

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

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Name of the Sector Member:	
Contact person:	
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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) Our country no longer uses analogue television.

- 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) None analogue television transmitter is in operation in our country

- 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) The digital television channels are only carried by an HFC network, 100% available in the homes of our country. So, we don't use the terrestrial television for the time being.

- 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: please see Annex 2.

- 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) For now, we don't have any active channels for the digital terrestrial television broadcasting in our country. But, the Geneva 2006 Conference granted Monaco with 6 UHF DVB-T channels that are intended to be used in future.

b) and c) : please see 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) 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) Services ancillary to broadcasting/production are used for some special events in Monaco. They used frequencies in the terrestrial television frequency bands between 470 and 790 MHz

- 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) No

- 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) b) We intend to activate our six UHF GE06 channels in the future. No timeframe has been defined.

- 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) The amount of spectrum is 48 MHz

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) We use FM in the VHF II band and AM in the LF and MF bands

b) c) please see 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) b) No additional spectrum is required for AM radios. On the other side, we intend to activate new radio FM stations but without a clear idea about the number.

- 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) For now, we use one digital sound broadcasting channel.
- b) We use the DAB+ standard
- c) We started in April 2014
- d) Please see Annex 1
- e) We use and intend to only use our GE06 channels in the VHF III band : in 2014 the channel 8A and in the future the channels 6, 12B and 12C.
- f) 100% of our population is covered by digital sound broadcasting by direct reception in our country
- g) Our GE06 channels appear to be sufficient for the transition to digital sound broadcasting.
- h) Please see Annex 1
- i) We have not yet evaluated our spectrum requirement for digital sound broadcasting
- j) The analogue sound broadcasting will last many years. We have no idea when it will be switched off.

- 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.

- 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.

- 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: We intend to activate all our terrestrial sound broadcasting GE06 channels in DAB+ mode (96 kbits/s).

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: For now, Our country has no plan for digital multimedia broadcasting

ANNEX 1

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)		LF – MF : 9kHz VHF II : 300kHz	1536kHz		8MHz
MCO	LF	148.5-283.5 kHz	1			
	MF	525-526.5 kHz				
	MF	526.5-1606.5 kHz	2			
	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	31			
	VHF III	174-216 MHz		1 (6)		
	VHF III	216-230 MHz				
	UHF IV	470-694 MHz				(6)
	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.*

A sample response is shown in *italics* for guidance only.

Country	No of multiplexes	System & modulation	FEC	GI	Reception mode 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)
MCO	(6)	DVB-T2, 64-QAM	?	?	Fixed	?	100.0%	100.0%	?	?	48	

¹ E.g. fixed, portable outdoor/mobile, portable indoor.