Communication for all in East Africa

MIGRATION PLAN FOR ADOPTION OF CONDITIONAL ACCESS MODULE (CAM) AND DEPLOYMENT IN DIGITAL TERRESTRIAL (DTT) TELEVISION RECEIVERS IN EAST AFRICA

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Acronyms

CAM	Conditional Access Module
STBs	Set Top Boxes
DTT	Digital Terrestrial Television
iDTV	Integrated Digital Receivers
FTA	Free To Air
CAS	Conditional Access System
CI	Common Interface
DTH	Direct to Home

1.0 Introduction

Set Top Boxes (STBs) and Integrated Digital Receivers (iDTV) are key devices for receiving digital terrestrial television programs. East Africa Countries embarked on Digital Terrestrial Television (DTT) Broadcasting whereby Multiplex Operators (MUXO) were licensed to build and operate digital terrestrial television infrastructure. Introduction of DTT services compelled consumers to buy STBs or iDTV to enable reception of the digital television programs. The STBs were more convenient to consumers as they were used to connect to the existing analogue television receivers and cut cost for buying new digital receivers. The iDTV receivers were not much available in the market and if available were very expensive for the person with low income to afford. The STBs price ranged from USD 20 to 30 while the iDTV ranged from USD 300 to 500.

Digitalization of terrestrial broadcasting networks paved the way of having Free To Air (FTA) and Pay television broadcasting services. Each of the signal distributor deployed different Conditional Access System (CAS) to protect subscription channels from pirate. They extended their business by engaging themselves on importation and distribution of STBs. The imported STBs from each Multiplex Operators are not interoperable to each other because of deployment of different CAS. Having different CAS deployed in each MUXO limited flexibility of consumers to make choice of the preferred service provider or television programmes. Switching from one Service providers to another is requiring to buy another digital receiver which is very costing.

2.0 Problem statement

The current set up of digital terrestrial television receivers deny consumers the rights to switch over from one service providers to another without incurring excessive cost. The migration from analogue to digital broadcasting and emerging of multimedia has created pluralism and diversity of content hence opened more avenue of making choice of content. The introduction of Digital Terrestrial Broadcasting although having a number of benefits to the consumers, should not disadvantage consumers on making choice and shifting from one service providers to another due to additional cost required to acquire the new Set Top Boxes. Consumers have the right to shift from one service provider to another without incurring excessive cost for each program they wish to view.

2.1 Situation Without Interoperability

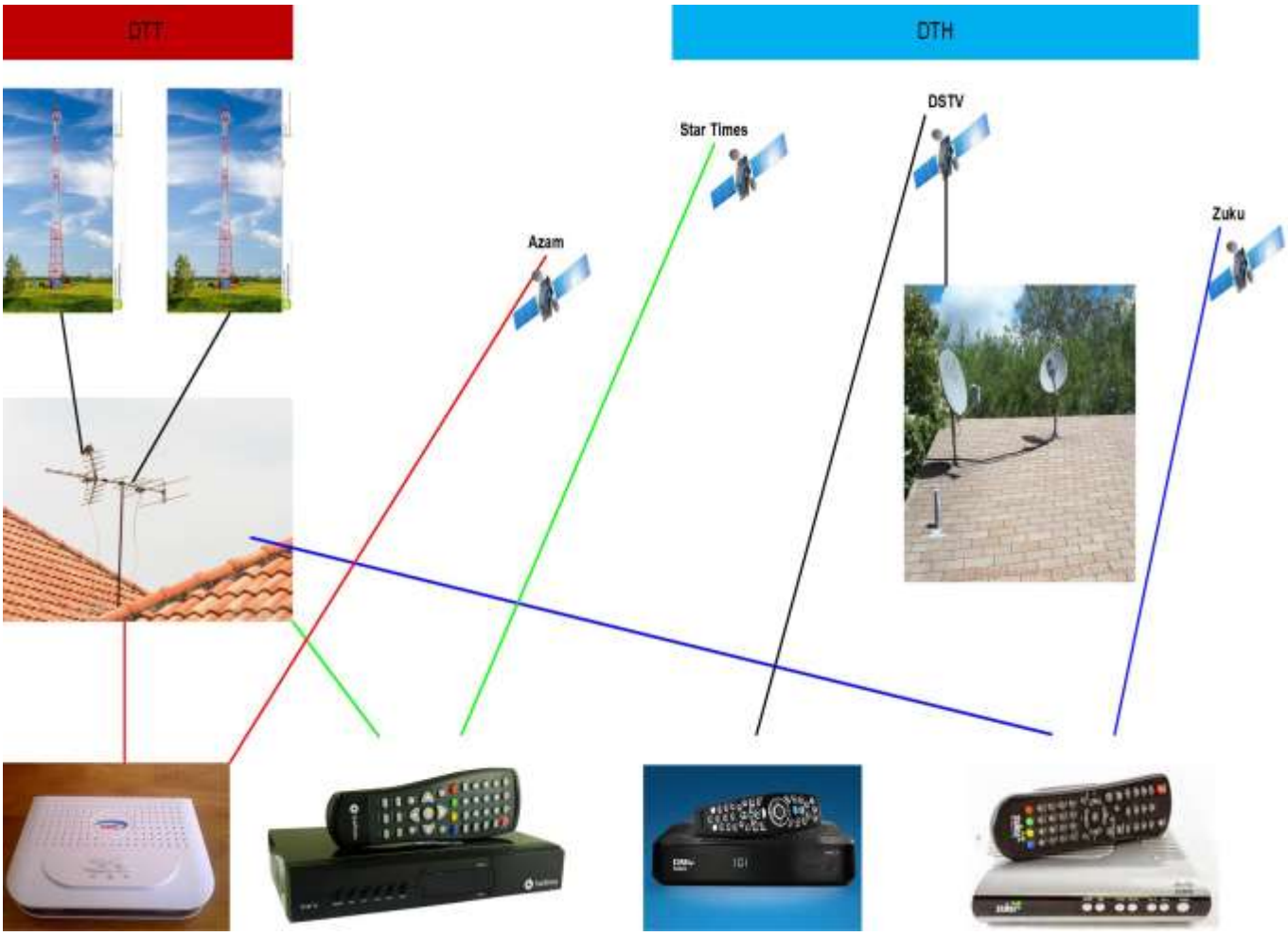

Figure 1: Set up of DTH and DTT receivers in a DTT and DTH platforms without interoperability

2.2 Situation With Interoperability

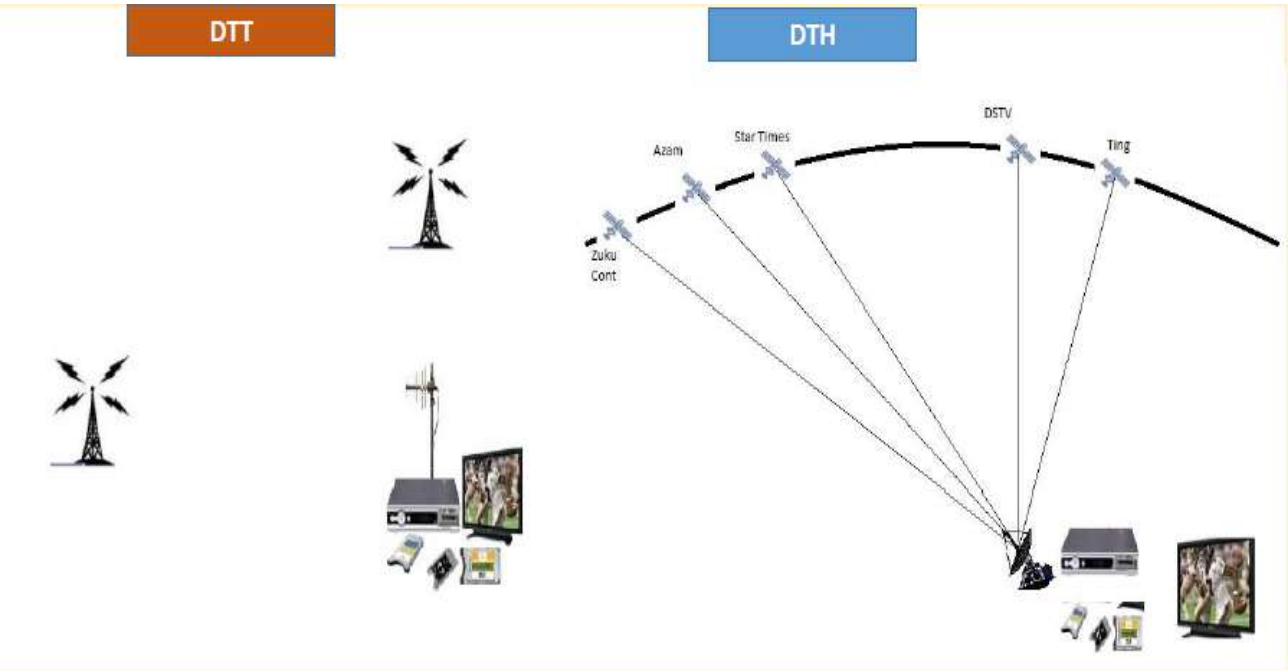

Figure 2: Set up of DTH and DTT receivers in a DTT and DTH platforms with interoperability

2.3 Status of DTT and DTH operators within EAC Countries

S/N	Country	Number of DTT Signal Distributors	Number of DTH operators	Provision of decoders to Customers
1.	Kenya	**Two (2)- Common Carrier BSD** • Signet Signal Distributor Ltd • Pan Africa Network Group (K)Ltd **Three (3)- Self Provisioning BSD** • GOTV Kenya Ltd • Africa Digital Network Ltd • Lancia Digital Broadcast Ltd	4- DTH operators Multichoice Kenya Ltd Startime Kenya Ltd Wananchi Group Kenya Ltd Azam Media Kenya Ltd	• The Common Carrier do not provide decoders, content from their platforms are available on FTA decoders, from stores and also on Pay TV decoders • The Self Provisioning BSD have proprietary STBs which are available directly from them and in the stores
2	Uganda	**Three (3)** • UBC • GOTV/DST • Star Times	**Six (6)** • Azam Tv Uganda • DStv Uganda • Startimes Uganda • GOTV Uganda • ZUKU TV • Kampala City Cable	• They do provide. But Customers can also buy from shop/dealers (especially the ones from free to air)
3	South Sudan	**Two (2**)- (one public and one commercial) • South Sudan Broadcasting	None	• The commercial one (South One is in the business of selling

		Coorporation (SSBC) • South One		decoders, but there are also electronic shops selling the decoders
4	Rwanda	**Two (2)-** (One public and One Private) • Pan Africa Networks • Rwanda Broadcasting Agency	**One (1)** • Tele10	• The private signal distributor and some other private companies sell decoders • The public signal distributor does not sell decoders
5	Tanzania	**Three (3)** • Star Media (T) Ltd • Basic Transmission Ltd • Agape Associate Limited • Azam Media Limited	**Five (5)** • Azam Media Limited • Agape Associate Limited • Multichoice Tanzania Limited • Wananchi Cable (T) Ltd (Zuku) • Star Media (T) Ltd	• The service providers are the ones selling the decoders

3.0 Objective of the Migration plan

The objectives of the migration plan are as follows:-

3.1 To encourage Service Providers to start planning on the importation and deployment of the digital terrestrial television receivers, compatible with the countries approved technical specifications and standards;

3.2 To ensure smooth replacement of the existing digital terrestrial television receivers without disrupting existing broadcasting services;

3.3 To achieve interoperability of digital terrestrial television receivers.

3.4 To create awareness among key stakeholders on the benefits and deployment of CAM in digital terrestrial television receivers.

4.0 Rationale for adopting CAM (Conditional Access Module)

4.1 Promote wide viewer choice to ensure the public benefit fully the potential of audiovisual services and ensuring effective digital penetration;

4.2 To safe guard and protect consumers' interests being:

i. plurality,
ii. universal service,
iii. prevention of monopolies,
iv. promotion of competition,
v. access to scarce resources, and strict control over bottlenecks

4.3 To enable the Regulator to exercise his role to consumers in the digital market by ensuring interconnection, interoperability, standardization and open interfaces of STBs.

5.0 Description of CAM (Conditional Access Module)

CAM is used in the digital receivers without embedded decryption system (CAS). The digital receiver is equipped with an Interface to enable the insertion of a detachable decryption Module. The Interface is open and mature since it was standardized by DVB consortium 20 years ago. It is called Common Interface (CI). The CI is the slot on an integrated Digital Television Receiver (STB or IDTV) into which a Conditional Access Module (CAM) is inserted. The STB or IDTV receive DVB-T/T2 FTA channels regardless of insertion of CAM and is not Service Provider's Specific. The detachable CAM allows consumers to switchover from one service providers to another with protected contents without changing the receiver set.

Figure 3: Integrated Digital TV (IDTV) with CAM

Figure 4: STB with CAM to Non iDTV

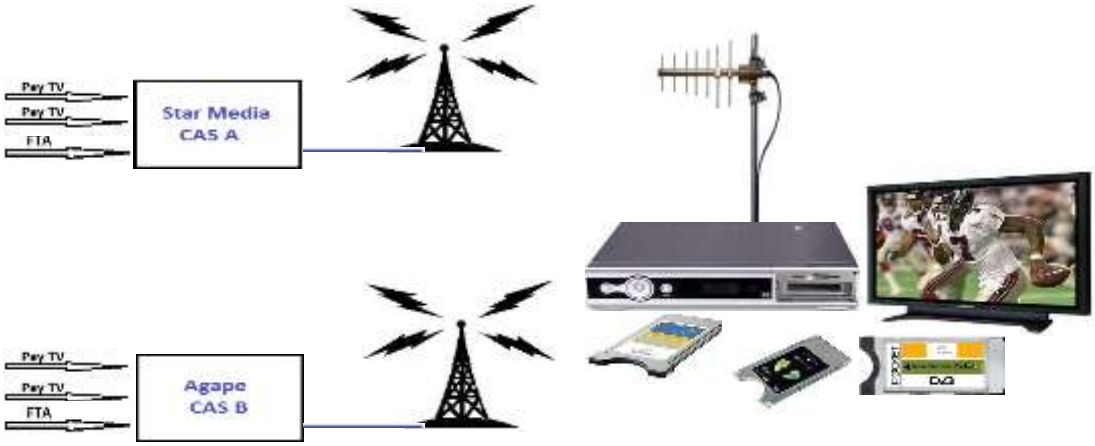

Figure 5: Indicates different CAS received with the same STBs or iDTV but allowing flexibility of changing detachable CAM from different service providers.

5.1 Benefits of CAM

The following benefits shall be considered

5.1.1 End-users.

i. Customer will have freedom to switch the service providers with minimum cost.

ii. An end-user can get subscriptions from different service providers using the same receiver with detachable CAM;
iii. A large range of receivers can be deployed for any end-user, independently from the service provider selected;
iv. Promote competition to vendors (importation and distribution), hence no entrance barrier to the new entrants, that can purchase receivers from low cost devices up to very High End large screen iDTV Models;
v. End users no longer need to use TWO remote controls (one for the iDTV, one for the STB) when using modules with iDTV, thus simplifying user experience of having a single Remote Control to watch TV;
vi. Power consumption of a CAM is around 10 times less than a Set-top-Boxes saving Energy for the end users and for the country;
vii. No need of extra cables since CAM is directly inserted into the TV and self-powered by the TV for the case of iDTV.

5.1.2 Service-providers.

i. Encourage and foster competition while providing flexibility for consumers to make a choice of the favorable TV programs;
ii. Service providers no longer need to invest and finance STB programs since retailers can provide CAM, Set-Top-Boxes and TV sets to end-users;
iii. Flexibility: service providers can however decide to continue to supply by themselves CAM alongside to STBs, CAM being a cheaper device to acquire new customers or to provide simple solutions during Analog switch off.
iv. No entrance barrier to the new entrant.
v. Instead of providing Set Top Box service providers will be required to provide CAM for subscription services and focus on services.
vi. It will easily open the market for STBs and speed up the digital take

5.1.3 Government and Regulators.

i. CAM opens the market for STBs and iDTV with Common Interface to access interesting and protected contents, thus speeding up the digital take up;
ii. Government can finance digital receivers through Universal Communication Services Access Fund (UCSAF) using any vendor to equip population for watching digital national channels;
iii. Government can benefit more revenue through taxes from retailers, pay-tv operators and TV Vendors

6.0 Adoption Strategy

For successfully adoption of CAM in the East African market, the following have to be considered:

i. Standards
ii. Awareness and Stakeholders Engagement
iii. The migration plan

6.1 Standards

i. Latest standards be adopted; STBs/iDTV incorporate a DVB-CI (Common Interface) slot and support Common Interface Plus extension.
ii. Common Interface Plus extension refers to the "CI plus Specification and Content Security Extensions to the Common Interface" version 1.4.3 or later. This should be made mandatory to STBs and optional to TVs.
iii. Service providers will be encouraged to adopt USB based form factor (CAM/CI), CI+ 2.0 standards which removes the need for large (read expensive) PCMCIA connectors, USB is currently standard to most of TV/STBs.

6.2 Awareness and Stakeholders Engagement

i. Public awareness to be conducted across the respective countries for consumers to understand the benefits of having STB with CI, and of course iDTV.
ii. Services providers and STBs/TV importers will be key stakeholders during awareness.
iii. Importers and distributors are licensed by Regulators.
iv. The replacement of the existing STBs will be made gradually depending on the lifetime and economic capability of consumers to buy a new receiver with CI slots.

6.3 Migration Plan

The Migration plan provide a Roadmap and milestones indicating clearly the migration process from the current setup of digital receivers to the envisaged DTT receivers with Common Interface (CI) slots to enable deployment of CAM. The migration plan entails engagement of key stakeholders to provide their views on the proposed Roadmap and timeframe for executing each activity. The critical path should be well known in advance and any foreseen risk should be identified

in order to take correct measures to mitigate them. The Regulator will coordinate and supervise the entire process. Deployment of CAM in digital television receivers is a long term strategy with understanding that, the process will require a lot of resources from both service providers and consumers. Initiation of the process is geared to send a signal to importation and distribution licensee for them to start preparations bearing in mind that, the migration process will be market driven. The replacement of the existing digital receivers will be made gradually depending on the lifetime of the current digital receivers and economic capability of consumers to buy a new receiver with CI slots. The migration will be market driven which will not have much impact to consumers. The current active STBs will still be allowed in the market while restricting importation to allow only receivers with Common Interface to enable deployment of CAM. The common interface to be mandatory for the STBs while for iDTV to be an optional, this will give flexibility and affordability to consumers

7.0 Requirements

	Without CAM	**With CAM**
Equipment	New Decoder Smart Card Additional Remote Control Dish/Antenna Cable	Decoder with CI (not required in future when changing the service provider) CAM device Smart Card ** Other existing equipment may be re-used
Technician	Required	May be required to align the direction of satellite for new SP(DTH) and DTT antenna

8.0 Conclusion

The success of the envisaged plan depends on readiness and willingness of stakeholders to implement the plan. This is a long term plan, the entire milestone is market driven and replacement of digital receivers will be done gradually starting with a small budget. Based on the fact that the DTH signal distributors receive signals from different satellite beam angles, it is advised the migration plan for adoption of conditional access module (CAM) concentrate on DTT signal distributors.

9.0 Recommendations

The following are recommended;

9.1 Adoption of CAM to be market driven to allow smooth phasing out of the existing STBs;

9.2 The common interface for the STBs to be mandatory while for TV set to be an optional, this will give flexibility and affordability to consumers;

9.3 The certified STBs to have Regulators logo on it to control their quality and avoiding grey market;

9.4 iDTV to have CI and USB ports, the USB port will allow introduction of CI+ 2.0 specification;

9.5 IDTV and STBs need to be type approved before importation;

9.6 Cut-off date for distributing new STBs without CI – not yet decided.

10.0 Proposed Activity Schedule

S/N	**ACTIVITY**	**OBJECTIVE**
1.	Convene a stakeholders meeting to introduce and present the migration plan	To create awareness among key Stakeholders on the need of migration plan
2.	Distribute the plan to all stakeholders	To enable them to go through the plan and provide inputs
3.	Convene a Stakeholders meeting to discuss and agree on the final migration plan including appropriate standard for CI	To get the final migration plan acceptable by all key stakeholders and determination of appropriate CI standard
4.	To benchmark establishment of min type approval laboratory for digital receivers with CI slot.	To develop capacity of certifying digital receivers and enhance security to avoid piracy
5.	To develop minimum requirements and specifications for establishment of small scale laboratory (Type approval/certification laboratory)	Certifications of digital receivers with CI slot.
6.	Importers and Distributors to identify suppliers, determine and organize resources required for procuring digital receivers with CI slots	To enable Distributors and Suppliers to prepare budget required for procuring digital receivers

7.	Monthly review meetings on the progress made by Importation and distribution licensee	To identify obstacles and challenges associated with the entire agreed plan
8.	Submission to Regulators digital receiver with CI for type approval	To make certification for digital receivers before mass importation
9.	Mass importation of CAM and digital receivers with CI slots	Commencement of deployment of digital receivers with CI slots