Digital Terrestrial Television Broadcasting (DTTB)
4 - 6 September 2019,
Bangkok

Orasri Srirasa
Division Director of Digital Broadcasting Bureau
Office of NBTC, THAILAND
Content

- NBTC/ITU Joint Project
- Thailand DSO Policy
- DTTB Network Planning and Deployment
- ASO Plan and Status
- DTTB Services
- DTV Receiver and Subsidy Program
- DSO Communication Strategies and Implementation
- Opportunity and Challenge
- Thailand ADEX and Television Broadcasting Statistic
- ITU-D Study Report
ITU Assistance in Thailand and APAC Region:
National Roadmaps for Transition from Analogue to Digital Terrestrial Television Broadcasting (24 countries in the APAC region)

Cambodia, Fiji, Indonesia, Lao PDR, Maldives, Micronesia, Mongolia, Myanmar, Nepal, Papua New Guinea, Philippines, Samoa, Sri Lanka, Thailand, Tonga, Vanuatu

ITU/NBTC joint DTTB implementation

- Thailand Roadmap report based on the ITU Guidelines for the Transition from analogue to digital broadcasting (versions 2010, 2012 and 2014)
- 5 functional layers with in total over 40 functional building blocks

**Ref:** Peter Walop, ITU/NBTC Joint Project
National Plan
Broadcasting Master Plan and Digital Economy Plan

Act on Organization to Assign Radio Frequency and to Regulate the Broadcasting and Telecommunication Service, B.E. 2553 (2010), extended

The first Thailand Broadcasting Master Plan (2012-2016, extended)
Strategy No. 6 Transition from Analog to Digital Broadcasting
Strategy No.1 Granting license for broadcasting services

Thailand Digital Economy and Society Development Plan (2016-2020)
Strategy No. 1 Develop digital infrastructure
Target: Deploying Digital TV and Digital Radio broadcasting services cover nationwide, providing Digital TV broadcasting services cover nationwide within 1 years
History of TV Broadcasting

History of TV Broadcasting in Thailand: 64 years

Black & White --12 years - Color
B.E.2498 (1955) 2510

Analog ---------------- 46 years ---------- Digital
2013

Commercial 2014
DSO Roadmap
(Broadcasting Master Plan#1: 2012-2016->)

1st Broadcasting Master Plan has been extended until the 2nd master plan will be adopted

Completed All Activities as Plan

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>DSO-TV Plan</td>
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<tr>
<td>Digital TV Licensing</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Starting Digital TV broadcasting</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Infra-sharing methodology + Database</td>
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<td>R&amp;D measures for Digital TV receiver</td>
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<tr>
<td>Planning and Implementing DTV receiver subsidy</td>
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<td></td>
<td></td>
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<tr>
<td>Planning and Implementing Digital Communication</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>80%+ of households can reach Digital TV</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
Policy on DTV technology
- DVB-T2 was selected for DTV transmission standard
- Resolution is HD and SD are applied.

Frequency Planning Basic Approach:
- Frequency Range: UHF 510 – 790 MHz
- Bandwidth: 8 MHz
- Frequency Channel: Channel 26 - 60
- Service Area: 39 service areas
- Number of Main sites: 39 sites
- 5MUXs (5 frequency channels) per Service Area
- 6th MUX is reserved for community services
- Infrastructure sharing between all MUXs
- Each main site will be MFN with others.
- Each main site and its additional sites will be SFN.
- Compatibility between Digital-Digital and Digital-Analog
- FX reception coverage target is 95.1% of households

>>2019-2020: Working on 700 MHz Migration (Release 694-790 MHz for IMT)
Release 470 MHz for Digital TV and 700 MHz for IMT in Thailand, Use 470-694 MHz for Digital TV
DTV Coverage Checker: DTV Service Area

Web Application and Mobile Application (iOS/Android)
- Name/Location of Transmitter, Distance, Ant Direction
- Coverage, Network Deployment Status, MUX and Frequency Channel information
- Getting feedback/report problem areas
DTTB Network Licensing and Roll-out Obligation

**Network Licensing**

- Issued 5 DTTB Network Licenses for 4 Network Providers (PRD 1, RTA 2, MCOT1, TPBS1) in Jun 2013, all agreed to share common facilities e.g. towers, antennas, combiners

**Network Rollout Obligation**

- Network Rollout Obligation: 95% HHs coverage within 4 years: 39 main sites + 129 additional Sites (168 sites in total)

<table>
<thead>
<tr>
<th>Year</th>
<th>HH Coverage</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>50% in Jun 2014 (11 mil. HH)</td>
</tr>
<tr>
<td>2</td>
<td>80% in Jun 2015 (17.6 mil. HHs)</td>
</tr>
<tr>
<td>3</td>
<td>90% in Jun 2016 (19.8 mil. HHs)</td>
</tr>
<tr>
<td>4</td>
<td>95% in Jun 2017 (22 mil. HH)</td>
</tr>
</tbody>
</table>

- Portable indoor reception mode in Municipality areas
- 20% of MUX Capacity for Community TV service

**Network Quality**

- Service Availability: >= 99.98%
- Coverage audit and signal measurement
MUX Loading

- **MUX 1 PRD**: 2HD + 6SD
- **MUX 2 RTA 1**: 3HD + 3SD
- **MUX 3 MCOT**: 2HD + 6SD
- **MUX 4 TPBS**: 2HD + 6SD
- **MUX 5 RTA 2**: 2HD + 6SD
- **MUX 6**: 12SD
### Thailand ASO Plan and Status

- **ASO Plan**: 5 ATV channels (Ch5, Ch7, Ch11, Ch9, TPBS) plan to switch Off all ATV sites in mid of 2018. (Ch3 will be switched off in 2020 as their concession period).

- Analog switch off has been started since Dec 2015, **112 ATV sites** were switch off as of Aug 2018. ASO will be completed in Q1-2020.

<table>
<thead>
<tr>
<th>ATV Channel</th>
<th>ASO Plan (2015-2018)</th>
<th>ATV Sites</th>
<th>Switch Off status (as of Aug 2018)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>249</td>
<td>216 (86%)</td>
</tr>
<tr>
<td>Ch5</td>
<td>2018</td>
<td>41</td>
<td>41</td>
</tr>
<tr>
<td>Ch7</td>
<td>2018</td>
<td>37</td>
<td>37</td>
</tr>
<tr>
<td>Ch9</td>
<td>2018</td>
<td>36</td>
<td>36</td>
</tr>
<tr>
<td>Ch11</td>
<td>2017</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>TPBS</td>
<td>2018</td>
<td>52</td>
<td>52</td>
</tr>
<tr>
<td>Ch3</td>
<td>Concession End 25 Mar 2020</td>
<td>33</td>
<td>-</td>
</tr>
</tbody>
</table>
DTTB Services Channelling: 19 Channels On-Air

Public: Ch 1-12
- Channels 1-12

Kids/Youth & Family
- Channels 13-15

General Channels (SD)
- Channels 23-29

General Channels (HD)
- Channels 30-36

News /Info Channels
- Channels 16-22

Community TV: ch 37 to 48
- reserved in each service area

Return License 7 Ch in Aug2019
Public Services Channels

Simulcast

1. CH 5
2. NBT
3. TPBS

- TPBS (MOU)

5. Knowledge, Education, Science, Technology and Environment
6. Religion, Art & Culture, Agriculture and Occupational Development and promotion
7. Health Sanitation Sport and promoting quality of people life
8. State Security
9. Public Safety
10. Strengthen the well understanding between government and citizen. Also, Strengthen the well understanding between parliament and citizen
11. Advocating in term of the contributing and educating population about democratic form of government with the King as Head of State
12. Servicing an beneficial information to disabilty persons or less opportunity persons.

Ref: NBC resolution #. 12/2013
DTV Receiver: Specification and Type Approval

- DVB-T2 Receiver (incl. Set-top-box and iDTV) has to comply with NBTC’s DVB-T2 Receiver Specification Edition 2012 and 2013 (Amendment).
- ASEAN Digital Broadcasting (ADB) initiative to develop common specifications for DVB-T2 receivers
- Self Conformance scheme: Submit test reports to conform and to eligible for conformance Mandating the Digital Receivers sticker and Digital TV Mascot & Logo

DTT Receiver Type Approval sticker

<table>
<thead>
<tr>
<th>Type</th>
<th>Total (2013-Nov2017)</th>
</tr>
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<tbody>
<tr>
<td>IDTV</td>
<td>11,495,738</td>
</tr>
<tr>
<td>Set-Top-Box</td>
<td>17,223,935</td>
</tr>
<tr>
<td>Set-Top-Box (car)</td>
<td>68,004</td>
</tr>
<tr>
<td>Mobile</td>
<td>1,437,350</td>
</tr>
<tr>
<td>Portable DVD/TV</td>
<td>41,200</td>
</tr>
</tbody>
</table>

*Portable: Tablet, WIFI, DTV Receiver in Car, Hotspot, Smart Phone with built-in DVB-T2 tuner"
DTV Subsidy Program

DVB-T2 Receiver Coupon Program

- NBTC set a coupon program as a subsidy measure and distribute cash coupon to every household in Thailand, the subsidy budget for 22.9 million households comes from revenue of Spectrum auction for DTTB Services to support Digital TV Switch-over.
- National Council for Peace and Order (NCPO) Committee approved to utilize some parts of the revenue from auction for DTT Receiver Subsidy Program
- The reserve price portion (15,190 million Bath) from the broadcasting frequency auction was allocated for the program.
- Digital TV coupons worth THB 690 ($20) for digital TV receivers delivered since October 10, 2014.
- The coupon can be used for Digital Set-Top-Box and iTD TV Set with built-in tuners
First Phase, 13.57 million coupons were distributed to eligible HHs in 77 provinces with redemption rate 64% or 8.7 million coupons were activated. (as of Jan 2016)

Phase 2: NCPO/Prime Minister approved a proposal from the Office of NBTC to subsidize DTV receiver for 4 groups of households as the follows:
- Eligible householders of the first lot which did not receive coupons and those coupons were returned to the Office of NBTC by Thailand Post Company.
- Any Household having house registration document and householder after 16 Sep 2014
- Any households with a house but doesn’t have a householder
- Any households with temporary house registration document

There are additional 3.8 million HHs can get Set-Top-Box, redemption during Mar-Dec 2017.

As of Nov 2017, Approximately 1 million HHs redeemed.
- Easy to get Set-Top-Box at convenient store, retail shop, or register at Post by using Citizen ID.
DSO Communication Strategy and Implementation

DSO Communication strategy

- DTTB Awareness
- DTTB Understanding
- DTTB Attitudes
- Intention to adopt DTTB
- DTTB Adoption
- DTTB Satisfaction

DSO Communication Implementation: Integrated marketing communications (IMC)

- Communicate on various channels; TV, Radio, SMS, Newspaper, On-Line and Social Media (https://www.facebook.com/digitaltv.nbtc), DTV Web site (http://digital.nbtc.go.th), Events & Exhibitions, DTV Road show
- Create media and national message and handbook for promoting DSO
- Implementing Coverage Checker on web and Mobile/Tablet Applications
- Build community, local administration to promote DTV
- Cooperate with Universities, Network Operators, DTV manufacturers to support customer on DTV installation
- Cooperate with DTV broadcasters, telecom operators to promote DTV
- Encourage high rise building (apartment, condominium) to install DTV antenna
- Project DTV4All, All4DTV
- Conduct Survey to evaluate DSO Communication Program
DSO Communication

DTV Mascot “Nong Doo Dee”

DTV Song  https://www.youtube.com/watch?v=mCVSPaIA8oc

Mass Communication on TV/Radio
DSO Communication

Music Video
"Change"

TVC
"DTV Switch over"

TVC
"Wow... Digital TV"

DTV Info graphic
How to install DTV receiver
DSO Communication
Promoting and Educating Digital TV

Roadshow

DTV Troop

DTV events
DSO Communication
Promoting and Educating Digital TV: Social Media

Website
http://digital.nbtc.go.th

Facebook
(https://www.facebook.com/digitaltv.nbtc),

Youtube

Intragram
DSO Communication
Promoting and Educating Digital TV

Print medias

Project DTV4all, all4DTV

Handbook: DTV Installation

Project DTV4all, all4DTV: Social Media Communication (Viral), more than 100 viral clips of influencers and celebrities talking about the digital broadcasting transition spreading via Facebook, Instagram, Youtube etc.
DSO Communication
Cooperate with university, technical college

MOU with Vocational universities in every provinces to support customer on TV installation

DTV Technical Training to technician
DSO Communication
Cooperate with Government agencies

MOU with Royal Thai Army (Network Operator) to build DTV demo set in public local service centers

Governor Monthly update
Customer Support

Call Center 7 days, 24 hrs

Mobile App.Call Center

DTV Guide App: DTV Program

Various Call Center Channels

- Phone to Hot line 1200
- Walk-in
- Social Media: FB, youtube
- Website/ Chat/ Web form
- Email
- Fax
- Government Call Center (GCC 1111)
- NBTC sectors/Branch office

Mobile application has been launched in Apr 2015.
Receive customer complaint with mark location, capable to attach photo/VDO
Contribution documents to ITU-D SG1

Question 8/1

ITU-D Study Group 1: Question 8/1
Examination of strategies and methods of migration from analogue to digital terrestrial broadcasting and implementation of new services

Thailand Case Study:
Transition to Digital Terrestrial Television Broadcasting
Document SG1RGQ/227(Rev.1)-E

- DSO Policy
- DTTB Network Planning and Deployment
- Service Licensing and Spectrum Auction
- Receiver and Subsidy program
- DSO Communications and Information support to customer
- Lesson Learnt
ITU-D Study Group 1: Question 8/1
Examination of strategies and methods of migration from analogue to digital terrestrial broadcasting and implementation of new services

Digital Terrestrial Television in Thailand: Frequency planning and technical aspects
Document SG1RGQ/218-E
Lesson Learned on DSO transition in Thailand

(Country Case Study)

Set up trial
- Trial on the DTT system at the early transition before fully commercial launch was important to test the whole system and trial broadcasting markets.

DTTB Network Rollout
- Sharing infrastructure and facilities
- Ensuring that network rollout, network coverage and network quality of every MUXs are ready to provide broadcasting service the same period for fair competition.
- Regular network quality monitoring
- Setting proper Service Availability, faster recovery, redundancy system/location should be well planned in network design in the first place.
- Utilize existing antenna system and site facilities of existing network operators

Must Carry Rule
- NBTC enforced the rule of 'must carry' for the commercial and public service broadcasters to commence broadcasting DTV content from day one on satellite and cable TV which already cover more than 70% audiences in Thailand to increase DTV eye balls.
Lesson Learned on DSO transition in Thailand
(Country Case Study)

Digital TV Subsidy Program
- Collaboration between the agencies who distribute the set-top-box coupons
- DTV Coupon should be distributed to areas whereas DTTB signal covered.
- DTV coupon value should be enough to cover a qualified set top box with necessary accessories to receive signal
- Proper training for the STB installers prior to distribution of coupon and STB

Receivers
- Collaboration with Vocational school and network operators to help people on STB Receiver Installation, also set up advisory group to support installation.
- Develop application or tool to help the people to equip and tilt the antenna correctly like ‘DTV Service Area’
- Having variety of receiver types like portable DTV Receivers e.g. smartphone, tablet, or portable.
- Selecting proper antennas type and model for Set-Top-Box is important to receive signal well.
- Set up advisory group either by dedicated group or volunteer group to support installation.

Collaboration
- Collaboration with industry: ATV and DTV broadcasters, DTTB network operators, manufacturers, retailers
- Collaboration with government agencies and public agencies in national and local level are also key factors to drive a success of digital transition.
Lesson Learned on DSO transition in Thailand

**DSO Communication**
- Mass communication to public, simply key message
- Getting engagement from government agencies in state and local level, public and relevant organization.
- Social media Communication such facebook, youtube, twitter

**Audience Measurement : Rating of Television Broadcasting**
- Rating survey should be conducted to cover all broadcasting platforms including digital platform (i.e. internet) to have real broadcasting rating and user behavior.

**Call Center and Information to Support Customer**
- Cooperation with DTTB network operators to help people on installation the DTTB receivers, and also build confidence on DTTB network quality.

**Capacity Building**
- Continuous organizing capacity building on Digital Broadcasting technical, regulation aspects, content development
Opportunity and Challenges

- DSO Policy
- Technology/Transmission Standard
- Spectrum management/licensing
- Network Planning, Deployment, Monitoring
- Receivers
- DSO Communications
- Monitoring transition rate/audience measurement
- ASO as planned
- Revenues from advertising
- Content Development (Match with Users/Segments)
- Broadcasting Channels/Platforms
- Enhance user experience: AI, AR/VR
- OTT Broadcasting
# ADEX Forecast 2019: Thailand

## 2019 Advertising Expenditure Forecast - updated

<table>
<thead>
<tr>
<th>Category</th>
<th>2018</th>
<th>% change</th>
<th>2019</th>
<th>% change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bt. M.</td>
<td>%</td>
<td>Bt. M.</td>
<td>%</td>
</tr>
<tr>
<td>Digital TV</td>
<td>66,000</td>
<td>57%</td>
<td>66,000</td>
<td>57%</td>
</tr>
<tr>
<td>Cable &amp; sat.</td>
<td>2,400</td>
<td>2%</td>
<td>2,100</td>
<td>2%</td>
</tr>
<tr>
<td>Total TV</td>
<td>68,400</td>
<td>59%</td>
<td>68,100</td>
<td>58%</td>
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<td>Radio</td>
<td>4,600</td>
<td>4%</td>
<td>4,370</td>
<td>4%</td>
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<td>Newspapers</td>
<td>6,100</td>
<td>5%</td>
<td>4,880</td>
<td>4%</td>
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<td>Magazines</td>
<td>1,300</td>
<td>1%</td>
<td>975</td>
<td>1%</td>
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<td>Cinema</td>
<td>7,100</td>
<td>6%</td>
<td>6,319</td>
<td>5%</td>
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<td>Outdoor</td>
<td>6,800</td>
<td>6%</td>
<td>6,664</td>
<td>6%</td>
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<td>Transit</td>
<td>5,900</td>
<td>5%</td>
<td>6,490</td>
<td>6%</td>
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<td>In-Store</td>
<td>1,100</td>
<td>1%</td>
<td>1,100</td>
<td>1%</td>
</tr>
<tr>
<td>Internet</td>
<td>15,348</td>
<td>13%</td>
<td>17,863</td>
<td>15%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>116,648</strong></td>
<td><strong>100%</strong></td>
<td><strong>116,761</strong></td>
<td><strong>100%</strong></td>
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SOURCE: Nielsen Media Research  Digital: '18-'19 from DAAT excluding Creative production
### Terrestrial TV Ad Spending: 5775 MTHB in Jul 2019

<table>
<thead>
<tr>
<th>Category</th>
<th>DTTB ch.</th>
<th>MTHB</th>
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<tbody>
<tr>
<td>Public Broadcast</td>
<td>![niu] ![bn]</td>
<td>386</td>
</tr>
<tr>
<td>Kid and Family</td>
<td>![3] ![14]</td>
<td>37</td>
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<tr>
<td>Variety SD</td>
<td>![workpoint] ![true4u] ![GMM-25]</td>
<td>1539</td>
</tr>
<tr>
<td>Variety HD</td>
<td>![MCOT HD] ![one3] ![niuTV]</td>
<td>3655</td>
</tr>
</tbody>
</table>

*Ref: AC Nielsen, NBTC*
TV Household Penetration Rate in Thailand: 2017

**by receiver**

- **TV flat screen**
  - By Platform:
    - Terrestrial TV: 55.3%
  - TV flat screen: 57.8%

- **TV CRT Screen**
  - By Platform:
    - Sat TV: 53.2%
  - TV CRT Screen: 50.6%

- **Smart Phone**
  - By Platform:
    - Cable TV: 5.5%
  - Smart Phone: 38.9%

- **Computer**
  - By Platform:
    - IPTV: 0.8%
  - Computer: 10.8%

Ref: NSO Survey Q1/2018
View by Content Category

- News: 89.3%
- Series: 80.9%
- Variety: 51.7%
- Sport: 17.3%
- Variety: 11.3%
- Documentary: 11.3%
- TV Home Shopping: 0.5%
- Others: 0.1%

Ref: NSO, Survey Q1/2018
Thailand Television Share Viewer

Source: Nielsen
Last Update: 1st August, 2019

TV AUDIENCES
July 2019

<table>
<thead>
<tr>
<th></th>
<th>NationWide</th>
<th>Bangkok &amp; Vicinity</th>
<th>Upcountry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terrestrial</td>
<td>89.05%</td>
<td>94.84%</td>
<td>87.85%</td>
</tr>
<tr>
<td>Sat/Cable</td>
<td>10.95%</td>
<td>5.16%</td>
<td>12.15%</td>
</tr>
</tbody>
</table>

Source: Nielsen
Last Update: 1st August, 2019
### Top 10 TV Rating

**Content is KING**

Rating in Apr2018

BuppaSannivas: Soup Opera - Rating 15.9

<table>
<thead>
<tr>
<th>Number</th>
<th>Channel</th>
<th>Rating</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>1.743</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>1.135</td>
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<td>3</td>
<td>29</td>
<td>0.870</td>
</tr>
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<td>7</td>
<td>0.674</td>
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<tr>
<td>5</td>
<td>31</td>
<td>0.627</td>
</tr>
<tr>
<td>6</td>
<td>3</td>
<td>0.413</td>
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<tr>
<td>7</td>
<td>22</td>
<td>0.363</td>
</tr>
<tr>
<td>8</td>
<td>3</td>
<td>0.288</td>
</tr>
<tr>
<td>9</td>
<td>8</td>
<td>0.267</td>
</tr>
<tr>
<td>10</td>
<td>36</td>
<td>0.200</td>
</tr>
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</table>

Source: Nielsen, Broadcasting Policy and Research Bureau, NBTC
View on DTTB Channel via PLAY Play Box
Application : Jul 2019

Note: The total viewing amount for every 1 view is based on the view every 15 seconds.
Source: Super Broadband Network Co., Ltd. ,NBTC
Summary DTTB Rollout in Thailand: 2012-2018

- Digital TV Roadmap: Feb 2012
- DVB-T2 Standard Adopted: Jun 2012
- Digital TV Trial: Q1 2013
- Facility/Network Licensing: Jun 2013
- ASO: Dec 2015-Dec 2017>> 112ATV sites switch off
- Roadmap and Strategies Development for MTV 2015-2016
- DTV Network: 95% HH coverage Subsidy Coupon#2: 2017

2012:
- Technical Standard for DTTB Recipient-ver2, Certified STB DVB-T2: Q3 2013

2013:
- Licensing of Business Broadcasting Services:
  - Spectrum Auction: Dec 2013
  - On-Air: Apr 2014
- Licensing of Public Broadcast Services: 2015>>
  - Ch 10 in 2015
- Ch 1, Ch 2, Ch 3 in 2018
  - Trial Community TV Prototype: 2017-2019

2014:
- Developed

2015:
- Completed ASO

2016:
- 2019>>: 700MHz Migration
ITU-D Study Group1: Question 8/1
(study period 2014-2017)

Examination of strategies and methods of migration from analogue to digital terrestrial broadcasting and implementation of new services

Final Report Question 8/1

- CHAPTER 1 – Best practices to accelerate the transition from analogue to digital television broadcasting and bridge the Digital Divide with the deployment of new services
- CHAPTER 2 – Communication strategies to accelerate the process of public awareness about digital broadcasting
- CHAPTER 3 – Spectrum issues related to the Analogue Switch-Off process
- CHAPTER 4 – Use of released spectrum and implement new services and applications
- CHAPTER 5 – Countries case studies on transition to digital broadcasting and the use of the digital dividend frequency bands

ITU-D Study Group1: Question 8/1
Examination of strategies and methods of migration from analogue to digital terrestrial broadcasting and implementation of new services

Final Report: Guideline on Digital Communication Strategy from Transition from Analog to Digital Terrestrial Broadcasting

- CHAPTER 1 - Communication planning to accelerate the process of public awareness about digital broadcasting
- CHAPTER 2 - Information Campaigns for the general public
- CHAPTER 3 - Media Communication Campaign
- CHAPTER 4 - Communication strategies targeted low income population


Reference / Contribution from Brazil, German, Hungary, Netherland, Niger, Russia, Serbia and Thailand

Chapter 1: Communication planning to accelerate the process of public awareness about digital broadcasting

Brazil

Thailand

Hungary

Niger

Reference / Contribution from Brazil, German, Hungary, Netherland, Niger, Russia, Serbia and Thailand
ITU-D (Study period 2018-2011): Study Group1 Question Q2/1

ITU-Study Group1: Question2/1
Strategies, policies, regulations and methods of migration and adoption of digital broadcasting and implementation of new services

Question or Issue for Study
2.1 Analysis of methods and issues for the transition to digital terrestrial sound and television broadcasting, including analogue-to-digital and digital-to-digital, allowing the deployment of new services and applications for consumers.
2.2 National experiences on strategies and socio-economic aspects of the introduction of new broadcasting technologies, emerging services and capabilities.
2.3 National experiences on spectrum planning activities in preparation for the analogue switch-off.
2.4 National experiences on interference mitigation measures.
2.5 Analysis of the gradual transition to digital sound broadcasting, study cases, sharing of experiences and strategies implemented.
2.6 Costs of the transition to digital broadcasting and implications for the various players: broadcasters, operators, technology providers, manufacturers and distributors of receivers, and consumers, among others.
2.7 The use of the digital-dividend frequency bands resulting from the transition to terrestrial digital broadcasting, including technical, regulatory and economic aspects.
DTTB Status from ITU DSO database


Ref: ITU-DSO Database
DTTB Status from ITU DSO database

STATUS OF THE TRANSITION TO DIGITAL TERRESTRIAL TELEVISION

Completed

ASP(5): Australia, Japan, South Korea, Mongolia, New Zealand


United States, Canada, Mexico, Colombia, Suriname, Lesotho, Swaziland, Zambia, Malawi, Tanzania, Uganda, Kenya, Somalia, Gabon, Liberia, Cote d’Ivoir, Guinea-Bissau, Gambia, Sudan, United Arab Emirates, Saudi Arabia, Israel, Algeria, Western Sahara, Morocco, Cyprus, Greece, Bulgaria, Serbia, Montenegro, Italy, Spain, Portugal, France, Switzerland, Belgium, United Kingdom, Ireland, Iceland, Germany, Netherlands, Austria, Croatia, Hungary, Slovakia, Czech Republic, Poland, Lithuania, Latvia, Estonia, Finland, Benmark, Sweden, Norway, Georgia, Azerbaijan, Kyrgyzstan, Mongolia, Korea (South), Japan, Marshall Islands, Australia, New Zealand

Ref: ITU-DSO Database
DTTB Status from ITU DSO database

STATUS OF THE TRANSITION TO DIGITAL TERRESTRIAL TELEVISION

Ongoing

Russia, Belarus, Ukraine, Romania, Albania, Bosnia and Herzegovina, Tunisia, Uzbekistan, Armenia, Iran, Bahrain, Oman, India, Bhutan, Myanmar, Thailand, Vietnam, Cambodia, Indonesia, Philippines, Papua New Guinea, Samoa, Fiji, Jordan, Egypt, Djibouti, Seychelles, Madagascar, Mozambique, Zimbabwe, South Africa, Botswana, Namibia, Angola, Democratic Republic of the Congo, South Sudan, Congo, Cameroon, Chad, Niger, Nigeria, Benin, Ghana, Burkina Faso, Mali, Sierra Leone, Guinea, Senegal, Cape Verde, Brazil, Bolivia, Venezuela, Panama, Costa Rica, Honduras, Cuba, Bahamas


Ref: ITU-DSO Database
DTTB Transmission Choice

Data Miner


Ref: ITU-DSO Database
## DSO Status in Asia Pacific Region

<table>
<thead>
<tr>
<th>Country</th>
<th>Deadline ASO</th>
<th>Year Launch</th>
<th>DTTB</th>
<th>Revised or Year of possibility</th>
</tr>
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<tbody>
<tr>
<td>Australia</td>
<td>2013-12-10</td>
<td>2001</td>
<td>DVB-T</td>
<td>Completed</td>
</tr>
<tr>
<td>Indonesia</td>
<td>2020</td>
<td>2012</td>
<td>DVB-T2</td>
<td>Ongoing</td>
</tr>
<tr>
<td>New Zealand</td>
<td>2013</td>
<td>2008</td>
<td>DVB-T, DVB-T2</td>
<td>Completed</td>
</tr>
<tr>
<td>Japan</td>
<td>2011</td>
<td>2003</td>
<td>ISDB-T</td>
<td>Completed</td>
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<tr>
<td>Korea</td>
<td>2012</td>
<td>2001</td>
<td>ATSC</td>
<td>Completed</td>
</tr>
<tr>
<td>Vietnam</td>
<td>2020-12-31</td>
<td>2010</td>
<td>DVB-T, DVB-T2</td>
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</tr>
<tr>
<td>India</td>
<td>2015</td>
<td></td>
<td>DVB-T, DVB-T2</td>
<td>Ongoing</td>
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<tr>
<td>Philippines</td>
<td>2023</td>
<td>2017</td>
<td>ISDB-T</td>
<td>Ongoing</td>
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<tr>
<td>China</td>
<td>2018</td>
<td></td>
<td>DTMB</td>
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<tr>
<td>Thailand</td>
<td>2020</td>
<td>2014</td>
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<td>Ongoing</td>
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<td>Mongolia</td>
<td>2015-10-05</td>
<td>2014</td>
<td>DVB-T2</td>
<td>Completed</td>
</tr>
</tbody>
</table>


DSO Status in ASEAN: 10 Countries

DTTB: DVB-T2
DSO Year Launch: 2013
ASO Deadline: 2020

DTTB: DVB-T2
DSO Year Launch: 2014
ASO Deadline: 2020

DTTB: DVB-T, DVB-T2
ASO Deadline: 2019

DTTB: DVB-T, DVB-T2
ASO Deadline: 2010

DTTB: DVB-T2
DSO Year Launch: 2016
ASO Deadline: 2020

DTTB: DVB-T2
DSO Year Launch: 2012
ASO Deadline: 2020

DTTB: ISDB-T
DSO Year Launch: 2017
ASO Deadline: 2023

Reference: SOMRI-ADB
Working Group Meeting 2019
Forecast TV households in the world

Digital terrestrial TV (DTT) is rapidly growing toward 2021 mainly in developing country.

Source: Digital TV Research, Satoshi Miyaji ITU-T SG9
Thank You

Website: www.nbtc.go.th, digital.nbtc.go.th
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