ATTACHMENT 1

Questionnaire on the future spectrum demands and
use of the broadcasting service

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| Name of the Administration: | CAMBODIA/General Department of Broadcasting and Information |
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| --- | --- |
| Name of the Sector Member: |  |
| Contact person: |  |
|  E-mail address: |  |
|  Telephone number: |  |
| What best describes your organisation?Commercial broadcaster/Public servicebroadcaster/ Service provider/ Other (please describe) | Broadcast and Information Regulator |
| The geographical area over which you operate: |  |

SECTION ONE – Television broadcasting

1) a) Is your country still using analogue television?

 b) If yes, has analogue television switch-off commenced?

 c) If your country has any plans to switch-off analogue television:

 i) When is the analogue switch-off process expected to be completed?

 ii) How much extra spectrum will be required during the transition phase to digital terrestrial television broadcasting?

Reply: a) Yes

 b) Not yet

 c) i) 2020-2022

 ii) the spectrum in Band III, IV and V (up to CH. 62) are using by Analogue TV stations

and Digital TV Commercial/Service Providers.

2) a) Please indicate how many analogue television transmitters are in operation in your country and in which bands.

 b) What channel bandwidths are used for analogue television?

 c) What is the spectrum requirement for analogue television in your country?

A proposed format for responses to questions 2a) and 2b) is provided in Annex 1.

Reply: a) Band III : 20 TX

 Band IV and V: 143 TX

 b) Band III – 7 MHz, Band IV&V – 8 MHz

 c) Band I: 21 MHz, Band III: 56 MHz, Band IV: 152 MHz, Band V: 184 MHz

3) a) What is the percentage of viewer uptake of terrestrial television in your country?

 b) If possible, please also provide details of the number or proportion of users who receive television primarily by terrestrial means by:

 i) Fixed roof top antenna, or

 ii) Portable indoor antenna.

Reply:

4) If your country has switched or is considering switching to digital terrestrial television broadcasting:

 a) What system standard is your country using or considering adopting (as specified in Recommendations ITU-R BT.1306 and BT.1877)?

 b) When did your country start or when is it proposing to start the introduction of digital terrestrial television services?

 c) Please provide further detail on the number of multiplexes in use, their technical specifications, the percentage of geographic area or population they cover or are intended to cover and the total spectrum use.

A proposed format for detailed responses is provided in Annex 2.

Reply: a) DVB-T2, DTMB (politically motivated), T-DMB

 b) and c) Public Service will starts DTTB in 2016

 Commercial service: PPCTV – 2010 (DVB-T), OneTV – 2012 (DVB-T),

 CamTV- 2013 (DVB-**T2),** Supernet -2015 (DVB-T2), Cambodia Digital TV – 2015 (DTMB)

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| **Country** | **No of multi-plexes** | **System & modulation** | **FEC** | **GI** | **Reception mode[[1]](#footnote-1)** | **Capacity per multiplex (Mb/s)** | **Current percentage population coverage** | **Intended percentage population coverage** | **Content per multiplex** | **Total capacity(Mb/s)** | **Total spectrum bandwidth used or intended for implementation(MHz)** | **Any additional comments(e.g. duration of licences)** |
| **Cambodia** | *9* | *DVB-T, 256-QAM* | *1/2* | *1/32* | *Fixed* | *17.5* | *20.0%* | *20.0%* | *10 SD MPEG4* | *157.5* | *72* | *Licensed until 2017* |
| *5* | *DVB-T, 64-QAM* | *2/3* | *1/16* | *Fixed* | *27.10* | *75.0%* | *90.0%* | *16 SD MPEG4* | *115* | *40* | *Licensed until 2017* |
| *4* | *DVB-T2, 256-QAM* | *1/2* | *1/32* | *Fixed* | *30* | *3%* | *10%* | *20 SD MPEG4* | *120* | *32* | *Licensed until 2017* |
| *5* | *DVB-T2, 256-QAM* | *2/3* | *1/128* | *Fixed* | *40* | *50%* | *85%* | *12 SD MPEG4* | *200* | *40* | *Licensed until 2017* |
| *4* | *DTMB, 64-QAM* | *0.6* | *1/4* | *Mobile* | *24.365* | *20%* | *80%* | *17* | *97.46* | *32* | *Licensed until 2017* |

5) a) What frequencies/channels are currently used or intended to be used by digital terrestrial television broadcasting in your country? Please distinguish between those in use and those intended to be used.

 b) Please indicate how many digital terrestrial television transmitters are currently used or intended to be used and in which bands.

 c) What channel bandwidth is used or intended to be used for digital terrestrial television in your country?

A proposed format for responses to questions 5b) and 5c) is provided in Annex 1.

**Reply: a) In Use:**

 **10, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 36, 38, 39, 40, 42, 43, 44, 47, 49, 51, 52, 53, 54, 55, 58,**

 **Intended to use: 45**

 **b) 110 Band IV & V in use**

 **c) 8 MHz**

6) a) Are the terrestrial television frequency bands also shared with other primary services in your country?

 b) If yes, please give details of those systems and their spectrum use.

**Reply: a) No**

7) a) Are the terrestrial television frequency bands also shared with secondary services used for the support of broadcasting such as SAB/SAP (services ancillary to broadcasting/production), or other types of services such as radio astronomy or wind-profile radar?

 b) If yes, please give details of those systems and their spectrum use.

**Reply: a) No**

8) a) Does your country foresee a requirement for new and enhanced services, including multimedia and data applications, HD, 3D, and UHD television, on the terrestrial television platform?

 b) If yes, please give indicative details of the number and nature of services planned, and if known, the expected timeframe for their introduction.

Annex 3 provides an approximate guide to the video bit rate required for HD and UHD television.

Reply: a) multimedia and data applications , HD

9) a) Are there plans in your country to launch more multiplexes in the future?

 b) If yes, how many more and when? Please also indicate the expected timeframe for their introduction.

Reply: a) Yes

 b) 2016-2020

10) a) What is the amount of spectrum your country foresees will be required for terrestrial television broadcasting, taking into consideration the responses to questions 5, 6, 7, 8 and 9? Please indicate the modes of transmission that will be used, and timeframes.

Reply: 480 MHz SFN, MFN

SECTION TWO – Sound broadcasting

11) a) What analogue sound broadcasting standards are used in your country and what bands are they operating in?

 b) Please indicate how many analogue radio transmitters are in operation in your country and in which bands.

 c) What channel bandwidths do they use?

A proposed format for responses to questions 11b) and 11c) is provided in Annex 1

Reply: AM 918KHz, BW 25 KHz, 1 TX

 FM: 87.5 – 108 MHz, BW 150 KHz, 412 TX

12) a) Is additional spectrum required for growth in the analogue sound broadcasting platform in your country?

 b) If yes, how much additional spectrum is required?

Reply:

13) a) Is your country considering introducing, or has it already introduced digital sound broadcasting?

 b) If yes, which system standards are used or are being considered for adoption (as specified in Recommendations ITU-R BS.1114, BS.1514, BS.1615)?

 c) When did your country start or when does it propose to start digital sound broadcasting?

 d) What channel bandwidths is your country using or considering using?

 e) What frequencies are currently used or intended to be used by digital sound broadcasting in your country? Please distinguish between those in use and those intended to be used.

 f) What is the percentage of the population that is covered by digital sound broadcasting by direct reception in your country?

 g) What additional spectrum was required or is considered to be required for the transition to digital sound broadcasting?

 h) Please indicate how many digital radio transmitters are currently used or intended to be used and in which bands.

 i) What is the spectrum requirement for digital sound broadcasting in your country?

 j) If your country has introduced digital sound broadcasting, how long will it continue to use analogue sound broadcasting?

A proposed format for responses to question 13d) and 13h) is provided in Annex 1.

Reply: Yes, T-DMB, Channel 10, Trial since 2010. DAB and HD considered.

14) a) Are the terrestrial sound broadcasting bands also shared with other primary services in your country?

 b) If yes, please give details of those systems and their spectrum use.

Reply:

15) a) Are the terrestrial sound broadcasting bands also shared with secondary services e.g., used for the support of broadcasting such as SAB/SAP (services ancillary to broadcasting/production), or other types of services such as radio astronomy or wind-profile radar?

 b) If yes, please give details of those systems and their spectrum use.

Reply:

16) a) What is the amount of spectrum your country foresees will be required for terrestrial sound broadcasting, taking into consideration the responses to the previous questions? Please indicate the modes of transmission that will be used, and timeframes.

Reply:

SECTION THREE –Multimedia broadcasting for handheld devices

17) a) Is your country considering introducing or has already introduced multimedia broadcasting?

 b) If yes, which system standards is your country using or considering using (as specified in Recommendations ITU-R BT.1833 and BT.2016)?

 c) In which bands?

 d) When did your country start or when does it propose to start digital multimedia broadcasting?

 e) What are the current and proposed population coverages for digital multimedia broadcasting in your country?

 f) What is the spectrum requirement for multimedia broadcasting in your country?

 g) If your country has introduced digital multimedia broadcasting, please provide further information to describe the system, its implementation and any limitations on its operation.

Reply: Yes, T-DMB, Channel 10, Trial since 2010, capital city, Band III is foresee for Mobile TV.

1. E.g. fixed, portable outdoor/mobile, portable indoor. [↑](#footnote-ref-1)