
To Administrations of Member States of the ITU, Radiocommunication Sector Members, ITU-R Associates participating in the work of Radiocommunication Study Group 6 and ITU-R Academia

Subject: Questionnaire on spectrum requirements for the future of sound and television broadcasting

References: Documents [6/93](#) and [6/249](#)

1 Study Group 6 (SG 6) is the ITU-R Study Group assigned to the Broadcasting service. Its scope covers radiocommunication broadcasting, including vision, sound, multimedia and data services principally intended for delivery to the general public.

2 SG 6 created a Rapporteur Group to look at the future spectrum requirements for the Broadcasting service in light of technical developments, decisions taken by WRC-03 and WRC-07 on the use of digital modulation in the HF Bands, and the changes to frequency allocations at WRC-97, WRC-07 and WRC-12, as part of the work in maintaining its catalogue of Reports and Recommendations.

3 One of the questions that needs to be addressed by SG 6 include how broadcast requirements are changing with the move to digital broadcast systems, and the introduction of new and enhanced broadcast services.

4 The following questionnaire, which is being sent to all Administrations and Sector Members, is designed to gather information on spectrum use by sound and television broadcasting in the bands allocated on a Regional¹ or global basis to terrestrial broadcasting (see Annex 1).

5 Administrations and Sector Members are also invited to make more detailed inputs addressing the matter of current and future spectrum requirements for radio and television broadcasting to the next meeting of WP 6A and SG 6.

6 Administrations and Sector Members are requested to submit responses to brsgd@itu.int by 17 October 2014.

David Barrett

Chairman SG6 Rapporteur Group on spectrum requirements
for the future of the broadcasting Service

¹ Regions 1, 2 or 3 as defined in Nos. 5.3 to 5.9 of the Radio Regulations.

QUESTIONNAIRE ON SPECTRUM REQUIREMENTS FOR THE FUTURE OF SOUND AND TELEVISION BROADCASTING

Name of the Administration:	Seychelles
Contact person:	Mr. Paul Pierre
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Name of the Sector Member:	
Contact person:	
E-mail address:	
Telephone number:	
What best describes your organisation? Commercial broadcaster/Public service broadcaster/ Service provider/ Other (please describe)	
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) **No.**
- c)
 - i) **30th December 2015.**
 - ii) **During the transition period, extra spectrum of 56 MHz (510-790 MHz) is required.**

- 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 question 2a) and 2b) is provided in Annex 1

Reply:

- a) **See the Table in Annex 1.**
- b) **See the Table in Annex 1.**
- c) **VHF Band III and UHF Band IV.**

- 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:

- a) **80 % of the population.**
- b) **No information available.**

- 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 with MPEG-4 compression. Since Seychelles is still in the initial planning stage, Annex 2 could not be completed.**
 - b) **Trial testing of one DVB-T2 transmitter by the public broadcaster, Seychelles Broadcasting Corporation (SBC) commenced in June 2011. However, the provision of digital terrestrial television service is targeted to start during the 3rd quarter of 2015.**
 - c) **Not applicable.**
- 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 question 5b) and 5c) is provided in Annex 1

Reply:

- a) **Channel 35 (582-590 MHz) is currently in use for testing purposes by SBC. Nevertheless, frequencies from the UHF band IV shall be used for digital terrestrial television broadcasting. Specifically from the range 526-686 MHz (channels 28-47).**
 - b) **See the Table in Annex 1.**
 - c) **See the Table in Annex 1.**
- 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) **Yes, with radio astronomy.**
 - b) **Note that we have no such system operating in this band at present.**
- 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.**
b) **Not applicable.**

- 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.

Reply:

- a) **Not at present.**
b) **Not applicable.**

- 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) **No plans have been developed yet; as all efforts have been directed towards the replacement of the existing analogue system.**
b) **Not applicable.**

- 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:

- a) **Frequencies from the UHF band IV shall be used for digital terrestrial television broadcasting. Specifically from the range 526-686 MHz (channels 28-47). Please note that Seychelles is still in the initial planning stage and the mode of transmission and timeframes is yet to be determined.**

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 question 11b) and 11c) is provided in Annex 1

Reply:

- a) **AM Radio in the frequency band 560-1602 kHz.**
FM Radio in the frequency band 87-108 MHz.
- b) **See the Table in Annex 1.**
- c) **See the Table in Annex 1.**

- 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:

- a) **Not at present.**
- b) **Not applicable.**

- 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:

- a) **Not at present.**
b) - j) **Not applicable.**

- 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:

- a) **No.**
b) **Not applicable.**

- 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:

- a) **No.**
b) **Not applicable.**

- 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:

- a) **Too early to estimate (No actual forecast).**

SECTION THREE –Multimedia broadcasting

- 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:

- a) **Not at present.**
- b) - g) **Not applicable.**

ANNEX 1

Suggested form of presentation of reply to Questions 2, 5, 11, and 13:

Country	Band		Number of Transmitting Stations*			
			Analogue Radio) (Q11b & Q11c)	Digital Radio (Q13d & Q13h)	Analogue TV (Q2a & Q2)b	Digital TV (Q5b & Q5c)
	Channel bandwidth (MHz)		MF - 9kHz VHF II - 100kHz		VHF III - 7 MHz UHF IV - 8 MHz	UHF IV - 8 MHz
Seychelles	LF	148.5-283.5 kHz				
	MF	525-526.5 kHz				
	MF	526.5-1606.5 kHz	1			
	MF	1606.5-1705 kHz				
	HF	2.3-26.1 MHz**				
	VHF I	47-50 MHz				
		50-54 MHz				
		54-68 MHz				
		68-72 MHz				
		76-87.5 MHz				
	VHF II	87.5-108 MHz	13			
	VHF III	174-216 MHz			16	
	VHF III	216-230 MHz			5	
	UHF IV	470-694 MHz			10	18
	UHF V	694-790 MHz				
	UHF V	790-890 MHz				
	UHF V	890-960 MHz				
		1452-1492 MHz				
		11.7-12.5 GHz				
		12.5-12.7 GHz				
		40.5-42.5 GHz				
		74-76 GHz				

* Transmitting stations please include “main stations” and “relay stations.” Please use parenthesis to indicate stations that have still to be brought into use

** The bands 3900-3950^D, 3950-4000^D kHz; the bands for tropical broadcasting: 2300-2498, 3200-3400^D, 4750-4995^D, 5005-5060^D kHz and the Article 12 Bands 5 900-5 950^D, 5 950-6 200, 7 200-7 300, 7 300-7

400^D, 7 400-7 450, 9 400-9 500^D, 9 500-9 900, 11 600-11 650^D, 11 650-12 050, 12 050-12 100^D, 13 570-13 600^D, 13 600-13 800, 13 800-13 870^D, 15 100-15 600, 15 600-15 800^D, 17 480-17 550^D, 17 550-17 900, 18 900-19 020^D, 21 450-21 850, 25 670-26 100.

^D Resolution 517 (Rev.WRC-07) applies. In the HF bands subject to Article 12 see also No. 5.134.

ANNEX 2

Suggested form of presentation of reply to Question 4: *If your country has switched or is considering switching to digital terrestrial television broadcasting, what system standards is it using or considering adopting? When did your country start, or when is it proposed to start the introduction of digital terrestrial television services? 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.*

Country	No of multiplexes	System & modulation	FEC	GI	Reception mode ²	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)
Seychelles												

² E.g. fixed, portable outdoor/mobile, portable indoor.