

**e.tv SUBMISSION TO THE DEPARTMENT OF COMMUNICATIONS ON THE DRAFT
SHORT-FORM SPECIFICATIONS FOR THE BASIC FREE-TO-AIR DTT SET TOP
BOX**

1. Introduction

- 1.1 e.tv thanks the Department of Communications ("DoC") for the opportunity to make this submission on the draft short-form specifications on the digital terrestrial television ("DTT") set top box ("STB").
- 1.2 Since the formation of the Digital Migration Working Group in 2005, e.tv has played a central role in contributing to policy formulation together with other stakeholders.
- 1.3 As e.tv is South Africa's only private commercial free-to-air television licensee, relying entirely on advertising for its revenue and with no access to public, state or subscription funding, the process of digital migration of free-to-air services is critical to the future of e.tv's business. As a free-to-air broadcaster, e.tv competes for advertising with the SABC, which dominates the advertising market in South Africa, as well as with M Net and DSTV. Any adverse effects of digital migration on e.tv's free-to-air business will have a knock-on effect on its shareholder base.
- 1.4 e.tv is owned by Sabido (Pty) Limited ("Sabido"), the majority of whose shares are held by Hosken Consolidated Investments Limited ("HCI"). HCI is a leading Black Economic Empowerment ("BEE") listed on the JSE and is South Africa's Number 1 financial services BEE company. The BEE component of HCI is approximately 54.3% with approximately 40% of its shares being held by the South African Clothing and Textile Workers Union ("SACTWU"). HCI is controlled by SACTWU and its social benefit trusts. The members of SACTWU comprise approximately 100 000 clothing and textile workers. The beneficiaries of the trusts are these workers together with their



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dependants. A large portion of investment income from HCI and its subsidiaries (including e.tv) is allocated to SACTWU welfare programmes to provide the social benefits to SACTWU members and their dependants. Over the last six years, some R15 million of funding per annum has been provided to the fund's social responsibility programmes. The range of projects funded by the welfare programmes primarily covers educational support, employment creation and protection projects, HIV AIDS, healthcare projects and housing. HCI is one of the few companies on the JSE where broadly based black empowerment shareholders with substantial social responsibility initiatives have a major economic interest.

1.5 At the outset, e.tv records its concerns about the process followed in developing the draft short-form specifications:

1.5.1 e.tv attended a workshop on DTT STB specifications in Sandton in June 2007 ("the Sandton meeting"). At this meeting certain issues, specifically whether conditional access should be included in the STB, were the subject of debate and disagreement between the parties. e.tv was one of the parties which opposed the basic entry-level STB incorporating conditional access ("CA") or being CA-ready, while the SABC and several key STB manufacturers were in favour of CA in the basic free-to-air DTT box. e.tv raised a range of economic, competition and legal concerns in this regard both at the meeting and in written submissions to the DoC. To date, none of these concerns have been addressed in any manner. Despite the fact that the Sandton meeting concluded that a further draft of the specifications would be circulated shortly, no such draft was circulated.

1.5.2 In February 2008 it came to e.tv's attention that there had been secret meetings between the DoC and South African set-top-box manufacturers regarding the STB specifications. South African set-top-



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box manufacturers have a vested financial interest in the design and specifications of the STB as they stand to benefit directly and financially from the production and sale of the STBs. At least one of these meetings had also been attended by the Chair of the Digital Dzonga who is also the SABC employee responsible for the SABC's digital migration. The SABC is e.tv's primary competitor in the free-to-air terrestrial television market. e.tv was excluded from these secret meetings.

- 1.5.3 Following repeated approaches by e.tv to the DoC regarding the issue of the STB, the DoC sent to e.tv, on 29 February 2008, an invitation to a "final set top box specifications workshop" to be held on 6 March 2008. At a briefing by the Minister of Communications to Parliament's Portfolio Committee on Communications on 4 March 2008, a representative of the DoC said that the DoC had already determined which box it wanted and that this would be presented to broadcasters for their consideration before being sent, the following week, to the South African Bureau of Standards (SABS) for standard-setting. He also admitted that the SABC had had an advantage among broadcasters as the Chair of the Digital Dzonga, who had attended at least one meeting, was also an SABC employee. On the same day (4 March 2008) e.tv's CEO wrote to the Director-General of the DoC to record e.tv's concerns at the process. Also on the same day, two days prior to the scheduled workshop date, e.tv received a draft short-form STB specification. It had insufficient time to consider the document prior to the workshop on 6 March 2008. In addition, e.tv did not receive the long-form specification for comment despite the fact that it now appears that this document existed at the time.
- 1.5.4 During the workshop on 6 March 2008, e.tv raised with the DoC, a representative of the set top box manufacturers and the Chair of the



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Digital Dzonga (all of whom attended the meeting) the concerns set out above, among others. e.tv also noted that it has expected a workshop between all the interested parties to take place at which e.tv would be able to consider the submissions made by other stakeholders and those stakeholders would be able to hear e.tv's submissions. However, each stakeholder was met separately (and in private) by the DoC and the Chair of the Digital Dzonga. While the Chair of the Digital Dzonga (an SABC employee) has been in a position to hear and consider submission by all stakeholders in the process, e.tv (the SABC's only competitor) has not had the same opportunity.

- 1.5.5 During the meeting e.tv requested the DoC, the Chair of the Digital Dzonga and the representative of the set top box manufacturers to provide it with an indication of the pricing of the main components reflected in the set top box specification. It is no secret among other stakeholders that one of e.tv's primary concerns with the inclusion of CA or CA-ready components in the STB is the cost which this would add to the STB. Despite the parties agreeing that this information would be supplied to e.tv and despite repeated requests by e.tv during the past week, this information has not been supplied to e.tv. Because e.tv was unable to fully consider the document in the short time available to it, e.tv requested that the DoC provided it with the opportunity to seek urgent technical advice on the STB and revert with a written submission on 17 March 2008. At the time e.tv believed the process would be put on hold until it had the opportunity to make this recommendation and have it considered by all relevant parties including the DoC.
- 1.5.6 On 10 March 2008, on the advice of e.tv's STB consultant, e.tv requested a copy of the full specification for the STB as the consultant found it difficult to comment properly on the short-form draft specifications because they lacked sufficient detail. While e.tv had not



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at any stage been advised that such a document existed, e.tv requested a copy of this document from the DoC but received no response to its e-mail.

1.5.7 On 12 March 2008, at a meeting of the South African Bureau of Standards TC 74 committee to consider this matter, e.tv discovered for the first time that a full STB specification had in fact been drafted by the set top box manufacturers and the DoC but that the existence and contents of this document had been kept secret from e.tv.

1.5.8 While e.tv has used its best endeavours to make comments on the draft short-form STB specs in this submission, it is limited in its submission given that it:

1.5.8.1 has still not received a copy of the full specification to comment on;

1.5.8.2 did not receive the component pricing breakdown as requested;

1.5.8.3 has not had sight of the submissions of other stakeholders and has not had the opportunity to hear the arguments of other stakeholders concerning the STB.

1.5.9 e.tv is also concerned that the delays in establishing the Digital Dzonga have resulted in a situation where there has been no representation of stakeholders in decisions which directly affect them and no procedure for making decisions on critical issues affecting industry stakeholders.

1.5.10 As stated above, on 12 March 2008 e.tv attended a meeting of the TC74 committee ("the committee") of the South African Bureau of



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Standards ("SABS"). At this meeting, the committee set out the procedure required for setting a standard for the STB, particularly that:

1.5.10.1 an STB working group (as a sub-group of TC74) be set up to discuss and recommend the standard for the STB;

1.5.10.2 this working group be broadly representative of all the stakeholders in the industry including broadcasters and that it be chaired by an independent person (Linden Petzer); and,

1.5.10.3 the full draft STB specification be provided to all the members of this working group for their consideration.

1.5.11 At the TC74 meeting on 12 March 2008 the DoC endorsed the process outlined by SABS. e.tv would like to place on record that it also supports the procedure for determining the STB standard as set out in the SABS committee meeting. In the circumstances, a copy of this submission will, as requested by the TC74 committee, also be submitted to the TC74 STB working group.

2. GENERAL COMMENTS ON THE DRAFT SHORT FORM TECHNICAL SPECIFICATIONS

2.1 e.tv's comments relate to the draft short-form specifications. The comments are limited by the fact that e.tv has not received a copy of the long-form specifications which were drafted by the set top box manufacturers and the DoC. e.tv therefore reserves its right to submit further comments as and when the long-form specification is made available to it.

2.2 e.tv's comments primarily concern the inclusion in the STB of components which envisage the introduction of conditional access (CA). At the workshop



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on 6 March 2008 representatives of the DoC stressed that the draft specifications did not provide include CA in the STB. However, the documents provided to e.tv prior to this workshop clearly envisage the introduction of CA and the draft specification requires components which are only necessary to support CA. The relevant statements in the documents are:

2.2.1 **"It is specified to be capable of supporting both Interactive Services using MHEG at launch and Conditional Access at a later stage."** (emphasis added) (second bullet point on page four of the powerpoint document entitled "DTT STB specifications 4 March 2008" ("the powerpoint document")).

2.2.2 "It therefore contains a secure loader, secure bootstrap and **"cardless" CA capability at inception.**" (third bullet point on page four of the powerpoint document).

2.2.3 "Smartcard interface optional – main functions will be addressability, licence fee collection and geographic control, which can be implemented through a combination of MHEG/SI and a **cardless CA solution**". (emphasis added) (second bullet point on page 14 of the powerpoint document).

2.2.4 "The decoder specification allows for the adoption of a **software based conditional access system ...**" (emphasis added). (Page 4 of document titled "STB specification explanation").

2.3 In South Africa, digital migration primarily concerns the migration of existing analogue **free-to-air** television services – SABC1, 2 and 3 and e.tv – to digital. Conditional access is a pay-TV concept and is wholly unsuited to free-to-air television. Introducing mandatory CA into a free-to-air terrestrial environment fundamentally changes the nature of free-to-air television broadcasting – in essence, it removes the control over access to free-to-air



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television from the viewer/citizen to the broadcaster, transmission provider or a third party.

2.4 In the analogue environment, no person other than the viewer has any control over the viewer's access to free-to-air television services – all the viewer requires is a television set and, if necessary, an aerial. The acquisition of this receiving equipment is entirely the viewer's responsibility and s/he exercises full control over the equipment and consequently over her/his access to free-to-air television. Inclusion of CA in the STB removes the viewer's control over her/his access to free-to-air television and places it in the hands of another party – the party which will "manage" the STB.

2.5 e.tv is not aware of any other free-to-air television environment where CA has been introduced to manage access to free-to-air television. e.tv further understands that no other country embarking on digital migration has used or intends to include CA in the basic free-to-air STB. e.tv submits that the envisaged inclusion of CA in the basic free-to-air STB raises critical constitutional, economic, financial and competition issues, none of which appear to have been considered in the process of determining the draft specifications. e.tv further submits that the sketchy arguments set out in favour of CA in the basic free-to-air STB do not justify the disproportionate impact which the inclusion of CA in this STB will have on the free-to-air television environment. Indeed, as set out below, there are less intrusive and less expensive means for achieving many of the security measures which have been raised as apparent industry concerns.

2.6 In addition, in many instances, it is not clear why CA is being proposed as a solution for a basic free-to-air STB and it appears that certain decisions have been based on proposals from the SABC which e.tv has not had sight of.



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3. Arguments relating to the necessity of CA in the basic free-to-air STB

3.1 e.tv submits that the documents that have been provided to it concerning the draft specifications for the basic STB do not provide sufficient justification why it is necessary that the box includes CA or must be CA-ready. Nor does it appear that there has been any consideration of alternative measures to CA to achieve the objectives which are alluded to in the documents. e.tv submits that the consideration of alternatives is critical given:

3.1.1 the complexities and expense which the inclusion of CA in the basic STB adds to the entire digital migration process;

3.1.2 the constitutional, economic and competition issues which it raises, which have not been addressed and which are potentially highly prejudicial to free-to-air broadcasters relying solely on advertising for income (and with no public or state subsidy), such as e.tv; and

3.1.3 the use of CA in a free-to-air environment is highly unusual and untested in comparable jurisdictions.

3.2 Despite the fact that the necessity for the inclusion of CA in a free-to-air STB has not been properly motivated, e.tv has attempted to address some of the concerns expressed to it in various discussions including comments made at the SABS TC74 meeting:

3.2.1 The need to prevent “grey imports”

3.2.1.1 Firstly, it is not clear what is meant by the term “grey imports”. It is also not clear whether the intention here is to stop “any imports” or just those which do not meet a basic standard. At the SABS TC74 meeting on 12 March, the DoC representative



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stated that the reason that the long-form specification had been kept secret was that there was a concern that foreign companies would begin to manufacture STBs for import into South Africa.

3.2.1.2 e.tv submits that it is contrary to South Africa's trade obligations to design a specification in such a manner as to block imported goods from competing with locally manufactured goods. The SABS committee confirmed that a SABS standard would not exclude an STB on the basis of where it was manufactured – the committee stated that provided an STB met the required SABS standard, it would qualify for SABS approval whether it was manufactured within or outside the country.

3.2.1.3 If the intention of the set top box manufacturers is to use CA to create a closed system which effectively shuts out foreign imports (whether or not they comply with the standard), e.tv submits that this would be unlawful and in breach of South African trade agreements. It would also cause unnecessary complications down the line, particularly when integrated digital TV sets are introduced into the market. e.tv submits that this is a matter for considered policy formulation and that it cannot be addressed by creating a closed market through introducing mandatory CA in the basic free-to-air STB. e.tv further submits that, from a policy point of view, a lawful and more constructive approach would be the incentivizing of local manufacturers in the production of STBs, rather than the attempted blocking of imports. In addition, e.tv requests the DoC to investigate whether the local set top box manufacturing industry has the capacity to produce 10 million boxes within the space of three years starting in 2008.

3.2.1.4 If the concern is that the imported goods would not meet the SABS specifications (i.e. inferior products), then this can be



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addressed through means other than creating a closed system with a CA-controlled box. The following lawful measures could be considered:

3.2.1.4.1 Make the standard mandatory and provide for conformance testing. Both SABS and ICASA can provide this facility;

3.2.1.4.2 There are secure technical solutions that can ensure that non-compliant imports are unable to provide the full functionality of a locally developed and certified STB (e.g. restricting access to the EPG application, the extended programme information, and 7 day programme schedules). This will not add cost to the STB bill of materials (BoM) and would require a minimal development overhead.

3.2.1.4.3 Consumer education and awareness campaign (which broadcasters could support with airtime):

3.2.1.4.3.1 To promote South African STBs; and,

3.2.1.4.3.2 To warn consumers of the dangers of buying grey products.

In addition, broadcasters would be required only to advertise STBs with a Digital Dzonga or ICASA approved logo – in the same manner as employed by Freeview and Digital UK in the United Kingdom.

3.2.1.4.4 Consumer incentives at retail level (i.e. discount vouchers, etc.).



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3.2.2 The need to prevent the export of a state-subsidised STB

3.2.2.1 Firstly, there is no clarity on how the proposed subsidy would work – whether the subsidy would be granted to the manufacturer or retailer or whether individual viewers would receive a direct subsidy and how they would do so. e.tv submits that it is essential to select the subsidy system prior to implementing measures which may or may not be necessary to prevent the export of subsidized STBs. For example, in an environment where no direct STB subsidy is provided, it is not clear whether blocking this opportunity is in agreement with the other governmental goals of increasing exports to other African countries.

3.2.2.2 In any event, there are secure technical solutions (which do not require CA) that would ensure any South African free-to-air STB that had been exported into another broadcast network, would not operate as specified. This could either result in the STB not tuning to any transmission (i.e. blank screen), or only providing basic zapper features (e.g. no EPG or schedule information).

3.2.3 Ability to turn off decoders

3.2.3.1 e.tv submits that there is no reasonable policy basis for including CA in the basic free-to-air STB in order to enable the switching off of an individual's access to free-to-air television. The reference to the necessity to be able to switch off the STB in case of theft do not justify the inclusion of CA in the STB – there is currently no means of switching off television sets in the case of theft even though the television set is a far more expensive piece of equipment and without a television set the box is useless. In any event, this would require a box management system for



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approximately 10 million households by 2011 – the costs of such a management system far outweigh any benefit which may be gained by inhibiting theft. It is also questionable whether integrated digital television sets would be subject to the same forms of control.

3.2.3.2 In addition, any measure which allows control over the access by individuals to free-to-air television fundamentally changes the nature of FTA television. In successful free-to-air DTT models around the world, the box is the consumer's responsibility - it is not the responsibility of the transmission network, broadcaster or any third party. A model where the network or other third party is responsible for the box is a pay TV model and not a free-to-air model.

3.2.4 Stop the download of unauthorized software

3.2.4.1 It is unclear what advantages this capability provides in a free-to-air environment.

3.2.4.2 In a subsidised environment securing the STB against unauthorised code installation is critical. However, the level of protection should be commensurate with the economic cost of mass-market piracy. At a subsidy level of <\$5 (i.e. a levelling of the cost differences between local and far eastern manufacturers), simple protection methods such as signing and the physical protection of the code in the hardware of the memory subsystems, would provide a significant economic barrier to mass market piracy. These methods provide a level of protection that has been in operation in the United Kingdom market in both free-to-air and pay-TV networks for 10 years without significant piracy issues. The manufacturing cost of this method is minimal.



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3.2.4.3 In the UK Freeview market some manufacturers implement a simple challenge/response password protection on an external data interface.

3.2.5 Licence fee collection and addressable messaging

3.2.5.1 The SABC has previously stated that it wants CA to be included in the basic free-to-air STB as a means of controlling access to television by viewers on the basis of whether they have paid their licence fees. The documents concerning the STB specification specifically refer to “control over access to services which may be in the form of reminder messages and not simply turning off the decoder” (page 4 of STB Specification Explanation). This certainly envisages that including CA in the basic free-to-air STB is a means of removing control from the viewer (where the viewer alone determines whether or not s/he has access to a free-to-air service) and vesting it in the SABC or a third party.

3.2.5.2 e.tv submits that this raises critical constitutional issues in that it infringes on the right of viewers to freedom of expression. In the current environment no person, and certainly no broadcaster, can control the access by an individual viewer to free-to-air television services. In the DTT environment, with the inclusion of CA in the basic free-to-air STB, the viewer's access to the free-to-air services will be controlled by the broadcaster or a third party.

3.2.5.3 The SABC has also argued the necessity of CA in the basic free-to-air STB on the basis of “addressable messaging”. Again, it is not clear what is meant by “addressable messaging”, what the SABC seeks to achieve by it and whether there has been any consideration of less intrusive and less costly measures to achieve the same objectives. For example, it may be possible to using other



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personal messaging products (e.g. mobile SMS) to achieve the same goals.

3.2.5.4 It may also be the case that in a significant number of cases a free-to-air STB may be passed to multiple viewers across its lifespan. As a result the original link between subscriber (STB purchaser and CA account holder) and the entitled viewer could be incorrect.

3.2.5.5 Moreover, the co-operation of pay-TV operators will be required to providing a consistent experience in pay-TV and free-to-air environments. For example, if the SABC sends screen messages or switches off a licence defaulter who views his services on a basic free-to-air STB, how will the SABC address or switch off a licence defaulter who views his free-to-air services on a DSTV decoder? Given that the DSTV viewer is more likely to be in a position to afford his/her licence fee, this would result in an inequitable situation.

3.2.5.6 If the SABC's intention is to provide broadcast messages (as opposed to individual addressable messaging), there are simple, non-CA dependant, technical solutions to achieve this goal through the use of interactive applications.

3.2.5.7 In any event, the necessity of any of these services is unclear given the government's stated intention to do away with the SABC licence fee.

3.2.6 CA not required for e-government

The e-government objectives which the DoC has referred to can be addressed through applications in the middleware of the basic free-to-



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air STB. CA or a CA-ready STB is unnecessary to enable e-government.

4. Arguments against the inclusion of CA in the STB

4.1 e.tv has set out above the reason why the apparent arguments in favour of CA do not justify the inclusion of CA in the basic free-to-air STB. e.tv now sets out the technical, legal, economic and competition factors which militate against the inclusion of CA in the basic STB:

4.1.1 The cost of including CA in the basic free-to-air STB

4.1.1.1 Both the CA itself, as well as the various security elements (necessary only to support CA) which are proposed to be inserted into the STB from the outset, add costs to the basic free-to-air STB. This is unjustifiable in a situation where most South Africans rely on free-to-air television for their information needs and where most cannot afford the STB. Each additional cost to the basic free-to-air STB makes the STB more unaffordable for low-income viewers and therefore inhibits their access to free-to-air television.

4.1.1.2 In addition, the inclusion of CA in the basic STB means that, in addition to the royalties payable to the CA vendor for every box, there will be significant ongoing costs in managing the STB both from a security and a subscriber/viewer management perspective. The cost of turning the free-to-air television environment into one which is controlled through CA is not a once-off cost. These are ongoing costs which are ordinarily carried by pay-TV operators who cover such costs from their subscribers. In the free-to-air environment, free-to-air broadcasters will need to carry these ongoing operational costs without any additional income stream.



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4.1.1.3 The following components necessary for CA add costs to the basic free-to-air STB in circumstances where CA is unnecessary for viewers to receive free-to-air television. e.tv has requested the costing on these components from the DoC but they have not been made available:

4.1.1.3.1 Costs which CA adds to the box:

- Cost of CA and security elements to make STB CA ready (CA drivers, secure bootloader, secure download):
 - Secure processor core;
 - Smart card interface;
 - CA driver development and integration per CA vendor
 - CA supplier compliancy testing per CA vendor

Cost of above (BoM) amortised over 100k volume: US\$4.20 (SAR33) per STB.

- Additional cost for per box CA royalty costs between <\$1 and \$5 per STB, depending on the level of content security required.

4.1.1.3.2 Costs which CA adds at source

- Set up costs:
 - Cost of integrating CA at the head end;
 - Set up costs for subscriber/viewer management systems (scalable to 8 to 10 million households);
 - Set-up costs for customer call centre (scalable to 8 to 10 million households);



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- Set up costs for trusted 3rd party (secure environment).
- Annual costs:
 - Annual cost of Trusted Third Party (secure management and control of software download processes)
 - Annual cost of code updates (multiplex bandwidth allocation and scheduling on 'per box' basis)
 - Annual operating costs for subscriber/viewer management systems (scalable to 8 to 10 million households);
 - Annual operating costs for customer call centre (scalable to 8 to 10 million households);
 - Cost of replacing 8 to 10 million boxes in the event of a security breach on cardless CA.

4.1.1.4 It is evident that in the drafting of the STB specifications, the financial implications of including CA in the STB or making the STB CA-ready were not considered. At a briefing in Parliament's Portfolio Committee on Communications on 7 March 2008, the National Treasury stated that broadcasters would be required to finance the digital migration process through the tariffs payable to Sentech for signal distribution. e.tv is deeply concerned that the addition of extensive operating costs by the unnecessary inclusion of CA in the basic free-to-air STB will be passed to broadcasters. As a free-to-air broadcaster which is entirely dependent on advertising revenue and which has no access to public or state funding e.tv is concerned at the implications on the future of its business of the unnecessary inclusion of CA in the basic free-to-air STB.



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4.1.2 Technical difficulties with cardless CA

- 4.1.2.1 The draft short-form specifications propose a cardless CA solution for the basic free-to-air STB.
- 4.1.2.2 e.tv is unaware of any other encrypted broadcast platform with no return path, using a cardless CA system (free-to-air or pay-TV). e.tv is concerned that consideration is being given to an untested and untried CA system in an environment where:
- 4.1.2.2.1 DTT is launching in less than eight months time;
 - 4.1.2.2.2 South Africa has set the shortest dual illumination timeframe in the world; and,
 - 4.1.2.2.3 There is uncertainty regarding subsidies for dual illumination.
- 4.1.2.3 With cardless CA, the economic risk of a hack to the CA system has a higher impact, as recovery involves STB replacement as opposed to a normal card replacement. This means that if the system is hacked after the STBs have been rolled out to the existing eight million South African TV households, each of these STBs will have to be replaced. In a card-based system, CA providers usually expect a card replacement after ~5yrs in operation. A secure processor is predicted to strengthen the protection of the CA system; however cardless CA creates the potential for high commercial impact, irrespective of the probability of occurrence. e.tv submits that the consequences of the decision to implement cardless CA has not been adequately considered in the process of drafting the STB specifications.
- 4.1.2.4 Moreover, it is unlikely that any existing CA vendor would merely accept the security of the cardless CA system (for future



implementation). As there is presently no preferred CA provider, significant costs and time delays will be incurred by the set top box manufacturers if the STB has to be qualified against all potential CA providers. If it is not qualified against all potential CA providers there is a considerable possibility that no existing CA provider will be willing to risk its CA in the cardless CA system. This would render the entire process of producing a CA-ready box meaningless and wasteful.

- 4.1.2.5 The responsibility of the Trusted Third Party has not been clearly defined although it is expected that this body will be responsible for the security of the download mechanism. As such, the entity will itself need to be qualified as secure by each of the potential CA vendors (which may require, secure environments, and well as servers and networks). Again, if it is not qualified by all potential CA providers there is a considerable possibility that no existing CA provider will be willing to risk its CA in the cardless CA system with the same consequences as set out in paragraph 4.1.2.4 (above).

4.1.3 Secure software download

- 4.1.3.1 A mandatory requirement for a secure download mechanism creates additional complexity in the STB development cycle (hence cost), which is unnecessary for the purpose of delivering free-to-air content as part of the digital migration process.
- 4.1.3.2 By its very nature, a free-to-air service has no ongoing commitment to the viewer other than to continue broadcasting. Hence the only beneficiary of a download service would be a manufacturer wanting to increase the reliability of a deployed product. Over time manufacturers will respond to consumer choice



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by implementing and using a download service if it is necessary for their own products. It is therefore unnecessary to incorporate this in the basic free-to-air STB.

4.1.3.3 Security within the download is only required if there is a revenue stream or cost associated with the entity being protected. In the defined free-to-air platform, the STB as deployed is capable of supporting the free-to-air business models and as a result there is no need for a broadcaster to update the deployed STB. In addition the very low cost of the STB platform provides little incentive for the professional pirate to entertain the cost of repurposing the STB through an unauthorised download (assuming any subsidisation of the cost is less than the cost of repurposing the STB). There are limited if any additional capabilities that a pirate could enable through modifying deployed software.

4.1.3.4 In the UK Freeview service, it is not mandated in the baseline Freeview specification STB, and manufacturers support various mechanisms with a range of security methods to implement software download.

4.1.3.5 Ultimately downloading code live is a costly exercise. Bandwidth needs to be reserved on a multiplexer for extended periods¹. Using a forced download, 80% success can be achieved in 2 or 3 days, 99% coverage can take >2 weeks.

4.1.3.6 In operating a consumer Opt-in download, it is unlikely a manufacturer would ever be able to update all the STBs in the installed base.

¹ For code size = 4MB, cycle times ~ 120 mins, +5kb/s on all muxes. Sentech as transmission operator must also consider scheduling of capacity based on request from every person with STB in field.



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4.1.4 The secure processor

The strength of the STB security provided by the requirement for a secure processor (embodied by the secure boot, and download functionality) could be seen as excessive considering the commercial value of free-to-air content, and the STB itself. In the UK, in both Freeview, and pay-TV networks (excl. the HD PVR) a secure processor is not a mandatory STB requirement. In addition it is unclear whether the core silicon providers will increase the price to recover the additional costs involved in managing and configuring the silicon for an individual CA provider.

4.1.5 The STB as an interim measure

4.1.5.1 The purpose of the basic free-to-air DTT box is to enable analogue television sets to receive and display the digital signal. It is intended as an interim or bridging measure to ensure ongoing reception of free-to-air television signals pending the introduction of integrated digital television sets (idTVs) and pending the viewer's ability to afford such a digital TV set. It is not clear how such television sets would work in the event that CA was mandated in the basic free-to-air STB as it would require that all such television sets also be CA-enabled. The cost of producing such television sets solely for the South African market (as they would have to be configured specifically for the closed market which results from free-to-air boxes incorporating mandatory CA), would be prohibitive.

4.1.5.2 If CA is mandated, idTV's will require a DVB Common Interface slot (or equivalent add-on) in order to be made compatible with the DTT services. These modules are currently retailing in the



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UK for ~£30 (R450). This would constitute a significant and unnecessary expense for the South African viewer in order merely to receive free-to-air television services.

4.1.6 Competition difficulties with mandatory CA

4.1.6.1 Including mandatory CA in the basic free-to-air STB or mandating a CA-ready basic free-to-air STB ultimately provides an automatic market of 8 million + households for pay-TV operators in circumstances where they would otherwise not have such access. In effect, if a subsidy is involved, government would be subsidising one industry player ahead of others.

4.1.6.2 As the CA would be in all STBs, this would effectively result in South Africa adopting a CA standard using a particular CA and excluding all others, to the benefit of the company which owns the CA system. Given the likelihood that the basic free-to-air STB will be subsidised through public funding, this raises serious competition issues – in effect the government would be subsidising the profits of a single CA provider in circumstances where CA is unnecessary for the purposes of digital migration.

4.2e.tv further submits that the inclusion of CA-necessary components in the basic free-to-air STB “in case of” the introduction of CA at a later stage – and thus avoid addressing these issues now – would constitute an unnecessary and wasteful exercise. There is nothing preventing the development and manufacture of more technologically advanced boxes during the course of digital migration and giving interested consumers the opportunity to acquire such STBs.



5. Conclusion

5.1 e.tv's position on the basic free-to-air STB for DTT is based on the following principles:

- 5.1.1 Allowing the consumer the greatest possible choice. This is based on the principle that the consumer is being compelled to purchase a box to continue to watch free-to-air television.
- 5.1.2 Ensuring that the box is as low-cost as possible to ensure that as many people as possible can afford it. This is based on the fact that most South Africans simply cannot afford to buy a box and will need to be subsidised in one way or another.
- 5.1.3 Limiting government's exposure to high subsidy costs. Once again, the cheapest possible box will achieve this purpose as in this case more people will be able to purchase the STB and the cost of the subsidy will be lower.
- 5.1.4 Making the STB (including repairs, maintenance and upgrades) the responsibility of the consumer as would be the case with a normal television set. The box is merely a bridging mechanism to allow analogue television sets to receive a digital signal – when digital television sets are available on a large scale, the box will no longer be required. The notion of such a basic box is in line with international experience including the United Kingdom.

5.2 In this context, the inclusion of CA in the basic free-to-air STB runs contrary to all of the above-mentioned principles. It is unnecessary for digital migration, it adds costs to the STB, it adds extensive costs to broadcasters and transmission operators by requiring enormous (for 8 to 10 million households) subscriber/viewer management systems and call centres (in the absence of



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additional revenue streams), it inhibits consumer choice and increases the subsidy cost to government.

5.3 e.tv submits that, given the tight timeframes for digital migration and the short period of dual illumination, South Africa should adopt tried and tested approaches in successful digital migration markets such as the United Kingdom. This includes making the basic free-to-air STB simple and affordable so that there is a minimal delay in the production and take-up of DTT STBs.

5.4 e.tv thanks the DoC for the opportunity to make these submissions and would like to reiterate its firm commitment to a fast-tracked and successful South African digital migration process.

e.tv
17 March 2008



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