

BOCRA



CONSULTATION PAPER
ON
LICENSING FRAMEWORK
FOR DIGITAL TERRESTRIAL TELEVISION

FOREWORD

Digital broadcasting has revolutionized broadcasting significantly. It has brought about many benefits to the broadcasters, content providers and consumers at large. It is important that Botswana citizens get to enjoy these benefits. A comprehensive Licensing Framework for digital broadcasting needs to be developed to usher in digital broadcasting and create an enabling environment for all the stakeholders.

In June 2012, the then National Broadcasting Board (NBB) issued a consultation paper on Licensing Framework for Commercial Digital Terrestrial Broadcasting Services. The purpose of the paper was to receive comments from the stakeholders on the proposed Licensing Framework for Digital Terrestrial Television (DTT). NBB received a number of responses from the stakeholders, however this project was not concluded during convergence of the regulatory functions.

In 2013 BOCRA was established as a converged regulator responsible for the regulation of telecommunications, internet and ICT, radio communications, **broadcasting** and postal services. BOCRA intends to reconvene the consultation process. This document is the revised consultation paper, taking into consideration the rescinding of the Broadcasting Act which established the NBB, rescinding of the Telecommunications Act and the enactment of the Communications Regulatory Authority Act. It presents the proposed licensing Framework for Digital Broadcasting covering Terrestrial.

The public is invited to make comments on the proposals set out in this paper by the 23rd January 2015 by means of the following;

Post The Chief Executive

Botswana Communications Regulatory Authority

Private Bag 00495

Gaborone

Email jeremiah@bocra.org.bw Fax +267 3957976

Or hand deliver to BOCRA Head Office, Plot 50671-Independence Avenue

Upon reception of all comments, BOCRA will produce a draft Licensing Framework which will be circulated to all stakeholders and will convene a consultative workshop to finalize the Framework.

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1. INTRODUCTION

The Communications Regulatory Authority Act No. 19 of 2012 mandates BOCRA to regulate the broadcasting services in Botswana. Section 6 (2) (d) directs BOCRA to facilitate and encourage private sector investment and innovation in the regulated sectors. Further Section 6 (2) (h) empowers BOCRA to process applications for and issue, licences, permits, permissions, concessions and authorities for regulated sectors as may be prescribed. Section 35 of the Act provides for development of a licensing framework by the Authority which defines the classification of broadcasting licenses, subscription management services and conditions thereto.

This Consultation document sets out the Framework in which BOCRA intends to license and regulate digital broadcasting. Because of the varied population demographics in Botswana, no one transmission mode (satellite, terrestrial or cable) can fully bring the benefits of digital broadcasting alone to the citizens, but recognising the urgent need for terrestrial licensing, this paper will cover only digital terrestrial television licensing Framework.

2. BACKGROUND

In 2006, the International Telecommunication Union (ITU) held a Regional Radio Conference (RR06) where a new frequency plan was adopted called 'Geneva 2006 (GE 06) Agreement'. The new agreement replaced the Geneva 1989 Agreement which was for analogue television. This agreement amongst others, developed a new digital broadcasting plan for Europe, Africa, the Middle East and Iran in the frequency bands 174 - 230MHz (VHF) and 470-862MHz (UHF). It also sets up Technical parameters of broadcasting transmissions and the Procedures for modifying agreed frequencies. It was agreed that the transition from analogue to digital television broadcasting commences on the 17th June 2006 and will end on 17th June 2015.

Following the adoption of the GE06 Agreement, the then Minister of Communication, Science and Technology established a multi-stakeholder digital migration taskforce to prepare a digital migration strategy for Botswana. The digital migration taskforce has made recommendations on the best strategy of migrating from analogue to digital. BOCRA has taken into consideration the recommendations in developing this consultative document.

As a result of the efficiency of Digital Broadcasting, the ITU identified the frequency band 698–862 MHz in ITU Region 1, as a band to be used by the 4th generation mobile services after the digital migration is completed. Botswana has completed the re-planning and has cleared this band from any broadcasting. No new digital transmission would be allocated in this band and all the analogue transmissions in this band would be migrated by June 2015.

BOCRA has received a number of enquiries and requests from potential applicants for regional and nation-wide commercial television broadcasting licenses. In addition consumers indicated through the 2010 and 2013 Audience Survey Reports that they were viewing foreign channels due to the limited variety and options of local television services in various areas. In development of this consultation paper some of these have been taken into consideration.

3. OBJECTIVES

The aim of this consultation paper is to request inputs on the proposed licensing framework, which would be used to license and regulate services in the digital platforms. It will cover digital terrestrial television broadcasting in order to meet the deadline for the digital switchover target of June 2015. In addition it is intended to address the television market demands as highlighted in the 2009 Audience Survey. The proposed Framework represents the latest trends taking into account the relevant market and other technical developments.

4. SCOPE

The introduction of Digital broadcasting involves the following major regulatory activities: Frequency Planning, Adoption of Technical Standards, Licensing, Dual Illumination and Analogue Switch Off. In this context, the Frequency planning has been completed through the GE06 Agreement and the subsequent re-planning exercise. The technical standards for all the platforms (satellite, terrestrial or cable) have been greatly led by the market with an example of de facto adoption of DVB-S for digital satellite broadcasting. This paper only addresses the licensing framework for commercial television broadcasting services in the digital platform. A holistic broadcasting service licensing framework of different classes of licences and other broadcasting transmission platforms will be developed separately. The State Broadcaster is exempted from licensing and will not be bound by the proposed Licensing Framework.

5. DIGITAL BROADCASTING

5.1 DEFINITION

Digital television is a new way of transmitting broadcasting television signals in the form of information or data. The data is made up of discrete digital signal of “0” and “1” compared to the old analogue signal which was a continuous wave. At the transmission side, the television picture (video and audio), either from pre-recorded material or live camera are converted into data, which is made up of a series of “1”s and “0”s and is then sent through a digital broadcasting medium, which could either be terrestrial, satellite or cable. The digital signal is received by an aerial at home which is connected to the decoder, Set Top Box (STB) or Digital Television Receiver. The Set - Top Box (STB) converts the digital signal to an analogue signal. The STB then feeds the signal to a conventional TV set which converts the signal to pictures for viewing. Digital TV can also be transmitted directly to mobile stations such as vehicles, buses and portable

devices.

5.2 BROADCASTING TRANSMISSION PLATFORMS

Digital signals can be broadcast through different platforms namely;

- a. Terrestrial; the signals sent from a transmitter located on a high site and travel in free space over the earth surface and are received using a rooftop antenna or an indoor antenna or a mobile antenna.
- b. Satellite; the signals are send from the earth to a satellite located on high in the sky and reflected back to earth. The receivers would use a satellite dish to receive the signal. The main advantage is that it has a very large coverage.
- c. Cable: where signals are transmitted through cable or optical fibre connected to subscriber's houses.
- d. Internet Protocol (IP) where the broadcasting content is send via the internet.

5.3 BENEFITS OF DIGITAL BROADCASTING

The main benefits of digital broadcasting are derived from the ability to do signal processing and manipulation of signal using compression techniques which lead to efficient utilization of resources in comparison with analogue broadcasting. Some of the major benefits of digital broadcasting, in particular terrestrial broadcasting include:

5.3.1 Efficient Bandwidth Utilization

Digital broadcasting allows multiple television programmes to be accommodated within an 8 MHz channel. For example, up to 16 television programmes (depending on the modulation) can be accommodated into one 8MHz channel which carries only one analogue television channel. Further it is possible to

design a Single Frequency Networks which is much more spectrum efficient compared to the traditional multi-frequency network.

5.3.2 Enhanced Competition

Under digital broadcasting the broadcasting content provider and the signal distributor/multiplex operator can be separated. This allows for more efficiency in sharing of resources and allows more broadcasters to enter the market to offer innovative and diverse broadcasting services

5.3.3 Multiple Reception Modes

It allows broadcasters to offer diverse and a variety of services to meet the different needs of the consumers, the broadcast can be coded specifically for mobile or portable reception ensuring that a small portable/mobile receiver with a small antenna is still able to receive a robust signal like a fixed rooftop antenna.

5.3.4 Value added broadcasting services

It enables broadcasters to offer new value added broadcasting services such as, e-services like e-gov., e-health etc., data and interactive services and high quality (e.g. High Definition Television and 3D TV) programmes.

5.3.5 Better Image and Sound Quality

Because of the different coding and error correction techniques, it is possible to deliver much better visual and sound quality which is also more robust against transmission interference and reflections.

5.3.6 Digital Dividend

Because of efficient bandwidth Utilization, the introduction of digital broadcasting will free some of the broadcasting spectrum for other communication services such as broadband services.

6. LICENSING FRAMEWORK

Licensing is a process of conferring legal authority to operate broadcasting service or system under specific conditions as set out by the law.

6.1 CLASSES OF LICENSES

Broadcasting licences can be classified into two main classes depending on whether they are profit oriented or not. The CRA Act, 2012 does not specify any classes of licence, so for the purpose of the licensing framework two classes are specified, namely Commercial Broadcasting and Non-Commercial Broadcasting.

a. Commercial Broadcasting

A Commercial broadcasting service is a broadcasting service operating for profit and available to the public as free to view service or through a subscription.

Subscription Service

This system is used mostly in commercial broadcasting. The viewers are enabled the service through them paying a subscription fee either monthly or annually. The STBs are then enabled through the use of the smartcard or the software embedded in the STB. The fees are used for purchase of programmes and operational requirements of the service provider.

Free-to-view (FTV)

Under the FTV mode the programmes are not encrypted and any receiver that complies with the appropriate standard can decode the programmes. These programmes shall be delivered based on the based on the ITU GE06 Frequency Planning and ITU-R.BT.1368 Recommendation.

b. Non-Commercial Broadcasting

A non-commercial broadcasting is a broadcasting service that is fully controlled by a non-profit entity and carried on for non-profitable purposes.

PROPOSAL 1

BOCRA proposes to license commercial television stations using this framework. Other classes of licenses will be considered in a holistic licensing framework as may be determined by the Authority. Further BOCRA proposes the licensing of both Free to View and Subscription based television.

6.2 DIGITAL TERRESTRIAL TELEVISION COVERAGE CATEGORIES

a) National

A national broadcasting service is one that has a licence to broadcast across the whole country.

b) Regional

A regional broadcaster refers to a broadcaster licensed to broadcast in a specified region of the country. This may be across several districts, cities and towns.

c) Locality/Zonal/Sectional

Sectional broadcasting applies to where pockets of places for instance in towns or villages are targeted to receive the broadcast. This could also be mines or industrial areas where it is in the interest of the broadcaster to reach those specific audiences

PROPOSAL 2

BOCRA proposes to issue licenses for all the above television coverage classes in order to promote the market entrance and growth.

Questions: Do you think Botswana should follow the above broadcasting coverage categories for the DTT?

If not what modification proposals do you put forward?
Do you agree with BOCRA's proposal?

6.3 BROADCASTING FREQUENCIES

A trend in broadcasting is that the spectrum is divided into batches of frequencies and these are classified according to bands. This allows ITU to organise and allow member states and affiliated organisations to utilise those frequency bands for specific type of broadcasts.

i. Very High Frequency (VHF)

The VHF band is frequencies from 30MHz to 300MHz. Of interest are the frequencies from 174MHz to 230MHz which were utilised for TV broadcasting. These form part of the GE06 where those who want remain in the band shall be able to do so. The future Digital Radio broadcasting could be allocated this band of frequencies. VHF signals have better propagation characteristics but the frequencies are limited (56MHz which translates to only 7 channels).

ii. Ultra High Frequency

This particular range of frequencies is mainly designated as 300MHz to around 3GHz. The current interests of TV broadcasting have been in the 470MHz to 862MHz which shall be used for the Digital Terrestrial Television broadcasting. The other band above 862MHz shall be used for other services such as broadband. This is in accordance with ITU GE06 Agreement. In the other areas within the UHF band, there are other uses such as radar signalling and microwave links. The ITU identified the frequency band 698–862 MHz in ITU Region 1, as a band to be used by the 4th generation mobile services after the digital migration is completed.

PROPOSAL 3

BOCRA proposes to license digital terrestrial television on UHF channel 470-698 MHz in order to take advantage of availability of channels and for regional harmonisation. This will permit the country to be open for future development for other services.

Questions:

1. Do you agree with BOCRA's proposal to license only on UHF.

6.4 MULTI AND SINGLE FREQUENCY NETWORK (MFN & SFN)

Digital Terrestrial Broadcasting network can be deployed as a **Multi Frequency Network** (MFN) or a **Single Frequency Network** (SFN). Each every geographical location has its own frequency. This is not spectrum efficient but is very easy to design and deploy. The current GE06 plan is MFN. In SFN, one frequency is used for the Multiplexer deployed around different geographical locations. The first obvious advantage is Spectrum efficiency. The other advantage is the Power efficiency, lower transmitter power is required since the reflected signals and signal components from other transmitters boost the received signal level. Lower transmitter powers mean low distortions. The problem with SFN networks is; it is complicated to design, synchronizing (time and frequency domain) is critical; any transmitter which is out of synch would act as a jammer to other transmitters.

PROPOSAL 4

In order to facilitate entry to the market, and considering the size of Botswana BOCRA proposes to license Multi Frequency Networks in accordance with the GE06 plan.

6.5 LICENCE OPTIONS

6.5.1 Legacy Licensing Options

There are fundamentally four major types of licensing options used: spectrum/radio licence, service licence, system licence and hybrid licence.

i. Spectrum Licence

The right to access and engage specific parts of the radio spectrum in a specified geographical locality, for specified period of time. The license would normally encourage certain obligations such as:

- (a) The obligation to allow the provision of television services within certain period of time (roll-out-obligations).
- (b) The obligation to allow the provision of a defined folder of television services (bouquet).
- (c) Service level obligations inclusive of such aspects as broadcast standards, geographical or population coverage, service or network availability, allocated bandwidth/multiplexers per service, etc.

ii. Broadcasting Service License

The right or permit to broadcast television content on a defined platform in a particular geographical location and for a specified time period, usually at both programme level and platform level. The associated obligations are therefore as follows:

- (a) The obligation to carry and provide a defined sets or group of television programmes or services inclusive of the 'must carry' and the 'price cap' rules.
- (b) The obligation to provide Public/State Service Broadcasting programmes (such as a certain level of local news coverage, arts, religious programming, maximum limits for programme repeats and free view-ship of such repeats).

- (c) The service level obligation which includes aspects such as broadcasting standards, network or service availability, geographical or population coverage, allocated bandwidth/multiplexes per service, etc.
- iii. Broadcasting System License
This right allows erecting and operating a broadcasting infrastructure in a defined geographical location for a specified time period, inclusive are as follows:
 - (a) Site sharing obligations; where existing network operators or infrastructure holders have to provide antenna space under certain conditions.
 - (b) Antenna sharing obligations; where network operators have to provide access to broadcast antennas provided it is technically possible.
- iv. Hybrid license
This right allows combinations of any of the above rights allowed in the licensing frameworks, and the entire obligation accompanying the rights would be observed.

6.5.2 DTT VALUE CHAIN

The DTT value chain presents new options for licensing. In analogue television broadcasting, a single service provider is involved in the production or sourcing of broadcasting content, packaging of content and distribution of the broadcasting signal, a process known as 'vertical-integration'. In addition, the broadcaster owns studio and transmission facilities. This makes the spectrum/radio licenses in analogue broadcasting to be linked to service related licences.

Digital broadcasting represents a fundamental change from an analogue broadcasting scenario whereby a single frequency assignment can accommodate multiple television programmes/channels. The broadcasting value

chain in digital broadcasting begins with Content production, then, Content aggregation, multiplexing and or signal distribution and finally ends with the Audience. All these stages can be separately implemented, allowing for various players and transmission modes to be used for the distribution of the digital broadcasting signal.

The figure below is an illustration for the DTT Value Chain.

Figure 1: DTT Value Chain



Definitions:

Content Creator – this category is responsible for creating content and provides contents as a service, e.g. production houses, movie makers, news gatherers etc.

Content Aggregator – this category is responsible for aggregating contents and provides service into customer orientated package. This is an equivalent of a broadcast service provider in the analogue set up.

Multiplex Operator (MO)– This is an entity that operates a multiplexor. The functions of a multiplexor are to take outputs of different television programmes/channels and combine them into one transport stream for transmission. The spectrum license could be assigned to the MO.

Content/Signal Distributors – their role is to provide infrastructure to transport, manage and delivery of the content. The spectrum license could also be assigned to Content distributor.

In 2010 the Digital Migration Task force recommended licensing of 2 multiplexors, one commercial and the other public. This recommendation was

due to the consideration of the size of the market in Botswana. The Task Force further recommended the combination of MO and Signal Distributor and that the licensed entity should provide service on non-discriminatory and non-preferential basis.

PROPOSAL 5

BOCRA proposes separate licensing of the following layers.

- 1. Content aggregator***
- 2. Multiplex Operator/Signal Distributor***
- 3. Hybrid***

Content Aggregator; this would be responsible for all the obligations of programming and roll out as shall be specified in the license.

Multiplex Operator/Signal Distributor; recognising the size of Botswana market, it would be more economically efficient to combine these two categories.

Hybrid; this category is meant to accommodate the operator who might want to operate in a similar model to analogue, where the provider prefers to self provide all the layers. This would be most common in Locality/Zonal/Sectional licence coverage and even in regional coverage. Under this scenario the service provider would hold spectrum license.

| |
|---|
| Question |
| Do you agree with BOCRA's proposed layers. Do you think the layers should be further broken down? |

6.6 ROLL OUT OBLIGATIONS

Rollout obligations are one of the key licence conditions to promote consumer interest against commercial interest. This indicates how far and how soon the

service would reach certain areas. An operator rolls out the network. The increased coverage increases diversity and consumer choice.

Rollout obligations are also necessary to ensure that the allocated frequencies are not left unused longer than is necessary. It is important however that the roll out should be based on market demands and they should be balanced between the operators' economic consideration and market demands.

In the previous competitive licensing process BOCRA has required the applicants to provide their roll out schedule which subsequently get used as a license condition to ensure that the operator delivers. Failure to meet the obligations may amount to breach which may be subject to penalties.

PROPOSAL 6

BOCRA proposes to require the operators to submit their roll out plans as part of the application process and this would be used as roll out obligation in the license.

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| Question |
| Do you think this approach is fair and can it effectively ensure roll out of services. How can it be improved? |

6.7 ELIGIBILITY

Section 31 of the CRA Act states that no person shall carry any broadcasting activity unless he has been granted a license to do so. Currently, there is only one licensed terrestrial television provider operating on Analogue. In some jurisdictions existing analogue terrestrial licenses were just converted to digital licenses without having to compete with the new entrants.

In order to promote local relevance and citizen empowerment, policy decisions may be taken to reserve certain licensing categories to citizen, or majority citizen owned companies.

PROPOSAL 7

In order to promote service roll out and ensure equity, BOCRA proposes to use an open and transparent method for licensing of all interested providers including the existing broadcasters. Further BOCRA proposes to issue licenses to only locally registered companies.

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|--|
| Question |
| Do you think BOCRA's proposal is suitable for the Botswana market? If not what do you propose? |

6.7 LICENSING PROCESS

In licensing broadcasting service there are several options for the licensing process including first come first served, beauty contests, auctions, public hearings etc. The process is generally determined after assessment of availability of scarce resources like spectrum or market factors.

BOCRA has in the past issued broadcasting licenses through beauty contest by a form of tendering. Firstly an assessment is made and a determination is reached on the number of licenses that shall be available, then an invitation to tender is released and interested parties submit their bids in accordance with the terms of reference. This procedure has been found to be fair and transparent.

PROPOSAL 8

BOCRA proposes to follow the tender method for the allocation of DTT licenses.

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| Question |
| Do you agree with BOCRA's proposal for licensing process, if not which method would you recommend and why? |

6.8 PROGRAMMING

(5) The programming provided by broadcasters must –

- (a) be varied and comprehensive, providing a balance of information, education and entertainment meeting the broadcasting needs of the entire Botswana population in terms of age, race, gender, religion, interests;
- (b) be varied and offer a range of Botswana content and analysis from a Botswana perspective;
- (c) must be drawn from local, regional, national and international sources;
- (d) provide a reasonable, balanced opportunity for the public to receive a variety of points of view on matters of public concern;
- (e) provide a significant place for programmes produced by the independent production sector;
- (f) comply with a code of conduct for broadcasting services as prescribed in terms of the Communications Regulatory Act.

The broadcasters should propose their programming format and the various services they intend to offer. This will be evaluated during the licensing process. The Authority will however strive to ensure that there is plurality of programming in the sector to enhance competition and diverse content. The quota for the local television content the Authority is proposing shall be as follows: 0 – 5 years - at least 30% 5 – 10 years - at least 50% 10 – 15 years - at least 70%

PROPOSAL 9

BOCRA proposes to prescribe an annual minimum quota in the licence conditions to ensure that the five year periodic quotas are achieved progressively.

6.8 SET-TOP-BOX (STB) SPECIFICATION

BOCRA has defined a Minimum Specification for Terrestrial Broadcast Set Top Box (Document DTT001 Rev. 1) available in BOCRA website. All the STBs that shall be used shall conform to this minimum standard and shall be Type Approved by BOCRA in Accordance with Section 85 of the CRA Act.

7. NEXT STEPS

BOCRA invites all Broadcasting stakeholders to respond to the questions and make comments on the issues raised in this consultations paper by 23rd January 2015. The comments should not only be restricted to the questions asked, but should also cover any areas that are deemed to be important to this consultative document. Following the comments from the Stakeholders BOCRA would consolidate the comments and produce a draft Digital Terrestrial Licensing Framework after which BOCRA would convene a Workshop to finalise the Framework.