ECOWAS Administrations[1]

ECOWAS COMMON RESPONSE TO 6A QUESTIONNAIRE

1. Introduction

In its circular letter 6/LCCE/78, ITU-R invited region 1 plus Iran administrations to respond to a questionnaire of WP 6A. This submission presents the responses of 10 administrations from the ECOWAS region in West Africa.
WP6A is invited to consider this document for the update of the results, analysis and conclusions of the responses to the above mentioned questionnaire as recommended by JTG 4-5-6-7 in its liaison statement to WP6A (Document 6A/183-E).

ECOWAS COMMON RESPONSE

TO

[1]The ECOWAS Administrations : BENIN, BURKINA FASO, CAPE VERDE, COTE D'IVOIRE, GHANA, GUINEE, GUINEE BISSAU, NIGERIA, SIERRA LEONE, TOGO

WORKING PARTY 6A QUESTIONNAIRE ON SPECTRUM REQUIREMENTS FOR TERRESTRIAL TELEVISION BROADCASTING IN CONNECTION WITH WRC-15 AGENDA ITEM 1.2

1 a) What standards have you adopted for digital terrestrial television broadcasting? **Answer:** ***DVB-T2, MPEG-4 for all administrations***

b) Have you started introduction of digital terrestrial television services?

Answer:

Administration	***Response***
Benin	***No***
Burkina Faso	***No***
Cape Verde	***Yes***
Côte d'Ivoire	***No***
Ghana	***Yes***
Guinée	***Yes***
Guinée Bissau	***Yes***
Nigeria	***Yes***
Sierra Leone	***No***
Togo	***No***

c) If yes, please provide further detail on the number of multiplexes in use, their technical specifications, the percentage of geographic area or population they are intended to cover and the total spectrum use to inform WP 6A.

Answer: ***Kindly see annex 1***

2 a) Have you commenced analogue television switch-off?

Administration	***Response***
Benin	***No***
Burkina Faso	***No***
Cape Verde	***No***
Côte d'Ivoire	***No***

Ghana	***No***
Guinée	***No***
Guinée Bissau	***No***
Nigeria	***No***
Sierra Leone	***No***
Togo	***No***

b) If you have any such plans, when do you expect to have completed the analogue switch-off process?

Answer: ***End 2014 for all administrations***

3 a) What is the percentage of viewer uptake of terrestrial television in your country, including those whose service provider uses terrestrial broadcast re-transmission (e.g. in cable networks)?

Answer:

Administration	***Response***
Benin	***90% estimated population coverage. Accessed mainly via wireless terrestrial television. Note: This figure does not represent the actual viewers – which may be lower***
Burkina Faso	***70% estimated population coverage. Accessed mainly via wireless terrestrial television. Note: This figure does not represent the actual viewers – which may be lower***
Cape Verde	***90% estimated average population coverage. Accessed mainly via wireless terrestrial television. Note: This figure does not represent the actual viewers – which may be lower***
Côte d'Ivoire	***80% estimated population coverage. Accessed mainly via wireless terrestrial television. Note: This figure does not represent the actual viewers – which may be lower***
Ghana	***80% estimated population coverage. Accessed mainly via wireless terrestrial television.***
Guinée	***85% estimated population coverage. Accessed mainly via wireless terrestrial television. Note: This figure does not represent the actual viewers – which may be lower***
Guinée Bissau	***75% estimated average population coverage. Accessed mainly via***

	wireless terrestrial television. Note: This figure does not represent the actual viewers – which may be lower
Nigeria	***70% estimated average population coverage. Accessed mainly via wireless terrestrial television. Note: This figure does not represent the actual viewers – which may be lower***
Sierra Leone	***70% estimated average population coverage. Accessed mainly via wireless terrestrial television. Note: This figure does not represent the actual viewers – which may be lower***
Togo	***70% estimated average population coverage. Accessed mainly via wireless terrestrial television.***

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

Administration	***Response***
Benin	***90% estimated average with 20% being accounted for by Satellite means***
Burkina Faso	***90% estimated average with 20% being accounted for by Satellite means***
Cape Verde	***90% estimated average with 20% being accounted for by Satellite means***
Côte d'Ivoire	***80% estimated average with 20% being accounted for by Satellite means***
Ghana	***80% estimated average with 20% being accounted for by Satellite means***
Guinée	***90% estimated average with 20% being accounted for by Satellite means***
Guinée Bissau	***70% estimated average with 20% being accounted for by Satellite means***
Nigeria	***80% estimated average with 20% being accounted for by Satellite means***
Sierra Leone	***85% estimated average with 15% being accounted for by Satellite means***
Togo	***80% estimated average with 20% being accounted for by Satellite means***

4 a) Indicate how many analogue television transmitters use channels in the frequency sub-band 694-790 MHz (as indicated in Resolution **232 (WRC-12)**).

Administration	***Response***
Benin	***6***
Burkina Faso	***-***

Cape Verde	***0***
Côte d'Ivoire	***0***
Ghana	***4***
Guinée	***5***
Guinée Bissau	***0***
Nigeria	***30***
Sierra Leone	***0***
Togo	***-***

b) How many are in the remaining part of the UHF band.

Administration	***Response***
Benin	***14***
Burkina Faso	***-***
Cape Verde	***15***
Côte d'Ivoire	***0***
Ghana	***22***
Guinée	***-***
Guinée Bissau	***0***
Nigeria	***14***
Sierra Leone	***10***
Togo	***-***

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.

Answer: The GE06 replanning process is ongoing. ECOWAS member states agreed on a minimum of 4 multiplexes per site in the band 470 – 694 MHz.

Administration	*Used*	*Intended*
Benin	***0***	***minimum of 4 multiplexers per site in the band 470 – 694 MHz***
Burkina Faso	***0***	***minimum of 4 multiplexers per site in the band 470 – 694 MHz***
Cape Verde	***4 multiplex per site***	***minimum of 4 multiplexers per site in the band 470 – 694 MHz***
Côte d'Ivoire	***0***	***minimum of 4 multiplexers per site in the band 470 – 694 MHz***
Ghana	***8***	***10 for 3 allotments and 4 for 8other allotments in the band 470 – 694 Mhz***
Guinée	***8***	***minimum of 4 multiplexers per site in the band 470 – 694 MHz***
Guinée Bissau	***6***	***minimum of 4 multiplexers per site in the band 470 – 694 MHz***
Nigeria		***minimum of 4 multiplexers per site in the band 470 – 694 MHz***
Sierra Leone	***0***	***minimum of 4 multiplexers per site in the band 470 – 694 MHz***
Togo	***0***	***minimum of 4 multiplexers per site in the band 470 – 694 MHz***

b) If allotments/SFNs are in use, a sketch map of frequency allocations could be included, with an accompanying table of allocations, as shown in Annex 2. Otherwise, it might be possible to show main transmitters and channels, grouped in layers, in a table.

Administration	*Response*
Benin	***MFN***
Burkina Faso	***MFN***
Cape Verde	***Combination of MFN and SFN***
Côte d'Ivoire	***MFN***
Ghana	***SFN***

Guinée	***Combination of MFN and SFN***
Guinée Bissau	***MFN***
Nigeria	***SFN***
Sierra Leone	***Combination of MFN and SFN***
Togo	***MFN***

c) Please indicate how many digital television assignments/allotments use channels in the frequency sub-band 694-790 MHz (as indicated in Resolution **232 (WRC-12)**, and

Administration	***Response***
Benin	***0***
Burkina Faso	***0***
Cape Verde	***4***
Côte d'Ivoire	***0***
Ghana	***0***
Guinée	***0***
Guinée Bissau	***0***
Nigeria	***0***
Sierra Leone	***0***
Togo	***0***

d) How many are in the remaining part of the UHF band.

Administration	***Response***
Benin	***0***
Burkina Faso	0
Cape Verde	4
Côte d'Ivoire	0
Ghana	8

Guinée	8
Guinée Bissau	6
Nigeria	4
Sierra Leone	0
Togo	0

6 a) Are those frequency bands also shared with other primary services?

Administration	***470 – 694 MHz***	***694 – 790 MHz***
Benin	***No***	***No***
Burkina Faso	***No***	***No***
Cape Verde	***No***	***No***
Côte d'Ivoire	***No***	***No***
Ghana	***No***	***No***
Guinée	***No***	***No***
Guinée Bissau	***No***	***No***
Nigeria	***No***	***No***
Sierra Leone	***No***	***No***
Togo	***No***	***No***

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

Administration	***470 – 694 MHz***	***694 – 790 MHz***
Benin	***Non applicable***	***Non applicable***
Burkina Faso	***Non applicable***	***Non applicable***
Cape Verde	***Non applicable***	***Non applicable***
Côte d'Ivoire	***Non applicable***	***Non applicable***
Ghana	***Non applicable***	***Non applicable***
Guinée	***Non applicable***	***Non applicable***

Guinée Bissau	***Non applicable***	***Non applicable***
Nigeria	***Non applicable***	***Non applicable***
Sierra Leone	***Non applicable***	***Non applicable***
Togo	***Non applicable***	***Non applicable***

7 a) Are those frequency bands also shared with secondary services such as PMSE (Programme Making and Special Events), radio astronomy or wind-profile radar?

Administration	***470 – 694 MHz***	***694 – 790 MHz***
Benin	***No***	***No***
Burkina Faso	***No***	***No***
Cape Verde	***No***	***No***
Côte d'Ivoire	***No***	***No***
Ghana	***No***	***No***
Guinée	***No***	***No***
Guinée Bissau	***No***	***No***
Nigeria	***No***	***No***
Sierra Leone	***No***	***No***
Togo	***No***	***No***

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

8 a) Do you foresee the adoption or expansion of television services broadcast using second-generation systems such as DVB-T2?

Answer: ***Yes for all administrations***

b) If yes, please give indicative details of the planned transition, including any simulcast period.

Answer: ***DVB-T simulcast with DVB-T2 in the few instances where there will be that kind of transition will not last beyond December 2014***

9 a) Do you foresee a requirement for new and enhanced services, including HD and 3D television, on the terrestrial television platform?

Answer: ***Yes – all such premium services HD, UHDTV, 3Detc, shall have to be implemented within the designated/available DTT spectrum bands 174-230MHz VHF and 470-694MHz UHF***

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

Administration	***Response***
Benin	**-**
Burkina Faso	-
Cape Verde	-
Côte d'Ivoire	-
Ghana	HD and UHDTV after ASO
Guinée	-
Guinée Bissau	-
Nigeria	-
Sierra Leone	-
Togo	-

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

Answer: Kindly refer to question 5 a)

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

Answer: Kindly refer to question 5 a) (Intended)

11 a) What is the amount of spectrum you foresee that will be required for terrestrial television broadcasting, if plans in Questions 8, 9 and 10 are to be supported, and services identified in Questions 6 and 7 are to be taken into account? Please indicate the modes of transmission that will be used, and timeframes.

Answer: ***Kindly see annex 3***

ANNEX 1

Presentation of reply to Question 1: *What standards have you adopted for digital terrestrial television broadcasting? Have you started introduction of digital terrestrial television services? If yes, provide further detail on the number of multiplexes in use, their technical specifications, the percentage of geographic area or population they are intended to cover and the total spectrum use*.

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 imple-mentation (MHz)[3]**	**Any additional comments (e.g. duration of licences)**
ECOWAS	**4 (minimum target)**	**DVB-T2,** (256 QAM/ 32KN)	**2/3**	**19/256 or 1/16**	**Fixed/Portable outdoor** (in city core areas)	**35.7-38.2**	**Ghana 35%** **Guinee 35%** **Nigeria** **Cape Verde 40%** **Guinee Bissau 20%**	**95%**	**SD** (mainly) **HD after ASO**	**Depends on number of multiplexes**	**Gross total of 280MHz** (224MHz UHF with additional 56MHz in the VHF)	Initial focus will be to replace current analogue transmission with digital and also expand coverage with the aim of covering at least 95% of population. Thereafter, premium services such as HD, UHDTV, 3D may be introduced but within the designated/available DTT spectrum from 470-694MHz.

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

3 Refer Sections 2 and 3 on page 1 of this circular.

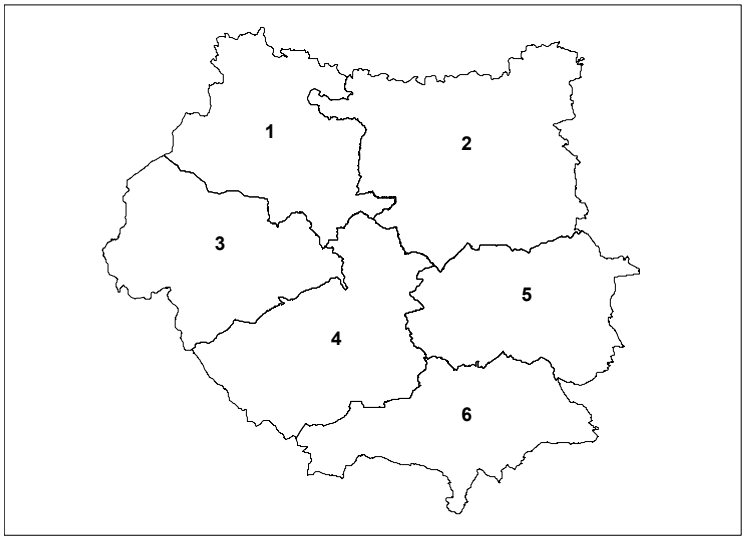
ANNEX 2

Suggested presentation of reply to Question 5: *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.*

If allotments/SFNs are in use, a sketch map of frequency allocations could be included, with an accompanying table of allocations, as shown in Annex 2.

Otherwise, it might be possible to show main transmitters and channels, grouped in layers, in a table.

Please indicate how many digital television assignments/allotments use channels in the frequency sub-band 694-790 MHz (as indicated in Resolution **232(WRC-12)**), and how many are in the remaining part of the UHF band.



Area	Layer 1	Layer 2	Layer 3	Layer 4	Layer 5	Layer 6	Layer 7
1	27	37	39	44	54	56	66
2	23	69	38	-	57	56	-
3	23	69	43	-	57	52	-
4	30	32	39	61	35	52	68
5	21	28	31	45	48	50	-
6	60	-	33	32	49	67	65

ANNEX 3

Presentation of reply to Question 11: *What is the minimum amount of spectrum you foresee that will be required for digital terrestrial television broadcasting in Bands IV & V, if plans in Questions 8, 9 and 10 are to be supported, and services identified in Questions 6 and 7 are to be taken into account? Please indicate the modes of transmission that will be used, and timeframes.*

Country	**No of multi-plexes**	**System & modulation**	**FEC**	**GI**	**Reception mode[4]**	**Capacity per multiplex (Mb/s)**	**Intended percentage population coverage**	**Content per multiplex**	**Total capacity (Mb/s)**	**Total spectrum bandwidth needed (MHz)[5]**	**Any additional comments including time frames**
ECOWAS Region	**1** (VHF)	**DVB-T2,** (256 QAM/ 32KN)	**2/3 or 3/4**	**19/256 or 1/128**	**Fixed** (mainly) portable outdoor in a few cities	**30.81-38.21**	**95%**	**SD/HD** (mainly)	**Depends on number of multiplexes**	**Gross total of 280MHz** (224MHz UHF with additional 56MHz in the VHF)	
	4 (UHF)	**DVB-T2,** (256 QAM/ 32KN)	**2/3**	**19/256 or 1/16**	**Fixed/Portable outdoor** (in city core areas)	**35.7-38.2**	**95%**	**SD/HD**			

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

5 Refer Sections 2 and 3 on page 1 of this circular.