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 Regional[1] 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:	**United Arab Emirates**
Contact person:	**Mr. Tariq Al Awadhi**
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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) No, the United Arab Emirates is not using Analog Television;

b) Analog TV already switched off.

c) i) Analog TV switch-off has been completed since June 2014. ii) No extra spectrum shall be required because there is no simulcast of analog of digital TV on terrestrial.

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) No analog TV transmitters operational.

b) N/A

c) N/A

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:

Currently this information is not 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 for Fixed and Indoor Reception

b) DVB-T2 on air since 1st July 2014.

c) Currently 2 MUXs are broadcasted. The coverage will be extended to cover the whole country (population) and additional MUXs will added. The spectrum 470-694 MHz (CH 21-48) will be used for DTT in the UAE.

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) Currently Channel 21 & 27 are being used. Additional channels will be added. For future use almost the whole 470-694 MHz band shall be used wherever technical feasible in line with the Geneve-06 Agreement & Plan.

b) Currently two transmitters in UHF band are on air.

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) The frequency 470-694 MHz shall be used for DTT and will not be shared with any other service on Primary Basis.

b) N/A

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) Yes. Usage of SAB/SAP ancillary service applications is permitted.

b) The use depends on availability of spectrum.

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:

Yes the DTT services will be enhanced as the network matures.

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 new MUXs will be added.

b) At least Six MUXs are required by the Broadcasters in near future.

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:

Complete 470-694 MHz shall be required.

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) FM, AM (LF/MF/HF Broadcasting)

b) 26 Transmitters locations

c) 300 KHz

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:

Yes Additional Spectrum Required in both VHF (FM Broadcasting) and LF/MF (AM Broadcasting).

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. Yes we have plans to introduce digital audio broadcasting.
b. T-DAB (DAB+)
c. Trials have already started which will last for six months.
d. 1.53 MHz in VHF band (174-230 MHz)
e. 174-230 MHz
f. No commercial services started yet.
g. Additional spectrum shall require in VHF band
h. Not applicable yet.
i. 174-230 MHz complete band.

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. n/a

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:

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:

Exact requirement have not been determined. However approximately Additional 400 KHz in LF/MF Bands, additional 20 MHz in 87.5 -108 MHz Band for FM Broadcasting and additional 42 MHz in VHF Band 174-230 MHz.

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. Currently No Multimedia Broadcasting however there are plans to have in future.
b. Multimedia System T2 (we are also interested in any evolution of Broadcast over LTE)
c. 470-694 MHz Bands (if using terrestrial broadcasting network)
d. Not decided yet
e. N/A
f. Not clear yet
g. N/A

ANNEX 1

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

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

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)		9 KHz LF/MF 9 KHz HF 300 KHz VHF II	9-18 KHz LF/MF 1.53 MHz VHF III		8MHz
XX	**LF**	148.5-283.5 kHz				
	MF	525-526.5 kHz				
	MF	526.5-1606.5 kHz	5 (8)	0 (8)		
	MF	1606.5-1705 kHz				
	HF	2.3-26.1 MHz**	1 (1)			
	VHF I	47-50 MHz				
		50-54 MHz				
		54-68 MHz				
		68-72 MHz				
		76-87.5 MHz				
	VHF II	87.5-108 MHz	26 (50)			
	VHF III	174-230 MHz		1(75)		
	UHF IV	470-694 MHz				2 (75)
	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.*

Note: Current use of DTT in the UAE as of 1st October 2014

Country	**No of multi-plexes**	**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)**
UAE	2	DVB-T2, 64-QAM	2/3	1/8	Fixed / Portable Outdoor	25	-	100%	HD + SD	50 (200)	16 (224)	This statistics shows just the beginning of DTT in the UAE and a large expansion for having six MUX has been planned.

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