

# **EXECUTIVE SUMMARY**

## ***1.0 Background***

Ghana signed the Geneva 2006 (GE06) Agreement, establishing the Digital Terrestrial Broadcasting Plan in the bands 174 – 230 MHz and 470 – 862 MHz at the Regional Radiocommunications Conference (RRC-06) in 2006. The Agreement set 17 June 2015 as the deadline for the cessation of international protection for analogue broadcasting transmissions in the said bands.

In a bid to ensure Ghana's conformance to the GE06 Agreement, the Minister of Communications, Honourable Haruna Iddrisu, on 13<sup>th</sup> January, 2010 inaugurated a 26 member National Digital Broadcasting Migration Technical Committee ("the Committee") to among others make policy recommendations to the Government to enable Ghana achieve a cost effective and timely migration from analogue to digital broadcasting. The committee, under the leadership of the National Communications Authority (NCA) comprised representatives of all stakeholder Ministries, Departments and Agencies (MDAs) of Government; industry players and educational institutions. The committee held several meetings, workshops, stakeholder engagements, presentations from equipment and technology vendors, press engagements, etc.

This report is a culmination of the committee's work. It focuses on the migration from analogue to digital terrestrial television (DTT). Satellite and cable TV in Ghana are already digitalized. Most Ghanaians however depend on terrestrial TV (which is TV that uses a common aerial for signal reception) for information dissemination; education and entertainment.

The migration from analogue to digital television broadcasting would most likely have an impact on almost every citizen of this country considering the pervasiveness of terrestrial TV. It is therefore important that the migration is properly managed to ensure that every Ghanaian who watches TV today is able to continue watching TV in the digital domain.

## **2.0 Justification**

Digital terrestrial television (DTT) offers improved spectrum efficiency compared to analogue TV. It also offers enhanced video and audio quality, interactivity, as well as increased programme choices.

The migration from analogue to digital is necessary and urgent for the following reasons:

- ❖ To comply with and adopt the tenets of the GE-06 Agreement.
- ❖ To rapidly adopt spectrum efficient methods in the management of the scarce RF spectrum to broaden its utility as a resource in the interest and benefit of stakeholders.
- ❖ To prevent dumping of obsolete analogue transmission equipment into the country to protect the environment, investors and consumers.
- ❖ To enhance the quality and experience of TV viewers in Ghana by improving terrestrial TV transmission and reception.
- ❖ To promote environmental sanity through co-location of broadcast transmission infrastructure.

## **3.0 Key Findings**

The Committee identified that there is no single worldwide standard for digital broadcasting. Different markets have developed or adopted different standards. Europe and Africa have adopted Digital Video Broadcasting (DVB), North America has adopted Advanced Television Systems Committee (ATSC) and the Japanese and some South American states have adopted Integrated Services Digital Broadcasting (ISDB) standards.

The Committee recommends the adoption of DVB-T (EN 300 744) for terrestrial digital television broadcasting, in accordance with the decisions taken at RRC-06 because it has been proven to deliver all the benefits expected from digital broadcasting. DVB-T has also been proven to deliver all the functionalities that ISDB, the Japanese standard, can offer. The implementation of this technical standard would strengthen the resolve of Member States in ECOWAS to harmonize their policies related to the digital broadcasting migration for enhanced frequency coordination.

Since DVB-T systems have already been deployed in Accra, Cape Coast, Koforidua, Kumasi and Takoradi, the same standard should be deployed across the country until the completion of the switchover from analogue to digital broadcasting. Deploying DVB-T systems would enable the country benefit from the economies of scale that would accrue from the large scale adoption of the standard in Africa, Europe and parts of the Middle East.

The Committee also recommends the adoption of H.264/AVC/MPEG-4 (part 10) and Advanced Audio Coding (AAC) as the standard for video and audio source coding/compression respectively.

In order to continue viewing television using the current analogue TV sets, the public will be required to use Set-Top-Boxes (STBs). This presents an avenue for employment generation through the establishment of set-top box (STB) assembly plants. It is expected that over six (6) million set-top boxes may be required to convert analogue TV sets to receive digital signals. The Committee observed that an electronics assembly industry is emerging in Ghana following the successful establishment of computer/laptop assembly plants, mobile phone assembly plants and flat screen monitors/TV set assembly plants in the last few years.

Digital broadcasting offers an opportunity to overcome the challenge of poor infrastructure sharing in broadcasting, since one transmission network can carry multiple programme channels. Facility sharing is convenient, environmentally friendly, less hazardous and cost effective in the digital broadcasting domain. The Committee considered that one (1) independent signal distribution entity established through a Public Private Partnership (PPP) would be ideal for the digital broadcasting market in Ghana.

The cost of the digital migration process would include the cost of rolling out transmission infrastructure, site surveys, acquisition of set-top-boxes, content generation and public education. The committee put together the following cost estimates for various segments of the migration process to serve as a guide for budgetary purposes. The estimates are as follows:

- ❖ Transmission Infrastructure covering about 42 sites nationwide could cost between US\$ 26,141,000 – US\$ 98,390,000). These wide ranging figures are as a result of varying assumptions. To ascertain real costs, it is recommended that a Request for Proposals (RFP) outlining exactly what is required should be published by the appropriate procuring agency.
- ❖ The Free on Board (FOB) price for MPEG-4 DVB-T set-top boxes ranges from US\$23.50 to US\$45 depending on the functionalities. The Committee recommends that appropriate fiscal measures are developed and implemented to promote affordable access to set-top boxes especially for the vulnerable in society.
- ❖ An intensive 3 month communication campaign covering production for print, TV & Radio; Nationwide Media Placements for Print, Radio and TV; Press Relations, media interviews, stories, features and documentaries; Community outreach events and Agency service charges could cost from GH¢1,245,000 – GH¢1,875,000.

The committee explored possible sources of funding. It was noted that there was a possibility of the Government of Ghana obtaining a Japanese Government Soft Loan to roll-out a public transmission network regardless of the standards adopted by the country. This became known through the Committee’s interaction with a group from Japan Telecommunications Engineering and Consulting Service (JTEC).

#### **4.0 Recommendations**

The Committee makes the following recommendations to facilitate the migration from analogue to digital broadcasting taking into consideration the key findings.

1. The Committee recommends the publishing of an appropriate Policy Statement including a timetable for the entire process.

2. Ghana should adopt the DVB-T (EN 300 744) standard for terrestrial digital television broadcasting, in accordance with the decisions taken at RRC-06. Furthermore, H.264/AVC/MPEG-4 (part 10) and Advanced Audio Coding (AAC) should be adopted as the standard for video and audio source coding/ compression respectively.
3. DVB-S and DVB-C standards should be adopted for digital satellite and digital cable television respectively.
4. A technology neutral approach should be adopted for mobile TV because at least two (2) mobile TV standards have been commercially introduced in the country.
5. The Ghana Standards Board (GSB) should be resourced and mandated to conduct receiver compliance testing for Free-to-air Digital TV receivers. After analogue switch-off, all television receivers made, assembled or imported into Ghana should contain a digital tuner that conforms to the national standards. Furthermore, six (6) months to the date announced by the Minister of Communications for the commencement of analogue switch-off, TV receivers that do not conform to the standards should be identified by sellers at the point-of-sale as not conforming to Ghana's DTT standard.
6. Government should undertake an amendment of the Electronic Communications Act, 2008, (Act 775) to provide for the following:
  - ❖ Empower the Minister of Communications to:
    - a. Announce a date for the switch-off of analogue television transmission under certain conditions such as the availability of digital TV signals and an appreciable level of uptake by the citizenry.
    - b. Announce a date to outlaw the importation of television receivers that do not have built-in digital tuners and to mandate sellers of television receivers to indicate at the point of sale if receivers do not have built-in digital tuners.

- c. To establish and resource a Digital Broadcasting Migration Implementation Body, which would be a special purpose vehicle to oversee the migration program and which would cease to exist six (6) months after analogue switch-off is complete.
- ❖ Mandate the National Communications Authority (NCA) to:
    - a. Replace licenses of existing broadcasters and to impose obligations on them towards the migration from analogue to digital broadcasting.
    - b. Impose obligations on signal distributor(s) including co-location of transmitters for the same coverage target.
    - c. Impose must-carry obligations on satellite and cable operators when it deems it necessary
  - ❖ Other issues incidental to the migration from analogue to digital broadcasting.
7. At least one (1) one signal distributor should be an independent entity, established through a PPP. The Government should establish a working group comprising representatives from the Ministry of Information, Ministry of Communications, Ministry of Finance and Economic Planning (Project and Financial Analysis Unit), National Media Commission, National Communications Authority, Ghana Broadcasting Corporation and the Ghana Independent Broadcasters Association (GIBA) to negotiate the creation and governance structure of the signal distribution entity.
  8. The Government and Metropolitan, Municipal and District Assemblies (MMDAs) should consider the potential of Digital Television to enhance their strategies for e-government and bridging the digital divide.
  9. The Government should establish a Digital Broadcasting Migration Help Scheme to assist the extremely poor and vulnerable to ensure that no citizen of Ghana who currently watches television is deprived of that right through the migration from analogue to digital broadcasting. This Help Scheme should be designed as part of the National Social

Protection Strategy (NSPS) and the Livelihood Empowerment Against Poverty (LEAP) Programme.

10. A phased analogue switch-off process should be adopted according to the following timetable:

<b>Activity</b>	<b>Start Date</b>	<b>End Date</b>	<b>Action By</b>
<b>NDBMTC Final Report to Govt</b>	13 <sup>th</sup> Jan 2010	30 <sup>th</sup> August, 2010	NDBMTC
<b>Development of Legal Framework (Amendment of Electronic Communications Act 775)</b>	September 2010	December 2010	MoC AG NCA NDBMTC
<b>Public Awareness Campaign</b>	September 2010	December 2010	NDBMTC
<b>Establishment of National Digital Migration Implementation Body</b>	January 2011		GOG, MOC, MoI, MoFEP, NCA, NMC, GBC, GIBA
<b>Licences for Digital TV</b>	January 2011	March 2011	NCA NCA/NMC Sub-committee
<b>Public Awareness Campaign</b>	January 2011	December 2014	National Digital Migration Implementation Body
<b>Nationwide Roll-out of Digital TV (Simulcast Period)</b>	April 2011	2013	National Digital Migration Implementation Body
<b>Coverage of all Regional Capitals &amp; environs</b>	By December 2012		
<b>Phased Analogue Switch-off</b>	To be determined according to locations and conditions		National Digital Migration Implementation Body
<b>Completion of Switchover</b>	December 2014 (target date)		
<b>Appraisal Report of Switchover Process</b>	Six months after completion of switchover		

11. A National Digital Migration Implementation Body should be established to oversee the migration process. This should be a new, single-purpose, centralised delivery vehicle with a clear remit to lead the implementation of the project. Such a body is most likely to deliver the migration on time and within cost.
12. A well coordinated public education programme should be undertaken to prepare the populace for the migration process in order to avert chaos, panic and anxiety.
13. The Committee recommends that an enabling environment should be created within the framework of the Ghana Industrial Policy, 2010 to encourage the establishment of local Set-Top-Box assembly plants to create employment opportunities for the youth. Furthermore, Government should consider waiving taxes on set-top box components to encourage local assembly of the boxes in Ghana.
14. It is recommended that Government considers the Japanese Government Soft Loan proposed by JTEC to assist in financing the migration project.
15. The Committee recommends the provision of support to Tertiary institutions to develop the human capital to support Digital Terrestrial Television (DTT). This support could be by way of funding DTT research, curriculum revision or development, etc.

## ***5.0 Conclusion***

The migration of broadcasting from analogue to digital offers several benefits to TV viewers, broadcasters, regulators, Government and the entire nation. The radio frequency spectrum, expected to be freed-up at the completion of the digital migration process, often referred to as 'digital dividend', could be leveraged to generate Government revenue and further extend ICT services nationwide.



However, the complexity and reach of this public change programme presents a number of challenges which require a robust policy approach, the appropriate legal and regulatory framework and extensive public education. It is important that the migration process is managed efficiently to accelerate service uptake, reduce cost and to ensure a timely delivery of the expected benefits.