Country Report on Migration from Analogue to Digital Broadcasting

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17 September, 2011
Kofi Annan Centre of Excellence in ICT
Broadcasting Policy, Legal & Regulatory Environment

- **Policies**
  - NMC National Media Policy, 2000
  - National Telecommunications Policy (NTP), 2005

- **Laws**
  - Television Licensing Decree, 1966, (N.L.C.D. 89)
  - Television Licensing (Amendment) Law, 1991 (P.N.D.C.L. 257)
  - Ghana Broadcasting Corporation Decree, 1968, (NLCD 226)
  - National Media Commission Act, 1993 (Act 449)
  - National Communications Authority Act, 2008 (Act 769)
  - Electronic Communications Act, 2008, (Act 775)

- **Regulations & Guidelines**
  - Television Licensing Regulations, 1991 (L.I. 1520)
  - NMC Broadcasting Standards, 2000
  - National Communications Regulations, 2003, (L.I. 1719)
  - NMC Guidelines for Local Language Broadcasting, 2009
# Composition of Communications Space By Number in operation

<table>
<thead>
<tr>
<th>Category</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>Mid 2011</th>
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<td>Cellular</td>
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<td>ISPs</td>
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<td>FM Radio</td>
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<td>84</td>
<td>127</td>
<td>129</td>
<td>144</td>
<td>171</td>
<td>190</td>
<td>203</td>
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<tr>
<td>TV</td>
<td>8</td>
<td>8</td>
<td>10</td>
<td>11</td>
<td>13</td>
<td>14</td>
<td>14</td>
<td>16</td>
</tr>
</tbody>
</table>
Composition of Accesslines up to June 2011

- Kasapa (Expresso)
- Millicom (Tigo)
- GT/Vodafone Mobile
- Zain (Airtel)
- Scancom (MTN)
- Zain Fixed
- GT/Vodafone Fixed
Mobile Telephony Penetration Rates 2000 – mid 2011

Percentage Penetration


Pen_Rate%
Distribution of FM Stations in Ghana as of June 2011

![Chart showing the distribution of FM stations in Ghana by region as of June 2011. The chart includes bars for Greater Accra, Ashanti, Central, Eastern, Western, Volta, Northern, Upper East, Upper West, and Brong Ahafo regions. Each bar is divided into segments representing Institutional, Community, Public/Government, and Private/Commercial stations.](chart.png)
Distribution of Types of TV Stations in Ghana as of 2010

17 Sept. 2011
Overview of Existing Analogue Terrestrial TV Signal Distribution

- GTV has
  - 30 transmitters operating in VHF Band III
  - 9 repeater stations operating in UHF Bands IV & V

- Private broadcasters
  - TV3, Metro TV, TV Africa operate in Band III
  - Net2 TV, Viasat 1, e-TV Ghana, Crystal TV, Coastal TV operate UHF transmitters
Challenges of Existing Analogue Regime

- Poor Infrastructure sharing/Co-location
  - Each broadcaster carries own signals
  - Combined Network management costs for the industry are high
  - Transmitters are located in varied directions for the same coverage target resulting in:

- Poor reception conditions
  - Use of a single directional antenna presents serious reception challenges:
    - Ghosting
    - Blurr images
    - Lines across images
    - Poor sound, etc
  - Environmental aesthetics are badly affected by the sight of long bamboo poles hoisting antennas
Why Migrate?

- 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 TV equipment into the country
- To enhance the quality and experience of TV viewers in Ghana
STRATEGY FOR THE TRANSITION FROM ANALOGUE TO DIGITAL BROADCASTING IN GHANA
Governance/Leadership

- Overall Leadership provided by the Government of Ghana:
  - All policy decisions approved by Cabinet
  - All Legal instruments to be approved by Parliament

- Digital Broadcasting Migration Committee:
  - Chaired by Honourable Minister of Communications
  - Membership of 13 from all stakeholder institutions
    - Ministries, Parliament, Regulators, State Broadcaster, Private Broadcasters
  - Responsible for:
    - policy implementation
    - integrated planning
    - budgeting
    - communication with the public
    - performance monitoring
Licensing Structure

Authorised Services

- TV Broadcasting Stations
- Sound Broadcasting on DTT
- Additional Services, eg. Teletext, etc

DTT Transmission Network

- Multiplexing
- Network Management Services
- Transmission / Signal Distribution
Free-to-Air TV Strategy

- Independent DTT Transmission Entity
  - Being established through Public Private Partnership
  - Ghana Broadcasting Corporation (GBC) and Ghana Independent Broadcasters Association (GIBA)
  - Preliminary discussions pointing to 50%:50% risk & reward
  - Discussions led by Public Investment Unit of MoFEP
  - RFP for DVB-T2 network under development in lieu of PPP
Standards

- Transmission standard - **DVB-T2 (EN 302 755)**

- Television presentation formats:
  - ✓ **standard definition (SDTV)** until analogue switch off (ASO)
  - ✓ high definition after ASO

- Compression technology:
  - H.264/AVC/MPEG-4 (part 10) and
  - Advanced Audio Coding (AAC)

- Application Programming Interface (API) for additional and interactive services - **MHEG-5**
Conformance Strategy

- Appointment of test lab for STB Compliance testing
- Licensing of compliant STBs to use certification logo
- Logo would confirm to consumers that the receiver is Ghana DTT compliant.
- Publication of STB Manufacturers ‘White’ list.
Analogue Switch-off Date

• 31st December, 2014 (3 yr double illumination)
Do you know about Digital Television? I know….

Are you aware that the analogue terrestrial television services like GTV, Viasat

Awareness about Digital TV  

Awareness about 2014 analogue switch-off
Public Education Strategy

National
• to raise overall awareness

Regional
• to increase awareness and promote understanding

District
• to promote understanding and encourage action

Local Area
• to promote understanding and encourage action

- message should be simple and straightforward
- materials should be transmitted in at least the languages identified to be widely spoken in Ghana
- all media platforms should be used
- Outreach events to schools, churches, mosques, etc

17 Sept. 2011
<table>
<thead>
<tr>
<th>Activity</th>
<th>Start Date</th>
<th>End Date</th>
</tr>
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<tbody>
<tr>
<td>NDBMTC Final Report to Govt</td>
<td>13th Jan 2010</td>
<td>30th Aug 2010</td>
</tr>
<tr>
<td>Development of Legal Framework (Amendment of Electronic Communications Act)</td>
<td>Sept 2010</td>
<td>December 2010</td>
</tr>
<tr>
<td>Public Awareness Campaign</td>
<td>September 2010</td>
<td>December 2014</td>
</tr>
<tr>
<td>Establishment of National Digital Migration Implementation Body</td>
<td>January 2011</td>
<td></td>
</tr>
<tr>
<td>Licences for Digital TV</td>
<td></td>
<td>3Q 2011</td>
</tr>
<tr>
<td>Nationwide Roll-out of Digital TV (Simulcast Period)</td>
<td>2011</td>
<td>2013</td>
</tr>
<tr>
<td>Coverage of all Regional Capitals &amp; environs</td>
<td>By December 2012</td>
<td></td>
</tr>
<tr>
<td>Phased Analogue Switch-off</td>
<td>To be determined according to locations and conditions</td>
<td></td>
</tr>
<tr>
<td>Completion of Switchover</td>
<td></td>
<td>31st December 2014</td>
</tr>
<tr>
<td>Appraisal Report of Switchover Process</td>
<td>6 months after completion of switchover</td>
<td></td>
</tr>
</tbody>
</table>
MHEG Concepts

• What is MHEG?
  – ISO/IEC 13522
  – Coded representation of final-form MH information objects
  – Interchanged across services and applications
    • Storage media, LAN, WAN, Broadcast Networks
Application of MHEG

• Application of MHEG
  – Growing all the time
    • CD-ROM based encyclopedias
    • Interactive books for learning
    • Video and News on Demanding
    • Interactive home shopping
    • Medical Application
MHEG Standard Objective (1/2)

• Interchange
  – Interchange facilities for various media types

• Presentation
  – Supports final-form presentation of multiple media types

• Minimal Resource
MHEG Standard Objective (2/2)

• Real-time
  – Real-time interchange and presentation of multimedia information

• Rapid Application Development
  – Provide high-level primitives
The family of MHEG Standard

- MHEG part 1-7

<table>
<thead>
<tr>
<th>Nickname</th>
<th>Complete Name</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>MHEG-1</td>
<td>MHEG object representation—base notation (ASN.1)</td>
<td>International standard</td>
</tr>
<tr>
<td>MHEG-2</td>
<td>MHEG object representation—alternate notation (SGML)</td>
<td>Withdrawn</td>
</tr>
<tr>
<td>MHEG-3</td>
<td>MHEG script interchange representation</td>
<td>International standard</td>
</tr>
<tr>
<td>MHEG-4</td>
<td>MHEG registration procedure</td>
<td>International standard</td>
</tr>
<tr>
<td>MHEG-5</td>
<td>Support for base-level interactive applications</td>
<td>International standard</td>
</tr>
<tr>
<td>MHEG-6</td>
<td>Support for enhanced interactive applications</td>
<td>Draft international standard</td>
</tr>
<tr>
<td>MHEG-7</td>
<td>Interoperability and conformance testing for ISO/IEC 13522-5</td>
<td>Working draft</td>
</tr>
</tbody>
</table>

- MHEG-3 : Script extension to MHEG-1
- MHEG-4 : Registration procedure for identifiers used by the objects to identify a specific format for content data
The Structure of MHEG

- MHEG model is Object-Oriented
  - Defines a number of Classes
    - Describe the way AV is displayed
    - Describe the way of user interaction
    - Describe the way of displaying control
  - The Properties of Class
    - attributes that make up an object’s structure
    - events that originate from an object
    - actions that target an object
It’s Digitime in Ghana!

Thank You!
Contact Info

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