental aspects.

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.

BNetzA: Generally speaking, future advanced distribution scenarios should be developed without dependence on specific access technologies, as the convergence of broadcast- and broadband-delivered content enables the consumer to receive content agnostic of the underlying transmision technology (either RF- or IP-based). And due to advanced available SoC solutions and rapid progress within this area, also integration of conventional digital broadcast technologies become feasible. This is already the case e.g. for DVB transmission technologies DVB-T2, -S2 and also for DVB-C2 (although C2 has not spread too far), as the digital signal processing functionalities are almost identical, excluding the RF-specific modules.

TV receiver (iDTV sets) in Germany nowadays are typically equipped with „triple tuners" together with a CIplus interface. The integration into one tuner (STB) is almost only a commercial aspect.

TV and Multimedia consumption will perspectively migrate to solutions enabling the consumer to receive specific content independently of the underlying access technology.

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

BNetzA: In principal interoperable retail devices (STB and iDTV) are placed in the open market on the basis of legal national acts, in EU according to the EECC (European Electronic Communications Code) Directive (EU) 2018/1972. Beside distribution of retail devices via warehouse channels, interoperable devices can also be part of an offer

by platform operators. Additionally also proprietary solutions with platform-specific CPEs could be possible with certain obligations, e.g. return of device in case of platform operator change or customer move. The decision with regard to proprietary models and offerings are subject to national policies.

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?

BNetzA: Please refer also to answer to Q1. Missing interoperability today often results in a pile of TV receivers (STB) in the customer´s home with negative consequences for power consumption and 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.

BNetzA: Non interoperable CPEs within proprietary platform-specific solutions go along with dependencies for the consumer with regard to choice of the platform operator, availability of certain TV bouquets and further lock-in effects concerning usage of legally bought content. Without standardised open interfaces (APIs) competition with regard to CPE manufacturers would not be possible.

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.

BNetzA: Future-proof solutions for STBs in Indian markets should comprise software-based architectures. In a convergent environment with content delivered via RF and IP networks to a variety of devices, which include e.g. tablets with integrated terrestrial or 5G mobile TV reception, hardware solutions as CAM modules are not suitable. Please also refer to the answer given in Q5.

Content security can be assured by specifying a trusted environment with a TA/CA (Trust/Certification Authority) as the root of trust. Downloaded software clients are embedded in a trusted chain linked to secret credentials stored in a secure area of the SoC. Together with effective authentication methods and further advanced functionalities (e.g. Watermarking) state-of-the-art security mechanisms are available for transmission and consumption of HD and UHD content.

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

BNetzA: A favourite and future-proof solution is given with the software-based technology as specified in the Embedded Common Interface (ECI) specifications. One of the first milestones would have to cover the development of a demonstrator, extensive tests and followed by a pilot phase. A timeline would have to be developed in due time.

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.

BNetzA: Please refer also to answers in Q7. For sure software-based solutions are the right choice with regard to future implementations. STBs based on such a technology will not only contribute to reductions in overall power consumption, but furthermore avoid expensive hardware modules and would open the possibility for an efficient maintenance regime. Thus the ETSI ECI 001-series can be regarded as an option for STB interoperability.

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?

BNetzA: Both could be possible. Examples with the trust authority associated with the CIplus solution demonstrates, that an industry-led body could be installed for that task. In other non-EU countries governmental institutions might be prefered.

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.

BNetzA: As mentioned in answers to Q7 a demonstrator and pilot phase with a limited number of customer/devices seems necessary

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?

BNetzA: Yes, competition would be enhanced by white-label STB significantly and fragmentation in the TV receiver market would be reduced. Service offerings from providers would probably be in a comparable range. Cost reductions of CPEs would be in the range of typical CAM interfaces. On the other side establishment of a trust authority, as well as certification expenditures have to be considered.

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?

BNetzA: A software-based architecture with exchangeable CA/DRM clients, embedded in a trusted environment, represents a completely new technology, which would have to be introduced to the market according to a well planned time schedule, allowing a structured phasing out of legacy devices.

Q13. Any other issues which you may like to raise related to interoperability of STBs.

BNetzA: None