East African Communications Organisation

CHAPTER 1

FIXED, MOBILE AND BROADCASTING SERVICES (AGENDA ITEMS RELATED TO EACO WG1B)

Input Contribution to EACO WRC-23

Working Group

Input Contribution 01

28-02-2022

EAST AFRICAN COMMUNICATIONS ORGANISATION (EACO)

Agenda Item 1.5

Part A: Description
*"to review the spectrum use and spectrum needs of existing services in the frequency band 470-960 MHz in Region 1 and consider possible regulatory actions in the frequency band 470-694 MHz in Region 1 on the basis of the review in accordance with Resolution **235 (WRC-15)**;"*
Part B: Key Elements – the notables
This agenda item addresses the future spectrum use of the band 470-694 MHz in Region 1. In that regard, a review of the current spectrum uses and a study of future spectrum needs in the frequency band 470-960 MHz were requested as well as an assessment of the results of sharing and compatibility studies in relation to possible mobile (except aeronautical) use of the band 470-694 MHz while also providing protection of systems of existing on primary basis and in order to consider possible regulatory action taking into account the result of the studies. Further, TG 6/1 is tasked to conduct sharing and compatibility studies and develop the draft CPM text for WRC-23 agenda item (AI) 1.5. Currently, the fourth meeting of TG6/1 is ongoing started 21st February and shall end on 4th March 2022. ❖ **Current use and future spectrum needs in 470-960 MHz** ✓ Broadcasting service: In Region 1, there is primary allocation to broadcasting service within the band 470-960 MHz. Further, in the band 862-960 MHz, stations of the broadcasting service shall be operated only in some countries of the African Broadcasting Area subject to agreement obtained under No. **9.21** (No. **5.322**). ✓ Mobile, except aeronautical mobile, service: In Region 1, there is primary allocation to mobile service within the band 694-960 MHz. In additional, parts of the band above 694 MHz could be also used by certain applications of the mobile service, e.g. PPDR, RSTT within some administrations. ✓ Fixed service: In Region 1, there is primary allocation to fixed service within the band 790-960 MHz. ✓ Aeronautical Radionavigation service: In some countries, No. **5.312** makes allocation of the frequency bands 645-862 MHz, 646-686 MHz, 726-753 MHz, 778-811 MHz and 822-852 MHz to the aeronautical radionavigation service (ARNS) on a primary basis, as well as No. **5.323** in the frequency band 862-960 MHz. ✓ Radioastronomy service: In the African Broadcasting Area, No. **5.304** makes the allocation of the frequency band 606-614 MHz to the radio astronomy

service on a primary basis.

The same frequencies are assigned by ITU-R RR on secondary basis to the following services in Region 1;

- ✓ Radiolocation service: In some countries, No. **5.291A** makes allocation of the frequency band 470-494 MHz to the radiolocation service on a secondary basis, limited to the operation of wind profile radars.
- ✓ Radioastronomy service: In Region 1 (with the exception of the African Broadcasting Area), No. **5.306** makes allocation of the band 608-614 MHz to the radioastronomy service on a secondary basis.
- ✓ Fixed service: In some countries, No **5.294** makes allocation of the frequency band 470-582 MHz to the fixed service on secondary basis.
- ✓ Fixed and mobile services: In some countries, No. **5.300** makes allocation of the frequency band 582-790 MHz to the fixed and mobile, except aeronautical mobile, services on a secondary basis.
- ✓ SAB/SAP (PMSE) application: In some countries, No. **5.296** makes allocation of the frequency band 470-694 MHz to the land mobile service on a secondary basis, intended for applications ancillary to broadcasting and programme-making

Part C: Current Status of Band

ITU Region 1 allocation and footnotes	African Common allocation and footnotes	Typical applications	Common Information
470-694 MHz **BROADCASTING** **5.149 5.291A 5.294 5.296 5.300 5.304 5.306 5.312**	**470-694 MHz** **BROADCASTING** **5.149** 5.294[AddA6] 5.296[AddA35] 5.300[AddA4] **5.304**	**DTT broadcasting (470-694 MHz)** **VLBI Observations (608 – 614 MHz)** **Services ancillary to broadcasting and program making (SAB/SAP)** **SRD:** **Wireless Audio Applications Radio Microphones**	**Any Band IV/V Analogue terrestrial television to migrate to digital terrestrial television** **GE06 Plan applies** **SAB/SAP: Report ITU-R BT.2338-X and Report ITU-R BT.2344-X** **Wireless microphones, see Rec. ITU-R BT.1871-X and ETSI EN 300 422**

694-790 MHz **MOBILE except aeronautical mobile** **5.312A 5.317A** **BROADCASTING** **5.300 5.312**	**694-790 MHz** **MOBILE except aeronautical mobile** **5.312A 5.317A** **BROADCASTING** **5.300**[AddA4]	**IMT** **Mobile applications** **DTT broadcasting** **SRD:** - **Services ancillary to broadcasting and program making (SAB/SAP)** **Broadband PPDR**	**AU Guidelines on the harmonized use of the DD in Africa applies. Also, Res 646 (rev. WRC-19), Rec. ITU-R M. 2015 , Rec. ITU-R M. 1036 and Res. 760 (rev. WRC-19) apply** **Res. 224 (rev. WRC-19) applies for IMT.**
790-862 MHz **FIXED** **MOBILE except aeronautical mobile** **5.316B 5.317A** **BROADCASTING** **5.312 5.319**	**790-862 MHz** **FIXED** **MOBILE except aeronautical mobile** **5.316B 5.317A** **BROADCASTING**	**IMT** **Fixed and Mobile applications** **DTT broadcasting**	
862-890 MHz FIXED MOBILE except aeronautical mobile 5.317A BROADCASTING 5.322 5.319 5.323	**862-890 MHz** **FIXED** MOBILE except aeronautical mobile 5.317A	**862-876 MHz** **IMT** **Fixed and Mobile applications** **SRD applications:** - **Measurement and Remote-control equipment** - **Radio frequency identification Wireless Audio applications**	**This band is paired with 824-849 MHz** AU Guidelines on the harmonized use of the DD in Africa applies Rec. ITU-R SM.1896-X **The band (863 – 870 MHz) is used for IoT applications, ETSI EN 300 220** **The band 865-868 MHz is used for RFID Applications**
		876-880 MHz **IMT**	**This band is paired with 921-925 MHz. for the GSM-R**

		880-915 MHz **IMT**	**This band is paired with 925-960 MHz.**
890-942 MHz FIXED MOBILE except aeronautical mobile 5.317A BROADCASTING 5.322 Radiolocation 5.323	**890-942 MHz** FIXED MOBILE except aeronautical mobile 5.317A Radiolocation		
		915-921 MHz Gap-duplex **IMT**	AU Guidelines on the harmonized use of the DD in Africa applies
		921-925 MHz **IMT**	**Paired with 876-880 MHz** **AU Guidelines on the harmonized use of the DD in Africa applies**
		925-960 MHz **IMT**	**Paired with 880-915 MHz** **AU Guidelines on the harmonized use of the DD in Africa applies**
942-960 MHz FIXED MOBILE except aeronautical mobile 5.317A BROADCASTING 5.322 5.323	**942-960 MHz** FIXED MOBILE except aeronautical mobile 5.317A		

The band 470-960MHz are majorly used for broadcasting services (470-694MHz), 694-862MHz for IMT services and 862-960MHz for 2G and 3G services within EACO member states.

Part D: Conclusion of the results of studies if any

Sharing and compatibility studies in the band 470-960MHz are still underway at ITU level especially in task Group 6/1. The meeting of Task Group 6/1 of 27th October to 9th November 2021 especially in its WG2 responsible for Sharing and compatibility studies in the band

470-694 MHz have analysed and developed working document: 6-1/TEMP/19 titled: Working document/Material on sharing and compatibility studies in the frequency band 470-694 MHz in Region 1.
However, the working group was still facing the following challenges and Steering Group resolved them;

1. *The issue of considering Primary services only or considering Primary and Secondary Services in the sharing studies*

With the above issues, Steering Group of TG6/1 advised WG2 to consider the contributions related to both situations above and to include the corresponding material in the Working Document with the addition of Editor's notes in the beginning of the working Document expressing the different views on this issue. A short statement was added in the concerned sections of the working document to refer to these views. The final text expressing the views was provided and was added in the working document.

2. *The issue of considering impact from incumbent services to new entrants in the sharing studies*

Like for point 1 above, the WG 2 received guidance from the steering Group of TG6/1 to consider the contributions related to the concerned studies and to include the corresponding material in the Working Document with the addition of Editor's notes in the beginning of the working Document expressing the different views on this issue. A short statement was added in the concerned sections of the working document to refer to these views. The final text expressing the views was provided and included in the working document.

3. *The issue of time percentages for the propagation curves used in the assessment of protection of services*

The WG 2 considered a proposal in an input contribution to apply time percentages used in the GE06 Agreement to assess the protection of Broadcasting and Mobile services. There was disagreement and two opposed views were expressed on this issue. Further discussion is needed in the next meeting to agree on a related text.

4. *The issue of the protection criteria of the mobile service*

The WG 2 considered a proposal in a contribution to send a liaison statement to WP 5D (see Document 6-1/58) informing that, in the absence of guidelines received from WP 5D regarding the protection of IMT, sharing criteria taken from existing M series Recommendation and Report and from the GE06 Agreement are used to study its protection from incumbent services, including broadcasting. As there was no unanimous agreement on the proposal for such a liaison statement it was not submitted to TG 6/1 for consideration. Various views were expressed, text expressing the views was provided and included in the working document.

5. *The issue of considering studies on impact from IMT to PMSE*

The WG 2 considered a proposal made at the meeting to add a placeholder for studies on impact from IMT to PMSE. There was a disagreement on whether these studies should be conducted or if they are out of scope of Resolution **235 (WRC-15).** Editor's note with two views was added. Further discussion is needed in the next meeting to agree on a compromise approach.

6. *The issue of referring to Report ITU-R BT.2301-3 in the working document*

There were two completely opposed views: one is to refer to the published Report ITU-R BT.2301 version without any reservation. The other is to take out all reference to this report from the working document, on the basis that it is subject to reservations and is being revised in WP 6A. The related text in the introduction section of the working document is still to be finalized. The text for the different views on the issue was added.

7. *The issue of non-IMT systems' characteristics*

Annex 1 of the working document includes characteristics, protection criteria and references to ITU-R Reports and Recommendations for non-IMT applications/systems of the land mobile service. This information was provided by WP 5A, in the form of a compiled answers to a survey. Two formats of presentations are included in this Annex, with the understanding that only one of them will be retained at the end. There was a proposal to delete this whole annex (with its two versions) but this was opposed by others. Two views were added to the working document and this issue requires further consideration at the next meeting.

In summary different views/options are still discussed and no conclusion have reached and hoping the ongoing meeting of TG6/1 shall enrich working document: **6-1/TEMP/19.**

Part E: Options and Associated Implications

The options to satisfy Agenda Item 1.5 are not yet to be proposed. Compatibility and sharing studies are still underway within Task Group 6/1, WG2 while WG3 have started drafting CPM report which shall include different options.

Part F: Proposed EACO Common View and/or Position

EACO Preliminary position:

The incumbent primary service of digital video broadcasting in the band 470-694MHz are very important in EAC Member states since it's not possible to have cable TVs in remote areas. Further, this band 470-694MHz is the only band remained for terrestrial television broadcasting in ITU Region 1 and once interfered the terrestrial video broadcasting in Africa shall be inexistence. Therefore, active participation in the ongoing studies are encouraged in order to protect the only band remained.

Part G: Recommendations and Way Forward

Rwanda is actively participating in the studies related to WRC-23 Agenda item 1.5 and urges EACO member states also active participation in the ongoing studies of agenda item 1.5 under ITU-R Task Group 6/1.

Part H: Other Regional Groups and international organizations preliminary positions or positions

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Input Contribution to EACO WRC-23 Working Group

Input Contribution 02

28-02-2022

EAST AFRICAN COMMUNICATIONS ORGANISATION (EACO)

Agenda Item 1.3

Part A: Description
*"to consider primary allocation of the band 3 600-3 800 MHz to mobile services within Region 1 and take appropriate regulatory actions, in accordance with Resolution **246 (WRC-19)**;"*
Part B: Key Elements – the notables
In the Radio Regulations, the frequency band 3 600-3 800 MHz is allocated to the fixed and fixed-satellite services on a primary basis in all three Regions and is also allocated to the mobile, except aeronautical mobile, service on a primary basis within Regions 2 and 3; while the frequency band 3 600-3 800 MHz is allocated to the mobile service on a secondary basis within Region 1. However, currently, some administrations in Region 1 especially countries found in European Union are currently using the frequency band 3 600-3 800 MHz, or part of that frequency band, for the mobile service (for example International Mobile Telecommunications (IMT) implementation), which terrestrial systems of the mobile service are intended to provide telecommunication services on a worldwide scale, regardless of location. Meanwhile, it is necessary to protect existing services when considering possible additional allocation to any service in any frequency band. WRC-23 agenda item 1.3 is to consider primary allocation of the band 3 600-3 800 MHz to mobile service within Region 1 and take appropriate regulatory actions, in accordance with Resolution **246 (WRC-19)**. Resolution **246 (WRC-19)** *resolves to invite the ITU Radiocommunication Sector*: "To conduct sharing and compatibility studies in time for WRC-23 between the mobile service and other service allocated on a primary basis within the frequency band 3 600-3 800 MHz and adjacent frequency bands in Region 1, as appropriate, to ensure protection of those services to which the frequency band is allocated on a primary basis and not impose undue constraints on the existing services and their future development". Noting further that, the band 3600-4200MHz is used as downlink for C-band satellite services in African Countries which is not fed by heavy rain found in sub-Saharan countries. Therefore, following and contributing to the studies on compatibility studies between mobile service and fixed satellite services is required.

The same studies to consider primary allocation of the band 3600-3800MHz have been studied in WRC-07, WRc-15 and now tabled for WRC-23. However, the two previous WRCs no conclusion was reached.

Part C: Current Status of the Band

ITU Region 1 allocation and footnotes	African Common allocation and footnotes	Typical applications	Common Information
3 600-4 200 MHz FIXED FIXED-SATELLITE (space-to-Earth) Mobile	**3 600-4 200 MHz** **FIXED** **FIXED-SATELLITE** **(space-to-Earth)** Mobile	**Fixed services for PtP in the range 3600-4200 MHz** **Fixed-satellite (space-to-Earth) for PtP/VSAT/SNG in the range 3600-4200 MHz** **BFWA in the range 3600-3800MHz**	**The channelling arrangement for PTP links in this band is based on Rec. ITU-R F.635** **ITU- R F 1488/ REC ITU- R F 635** **Resolution 246 (WRC-19) applies for BFWA.** **Some administrations are considering the use of the frequency band 3600 - 3800 MHz for future systems operating in the mobile service.**

3 600-4 800 MHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
3 600-4 200 FIXED FIXED-SATELLITE (space-to-Earth) Mobile	**3 600-3 700** FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.434 Radiolocation 5.433	**3 600-3 700** FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile Radiolocation 5.435
	3 700-4 200 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile	

The band 3600-3800MHz is used for fixed satellite services within EACO Member States, however it is being used for mobile services especially planned for 5G in European Countries, few of African Countries and Further Countries in Region 2 and Region 3.

Part D: Conclusion of the results of studies if any

Sharing and compatibility studies in the band 3600-3800MHz are still ongoing for mobile and fixed services, fixed satellite services in Region 1. Two studies were developed by WG5A in the November 2021 meeting, one for in-band studies named Study A and in the adjacent band named Study B. However, no contents have been developed as analysis of the submitted input contributions have not been finished.

Part E: Options and Associated Implications

Options to satisfy the Agenda Item 1.3 are not yet to be proposed. Compatibility studies are still undergoing and WG5A in its meeting of November 2022 didn't come up options to satisfy the Agenda Item as studies not yet completed.

Part F: Proposed EACO Common View and/or Position

EACO Preliminary position:

The incumbent primary service fixed satellite services in (C-Band) must be protected from interference of mobile services due to its importance in resisting to heavy rains in Sub-Saharan Countries while also considering the assignment of mobile services on the band 3600-3800MHz on primary service. Noting that K-Band faces heavy interruption of rain that would replace C-band in provision of trusted fixed satellite services.

Part G: Recommendations and Way Forward

Rwanda Administration urges Member States to continue active participation in the ongoing studies and analyze the input contributions from ITU Members with the intent of positively influencing the outcome of the studies (contribute to the studies of WG5A as much as possible). Further, EACO Member States encouraged to contribute in WG5A meeting of May 2022 meeting.

Part H: Other Regional Groups and international organizations preliminary positions or positions on Agenda Item 1.3

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Input Contribution to EACO WRC-23 Working Group

Input Contribution 03

28-02-2022

EAST AFRICAN COMMUNICATIONS ORGANISATION (EACO)

Agenda Item 9.1 Issue C

Part A: Description
"Study the use of International Mobile Telecommunication system for fixed wireless broadband in the frequency bands allocated to the fixed services on primary basis, in accordance with Resolution **175 (WRC-19)"**;
Part B: Key Elements – the notables
Resolution 175 (WRC-19) resolves to invite the ITU Radiocommunication Sector to conduct any necessary studies on the use of IMT systems for fixed wireless broadband in the frequency bands allocated to the fixed service on primary basis, taking into account the relevant ITU-R studies, Handbooks, Recommendations and Reports. The following existing ITU-R documents are relevant when dealing with IMT-2000 for wireless access applications: ❖ The Handbook on fixed wireless access addresses the relationship between IMT-2000 and fixed wireless access systems. It is pointed out, that IMT-2000 support both mobile and fixed wireless access applications. It is further pointed out in a graphical representation, that only a subset of IMT-2000 system aspects may be considered for fixed wireless access. ❖ Recommendation ITU-R M.819 contains specific requirements for IMT-2000 pertaining to fixed

wireless access for developing countries.

- ❖ Recommendation ITU-R M. 687-2 defines the relevant aspects of IMT-2000 as well as the objectives.

Furthermore, the following existing ITU-R documents are also relevant when dealing with IMT for fixed wireless access applications:

- ❖ Recommendation ITU-R F.592 defines fixed wireless system as follows: "Telecommunication systems operating in the fixed service including, for example, radio-relay systems, HF systems, and systems using high altitude platform stations (HAPS), and which support a range of applications such as access and core transport".
- ❖ Recommendation ITU-R F.1399 defines fixed wireless access as application in which the location of the end-user termination and the network access point to be connected to the end-user are fixed.

In the 4th meeting (November 2021) of the joint Ad Hoc group WG5A/5C (topic 9.1 c)), the following were done;

- ➢ Analyzed the above ITU-R documents that form part of ITU-R documents dealing with IMT-2000 and IMT for fixed wireless applications;

- ➢ Considered the received input contributions: 5C/222 (UK), 5C/224 (Correspondence Group Chair), 5C/228 (ITU-APT), 5C/238 (AFS), 5C/239 (Egypt), 5C/241 (Russia), and 5C/242 (ARS, UAE) and took into account those carried forward from the May 2021meeting, formed an offline activity to continue discussion of the terms "IMT System" and "Fixed Wireless Broadband" from Resolution **175 (WRC-19)**.

- ➢ Made a progress on a common understanding of "IMT System" within the context of Res. **175 (WRC-19)**, differences remained as to the scope of the Fixed Wireless Broadband (FWB) term, and whether or not it comprises not just access, but also transport and backhaul.

- ➢ The Ad Hoc group ultimately concluded that going forward the focus should be on preparing contributions for the May 2022 meeting that directly address the resolves of Res. **175 (WRC-19)** and propose elements of IMT standards and technologies that can be used for FWB within the existing regulatory framework.

Part C: Current Status of Band

The frequencies allocated to fixed services on a primary basis in the table of frequencies allocations are many and only the studies shall focus on: Handbook on fixed wireless access; ITU-R recommendations: ITU-R M.819; ITU-R M. 687-2; ITU-R F.592 and ITU-R F.1399.

Part D: Conclusion of the results of studies if any

No conclusion of the studies was made. However, there was a progress on a common understanding of IMT system within the context of Resolution 175(WRC-19).

Part E: Options and Associated Implications

The WG5A has drafted working document towards Preliminary draft CPM text for WRC-23 Agenda Item 9.1, TOPIC C). However, no options yet developed

Part F: Proposed EACO Common View and/or Position

EACO Preliminary position:

- The incumbent primary fixed services must be protected from interference by introducing IMT services. Further, the importance of IMT services in the broadband deployment should be given much priority in the studies.
- Existing ITU-R Recommendations/Reports and Handbooks should be reviewed, and if

necessary be modified to accommodate IMT technologies.
Part G: Recommendations and Way Forward
Rwanda Administration urges EACO Member States active participation in the ongoing studies with the intent of positively influencing the outcome of the studies (contribute to the studies of WG5A and WG5C on this subject matter). The Member States are encouraged to participate on Joint Ad Hoc group WG5A/5C of WRC-23 Agenda Item 9.1 Issue C.
Part H: Other Regional Groups and international organizations preliminary positions or positions
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