

Regulatory Affairs and Government Relations

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11 February 2022

Mr. Manyapelo Richard Makgotlho
Independent Communication Authority of South Africa
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Via email: rmakgotlho@icasa.org.za

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Dear Mr Makgotlho

**RE: TELKOM'S SUBMISSION PERTAINING TO THE AUTHORITY'S
DRAFT IMPLEMENTATION OF THE RADIO FREQUENCY MIGRATION
PLAN AND INTERNATIONAL MOBILE TELECOMMUNICATIONS
ROADMAP**

Telkom SA SOC LTD ("**Telkom**") welcomes the opportunity to submit written representations on the notice regarding the Authority's findings of its inquiry and position on the draft implementation of the radio frequency migration plan and the International Mobile Telecommunications ("IMT") roadmap as

Telkom SA SOC Limited: Reg no 1991/005476/30. **Directors:** MS Moloko (Chairperson), SN Maseko (Group Chief Executive Officer), DJ Reyneke (Group Chief Financial Officer), O Ighodaro, N Kapila*, PCS Luthuli, EG Matenge-Sebesho, KW Mzondeki, F Petersen-Cook, KA Rayner, SP Sibisi, H Singh, RG Tomlinson, LL Von Zeuner.
Company Secretary: AC Ceba *India

published in Government Gazette 45690 (Notice 739 of 2021), dated 24 December 2021 ("**draft implementation plan**"). Written submissions are due no later than 16h00 on 11 February 2022.

Telkom trusts that its submission will assist the Authority in appropriately revising and concluding on the matters espoused in the draft implementation plan.

Please find herewith Telkom's written submission.

Yours Sincerely

A handwritten signature in black ink, appearing to read 'Siyabonga Mahlangu', enclosed within a faint circular outline.

Dr Siyabonga Mahlangu

Group Executive: Regulatory Affairs and Government Relations

Submission to the Independent Communications Authority of South Africa

Draft implementation plan

Government Gazette No. 45690 (Notice 739 of 2021) dated 24 December 2021

1. Introduction

1. Telkom welcomes the opportunity to provide inputs to the Authority's findings on the inquiry and position of the draft implementation of the radio frequency migration plan and the IMT roadmap.
2. The Authority is commended for making the migration of bands a market priority, and especially welcomes the feasibility studies already undertaken as well as others still to commence. The insights obtained in these feasibility studies for each affected band, will ensure that each band is properly evaluated according to its unique deployments, with varying ranges of services, both current and future, and other characteristics.
3. Whereas Telkom supports frequency migrations to allow for the implementation of IMT bands, in a continuous drive to make more efficient use of spectrum as prescribed by section 2(e) and (z) of the Electronic Communications Act, Act 36 of 2005 ("the ECA"), Telkom wants to reiterate that migrations without comprehensive feasibility studies, combined with properly consulted Radio Frequency Spectrum Assignment Plans ("RFSAP"), may lead to inefficient use of spectrum due to unnecessary migrations. This must be avoided at all costs.
4. Telkom is looking forward to partaking in the feasibility studies and development or updating of RFSAP, since we are currently occupying various of the frequency bands under consideration in the draft implementation plan, and eagerly await guidance from the Authority in this regard. Telkom is of the view that it is imperative that all affected parties are thoroughly engaged in these processes including one-on-one meetings where required.

2. General comments

2.1. Timelines for migration

5. The Authority indicates a timeline of two (2) to three (3) years for the implementation of all proposed frequency migrations.
6. Telkom recommends that each band be considered on its own merit as migration will depend on several factors such as a destination frequency band, selecting and procuring equipment, planning, deployment, etc. In some cases, even a 3-year migration target will be ambitious and may need to be extended, for example, to 5 years.

2.2. Ad paragraph 3.3 (Findings and Position of the Authority)

7. There seems to be contradictions between paragraph 3.3 and the Annexures on the Feasibility Studies in some frequency bands. For example, in many frequency bands, paragraph 3.3 refers to the need for a “*Feasibility Study to be reviewed and updated*” while, for the same frequency band, in the relevant Annex, it seems that the Feasibility Study has been concluded and that the Authority will move to the next step i.e. the development or updating of the Radio Frequency Spectrum Assignment Plan (“RFSAP”). This matter must be addressed to ensure Regulatory certainty as to the status of the Feasibility Studies conducted as part of this process.
8. The Authority “*prioritised*” the twenty-eight (28) radio frequency bands listed as Category 1 bands in the Inquiry¹. There are however a few uncertainties with regards to this section, which need clarification. These are:
 - a. The second column is titled “*Was band one of 14 IMT bands selected for detailed stakeholder questions?*”. Although it is assumed that this refers to the

¹ Inquiry for the Implementation of the radio frequency migration plan and IMT roadmap (GN 580 of 2021, GG 45247, 30 September 2021)

Category 2 radio frequency bands as per the Inquiry, this is not clear and needs to be explained.

- b. Some of the 28 listed bands are given a “priority” number (column 7). Although the introduction table refers to “*priority based on maturity of the eco-systems as well as the value to society*”, there is no indication in the draft implementation plan as to how this priority assessment was conducted and the details used to reach the specific priority. It is also not clear what this “priority” means or what its relevance in the process is. It is further also noted that bands are prioritised from 1 to 4 and then from 7 to 13 while there are no bands with priority 5 and 6 or above 13. Also, the status of bands without a “priority” number is not clear. For example, the band 24.25-27.5 GHz is marked as “*High Priority Urgent*” but has no “priority” assigned in column 7. Telkom recommends that these issues be addressed.
- c. Reference is made to the “*2nd Consultation*” without any indication of what this entails. Although it could be assumed to be referring to the additional consultations pertaining to the feasibility studies and RFSAPs, these are not clear and must be clarify.
- d. Under the activity column (Column 6) for the 450 MHz band, reference is made to “*Feasibility study to be reviewed and updated as 15-20*”; it is not clear what “15-20” means and needs to be clarified.
- e. The bands 31.8-33.4 GHz and 37-40.5 GHz are not numbered in the table. These should be bands 25 and 26 respectively with all subsequent bands re-numbered accordingly.
- f. Inclusion of the band 31.8-33.4 GHz is also not clear as this band was not part of the bands consulted upon in the Inquiry. If it was recommended by industry, the Authority needs to provide more information as to the intended use of this band, noting that it is not an IMT frequency band.

2.3. Reference to “National Radio Frequency Plan”

9. The references to national frequency allocations are made in relation to the National Radio Frequency Plan 2021 or NRFP-21. This is a concern as this draft band plan has not yet been published following the consultation process in 2021.
10. Referencing the NRFP-21 creates regulatory uncertainty in several instances. For example, for the band 2300-2450 MHz, the PTMP/TDMA typical applications have been removed, whilst the current prescribed plan (2018 National Table of Frequency Allocations) still contains this reference. Another example is in the band 3300-3400 MHz where the Radio Astronomy has been added under Typical Applications while the Notes and Comments column refers to “*See section 5 for coordination with radio astronomy*”. This application is not contained in the current band plan and this reference is therefore also not available publicly since the NRFP-21 has not yet been prescribed.
11. Telkom recommends that the NRFP-2021 be finalised and published prior to concluding the draft migration plan to ensure regulatory certainty.

3. Band specific comments

3.1. 450 MHz band

12. The Authority considers two scenarios for the 450 MHz band (450-470 MHz). Telkom respectfully submits that scenario 1 is not appropriate for several reasons.
 - a. Migrating all users, including those unaffected for the proposed Bands 31 or 72 IMT arrangements, is not sensible. Telkom fully supports the use of the 450 MHz band for IMT, but it is of the view that parts of this band will remain unaffected by the proposed IMT identification and these unaffected systems (i.e. point-to-point links) do not have to migrate, at least not at the same time as those systems occupying the proposed IMT allocation/s.
 - b. Forcing the unaffected PTP links to migrate will leave those portions of the spectrum unused following the implementation of IMT, which is an inefficient use of spectrum and contrary to sections 2(e) and (z) of the ECA.
 - c. The need to migrate the PTP links remains an option after implementation of IMT, if needed as evidenced through co-existing studies.
13. The Authority clearly acknowledges that scenario 2 is the better option, but then decides to implement scenario 1, i.e. to migrate all users out of this band prior to licensing a portion or portions of the band for IMT. Telkom doesn't support this view and recommends that migration should focus only on those systems impacting the proposed IMT bands to be adopted.
14. The proposal to consider either Band 31 or 72 remains unexplained. The Authority indicates that it will move to the updating of the RFSAP through another round of consultations, so Telkom anticipates that the final decision on whether to opt for Band 31 or 72 (or both) will be taken at such time. Therefore, Telkom will provide further

inputs on this matter during that round of consultations. It must however be noted that these two bands are overlapping so both cannot be adopted in full.

3.2. 1452-1492 MHz and 1492-1518 MHz bands

15. Telkom notes that the frequency bands 1452-1492 MHz and 1492-1518 MHz are addressed in Annex 3 and 14 respectively. Telkom recommends that these two bands, as well as the band 1427-1452 MHz, be addressed as one IMT frequency bands (i.e. 1427-1518 MHz or “1.5 GHz”). This contiguous frequency range is also reflected by the Authority in Figure 13.
16. Therefore, Telkom recommends that the 3 bands, or the 1.5 GHz band, be considered as one band in terms of IMT licensing. This applies to all 3 channelling arrangement options i.e. TDD, FDD and Supplementary Downlink (SDL).
17. Migration should therefore be considered within all 3 band simultaneously, to make the entire 1.5 GHz band available for IMT. Making the entire 1.5 GHz band available for IMT will provide 90 MHz of additional mid-band IMT spectrum, which will be more efficient use of the band.

3.3. 2300-2450 MHz band

18. According to Annex 4 of the draft implementation plan, it seems that the prescribed Feasibility Study has been conducted (“*This Feasibility Study concerning the 2300-2450 MHz band is mandated...*”). However, in section 3 (“*Findings and positions*”), the Authority refers to, in column 6 (“*Activity required*”), to “*Feasibility study to be completed on this band*” (own emphasis).
19. From the above it is not entirely clear as to whether the Feasibility Study has been completed or still needs to be completed. However, it is noted in section 4.7 of the draft implementation plan, (“*Summary proposals from feasibility study*”), that the

Authority proposes to proceed with a RFSAP for IMT in this band; it would therefore seem that the Feasibility Study has been completed. It is crucial that this be clarified as Telkom has a vested interest in the outcome of such feasibility study. In any event, as also highlighted in Telkom's application to amend its 2300/2400 MHz licence, there is no need for a feasibility study.

20. As indicated in Telkom's application for the amendment of its 2300/2400 MHz spectrum licence, Telkom refarmed the band 2360-2387 MHz from FDD Point-to-MultiPoint / Time Division Multiple Access (PTMP/TDMA) to Time Division Duplexing Long Term Evolution (TDD LTE) in accordance with the prevailing refarming regime. The band 2300-2387 MHz is therefore already licensed to Telkom and is used extensively on a national basis to provide LTE services. As also indicated in the draft implementation plan, TDD LTE use provides the highest efficient use of the band.
21. The 2300-2387 MHz band is therefore not available for licensing; only the band 2387-2400 MHz remains available for assignment.
22. Telkom supports the use of the entire band 2300-2400 MHz for IMT services in line with the ITU identification. Therefore, if interference is experienced with Wi-Fi services operating above 2400 MHz, the Wi-Fi equipment should reselect an alternative channel. Whereas Telkom supports the use of the band above 2400 MHz for Industrial, Scientific, and Medical ("ISM") / licence exempt use, Telkom does not support the implementation of a guardband in the band below 2400 MHz to "*preserve and protect*" ISM above 2400 MHz.

3.4. 3300-3400 MHz band

23. Telkom supports IMT identification in this band. The continued use of this band for IMT must be supported at WRC-23 including more relaxed regulatory conditions as well as allowing more countries to identify the band for national IMT use.

24. In section 5.5 (“*Scenario Planning*”) of the draft implementation plan, the Authority states that “...*there appears to be no Radiolocation services in the 3300-3400 MHz in South Africa, therefore, the logical step is to carry out a feasibility study...*” (own emphasis). This statement seems incorrect for several reasons.
- a. During the national preparations for the World Radiocommunications Conference 2015 (WRC-15), it was indicated that there are several ground-based radiolocation systems (radars) operating in this band. This must be confirmed. Also, if there are no radars in the band, the need for a feasibility study seems redundant implying that the Authority could move straight into the development of a RFSAP for the band.
 - b. In the summary proposals section, the Authority proposes to proceed with a RFSAP for IMT services in the band; there is no reference to the need for a feasibility study.
 - c. The table contained in section 3.3 of the draft implementation plan also refers to the need to complete the feasibility study, which seemingly contradicts the above conclusion section.

3.5. 335.4-380 MHz band

25. Telkom supports the proposal to keep the status quo in this band.
26. Migrating users and leaving the band idle for years (a period which the Authority hasn’t identified at this stage) will result in inefficient or no use of the spectrum and therefore contrary to ECA objectives. Operators will also have to incur unnecessary costs in migrating customers without any economic benefits obtained from the use of this band.

27. The use of this band can be reviewed in future, when there is proven Broadband Fixed Wireless Access (“BFWA”) and/or Unmanned Aerial Vehicle (UAV) developments in the band.

3.6. 825-830/870-875 MHz band

28. The band 825-830 MHz paired with 870-875 MHz is part of the Code Division Multiple Access (“CDMA-2000”) band or 3rd Generation Partnership Project (“3GPP”) Band 5. The Authority address this band by wrongly referencing and providing information pertaining to Band 20, or the 800 MHz frequency band. These are 2 very distinct frequency bands.
29. The authority, in its summary proposals, indicates plans to use the “lower part” of the band for IMT i.e. the 870-875 MHz band. It is not clear what such use will entail noting that the band is part of a Frequency Division Duplexing (“FDD”) band and is therefore to be used as a paired band.

3.7. 1429-1452 MHz band

30. See also Telkom’s comments regarding this band made in section 3.2 above.
31. Telkom recommends that the full IMT band be considered in the Feasibility Study, i.e. 1427-1452 MHz (meaning it should start at 1427 MHz and not 1429 MHz). It is not clear why the bottom 2 MHz is excluded from the draft implementation plan as per ITU-R Recommendation M.1036.
32. Whereas Telkom supports the use of the band 1427-1518 MHz for IMT, Telkom recommends that the Authority develops a RFSAP for this band, as with other IMT bands where migration is required and where the spectrum will most likely be assigned through an Invitation to Apply (ITA) process.

33. Information pertaining to Telkom's use of the band for Point-to-Point (PTP) links has been provided in its submission on the Inquiry.

3.8. 1518-1525 MHz band

34. Table 56 provides information on the channelling arrangements associated with the band 1427-1518 MHz, not the band 1518-1525 MHz. This table should therefore be deleted from Annex 15 and moved to Annex 14 (and Annex 3).

3.9. 24.25-27.5 GHz band

35. As an IMT identified band, development of a feasibility study is supported as well as the development of a RFSAP, especially since thousands of PTP links are deployed in South Africa in the "26 GHz" band.
36. Telkom recommends that the "*Spectrum Usage*" be indicated as "High", to reflect the current deployment of PTP systems in the band.
37. Telkom also recommends that a priority number be assigned to this band in the "Priority" column noting that this band is the most important IMT band within the recently identified IMT bands in the mmWave spectrum.

3.10. 31.8-33.4 GHz band

38. Telkom notes that this band was not included in the Inquiry consultation, and that it is not an IMT frequency band. In the European Union ("EU"), the band has been designated to be used as support band for PTP transport links for IMT base stations. Thus, Telkom does not view this band as high priority for a Feasibility Study and proposes to omit it from the list of IMT bands.

3.11.37.0-40.5 GHz band

39. As an IMT identified band, development of a feasibility study is supported as well as the development of an accompanying RFSAP, especially since thousands of PTP links are deployed in South Africa in the “38 GHz” band (37.0-39.5 GHz).

3.12.40.5-42.5 GHz band

40. As an IMT identified band, development of a feasibility study is supported as well as the development of a RFSAP, especially since many PTP links are deployed in South Africa in the “42 GHz” band (i.e. 40.5-43.5 GHz).

3.13.45.5-47 GHz band

41. As an IMT identified band, development of a feasibility study is supported as well as the development of an accompanying RFSAP.
42. This band is probably unused at this stage, or if used, very few systems have been deployed. If also considering the ecosystem still to be developed, the proposed feasibility study is not urgent, and Telkom recommends changing the priority from “High Priority Urgent” to reflect the above.

3.14.47.2-48.2 GHz band

43. As an IMT identified band, development of a feasibility study is supported as well as the development of an accompanying RFSAP.
44. Telkom is not aware of any systems deployed in this band, and with the IMT ecosystem, which is yet to develop, the proposed feasibility study is not as urgent as the lower mmWave bands such as 26 GHz and 40 GHz.
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3.15.66-71 GHz band

45. As an IMT identified band, development of a feasibility study is supported as well as the development of an accompanying RFSAP.
 46. This band probably does not carry any traffic, or if it does, it carries very little traffic, and at this juncture, also considering the ecosystem to be developed, the proposed feasibility study is not urgent.
 47. Telkom recommends that the status of “*Spectrum Usage*” be reflected according to the use of the band.
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