# Government Gazette
# Staatskoerant

REPUBLIC OF SOUTH AFRICA
REPUBLIEK VAN SUID AFRIKA

Vol. 733 24 July Julie 2026 No. 55068

ISSN 1682-5845

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# GENERAL NOTICES • ALGEMENE KENNISGEWINGS

## INDEPENDENT COMMUNICATIONS AUTHORITY OF SOUTH AFRICA

## NOTICE 4049 OF 2026

**ELECTRONIC COMMUNICATIONS ACT, 2005 (ACT NO. 36 OF 2005)**

**HEREBY ISSUES A NOTICE REGARDING THE INTERNATIONAL MOBILE TELECOMMUNICATIONS ROADMAP.**

1. The Independent Communications Authority of South Africa ("the Authority"), hereby, publishes the International Mobile Telecommunications (IMT) Roadmap 2026, in terms of section 4(3)(c) of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000), read with sections 2(e), 30, 31(4), and 33 of the Electronic Communications Act (Act No 36 of 2005).

Mothibi G. Ramusi

CHAIRPERSON



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# 1 ABOUT THIS DOCUMENT

1. The International Mobile Telecommunications (IMT[1]) Roadmap 2026 is the latest in a series of steps carried out by the Authority to support spectrum management and long-term planning. The Authority initiated the development of the IMT Roadmap through the publication of a first draft in 2024 for public consultation. A revised second draft was subsequently published in December 2025, taking into account stakeholder submissions received during the initial consultation phase. The Authority has considered all stakeholder inputs received during these consultation processes in finalising the IMT Roadmap 2026. This document therefore reflects an iterative and consultative approach to spectrum planning.

2. The IMT Roadmap 2026 repeals the IMT Roadmap 2014 and IMT Roadmap 2019. IMT, and particularly mobile broadband services, are a critical input into a variety of social and economic activities in South Africa. There has been a substantial increase in demand for mobile broadband in South Africa over the past years, which means that there is a need for additional spectrum for mobile services for capacity purposes. In addition, there is a need for universal mobile broadband access in South Africa in general, which means that radio frequency spectrum is also needed for coverage purposes. It is also important to note the advantage of lower frequency bands for this purpose where propagation qualities are significantly better than that of the higher frequency bands. The IMT Roadmap 2026 sets out the Independent Communications Authority of South Africa's ("the Authority") approach towards assigning radio frequency spectrum to IMT for these purposes.

3. The IMT Roadmap is the process by which the Authority, which operates in terms of the Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000) ("ICASA Act"), reevaluates its vision for IMT spectrum in South Africa over the medium to long term (5 to 10 years), aligned with international trends and ITU-R Recommendations and Resolutions for IMT. A broad variety of capabilities and applications foreseen as part of the IMT deployment scenarios are described in detail in various ITU recommendations, the latest being for the development of the terrestrial component of IMT for 2030 and beyond (IMT-2030)[2]. The latter Recommendation includes enhancement and evolution of existing IMT services.

4. This document describes the frequency bands identified for IMT, emanating from the World Radio Conference 2023 ("WRC-23") and from the National Radio Frequency Plan 2026 ("NRFP").[3] The Frequency Migration Plan 2025 is also currently being developed, updating the 2019 Frequency Migration Plan. In bands where there are existing licensees, these licensees may need to be migrated. For those bands where the migration process is complex, the Authority develops feasibility studies.[4] This IMT Roadmap sets out the initial feasibility studies for such migrations.

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[1] IMT is defined in the International Telecommunications Union ("ITU") Resolution ITU-R 56, and the principles for its development are described in Resolution ITU-R 65. The term 'IMT' refers to "IMT-2000", "IMT-Advanced", "IMT-2020", and "IMT-2030".

[2] See Recommendation ITU-R M. 2160.

[3] [Reference to be inserted when available.]

[4] Notice regarding the Radio Frequency Migration Regulations 2013, Government Gazette 36334 (Notice 352 of 2013).



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5. The Authority's objectives where the IMT Roadmap is concerned are derived from section 2 of the Electronic Communications Act, 2005 (Act No. 36 of 2005), ("ECA"), and are as follows:

> *"(a) promote and facilitate the convergence of telecommunications, broadcasting, information technologies and other services contemplated in this Act;*
>
> *(b) promote and facilitate the development of interoperable and interconnected electronic networks, ensure the provision of the services contemplated in the Act and to create a technologically-neutral licensing framework;*
>
> *(c) promote the universal provision of electronic communications networks and electronic communications services and connectivity for all;*
>
> *(d) encourage investment, including strategic infrastructure investment, and innovation in the communications sector;*
>
> *(e)ensure efficient use of the radio frequency spectrum;*
>
> *(f) promote competition within the ICT sector;*
>
> …
>
> *(m) ensure the provision of a variety of quality electronic communications services at reasonable prices;*
>
> *(n) promote the interests of consumers with regard to the price, quality and the variety of electronic communications services;*
>
> …
>
> *(y) refrain from undue interference in the commercial activities of licensees while taking into account the electronic communication needs of the public;*
>
> *(z) promote stability in the ICT sector."*

6. The IMT Roadmap 2026 identifies which IMT bands, between 450MHz and 71GHz, could be deployed in South Africa.

7. The eventual assignment to IMT is made through a Radio Frequency Spectrum Assignment Plan ("RFSAP"). The first IMT RFSAPs were published in 2015.[5] Further, IMT RFSAPs were finalised in 2022[6], and 2023[7].

8. This document forms part of the evolution of spectrum planning documents starting from SABRE 1 of 1997 to the latest Final acts of the latest WRC-23 and takes the long-term planning process associated with Spectrum planning, with a view of ensuring that spectrum is made available for the highest value use and in turn, therefore ensuring efficient use.

9. A key driver for the deployment of IMT bands is the need to ensure that mobile broadband meets the objectives of 'broadband for all', which is encapsulated in the targets of the SA Connect policy published in 2013.

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[5] Government Gazette No. 38640 (Notices 270 to 278 of 2015).

[6] Government Gazette No. 47788 (Notices 2886 to 2891 of 2022).

[7] Government Gazette No. 48353 (Notices 3243 to 3246 of 2023).



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10. This Roadmap is set out as follows. First, the legislative framework pertaining to radio frequency spectrum management is set out. Next, the international context is explained. Third, technical and deployment matters are explained. Fourth, demand forecasts for South Africa are considered.

# 2 EXECUTIVE SUMMARY

11. There is substantial growth in demand for broadband services in South Africa, and rapid advancements in new broadband technologies internationally. There is thus a need for spectrum planning for broadband where IMT is concerned. In summary, this IMT Roadmap includes the following:

12. **The policy and regulatory framework** in which spectrum planning takes place is set out in the ICASA Act, the ECA, ministerial policies, and regulations issued by ICASA. Especially relevant for the planning of IMT spectrum is the National Broadband Policy, 2013 (South Africa Connect), which sets out broadband speed targets to be achieved.[8] Important ICASA regulations connected with the IMT Roadmap are the National Radio Frequency Plan ("NRFP") 2026[9]. The Radio Frequency Migration Regulations ("RFMR 2013")[10] and the Radio Frequency Migration Plan 2019 ("RFMP 2019") are also relevant.[11]

13. **International context (Section 4):** Section 4(1)(c) of the ICASA Act stipulates that ***"the Authority, subject to section 231 of the Constitution, must act in a manner that is consistent with the obligations of the Republic under any applicable international agreement."*** Further, Section 4(3)(c) stipulates that ***"the Authority must control, plan, administer and manage the use and licensing of the radio frequency spectrum in accordance with bilateral agreements or international treaties entered into by the Republic …"*** Accordingly, for the Authority to control, plan, administer, and manage the use and licensing of the radio frequency spectrum effectively the Authority is an active participant in processes established by international organisations that carry out spectrum planning, including the International Telecommunications Union ("ITU"), the African Telecommunications Union ("ATU"), and the Communications Regulatory Authority of Southern Africa ("CRASA"). Participation in these international organisations is important in order to ensure that South Africa adopts plans for radio frequency spectrum that minimise harmful interference, and that result in customers in South Africa benefiting from the economies of scale resulting from the widespread adoption of standard technologies.

14. **Technical and deployment matters (Section 5):** It is important that South Africa's approach to spectrum planning is harmonised with that of the rest of the world, for the reasons explained above. It is also important that South Africa adopts approaches to spectrum utilisation that are flexible in nature, in order to permit the introduction and growth of new technologies. Furthermore, modern approaches to technical spectrum management need to be promoted, including using total radiated power ("TRP"), rather than equivalent isotropically radiated power ("EIRP"), where applicable.

15. **IMT in South Africa (Section 6)**: Currently, 1 155MHz of spectrum is identified for IMT and RFSAPs have been issued or licenses for IMT have been issued, 794MHz of which has been

[8] Government Gazette 37119 (Notice 953 of 2013).

[9] Government Gazette 46088 (Notice 911 of 2022).

[10] Government Gazette 36334 (Notice 352 of 2013).

[11] Government Gazette 42337 (Notice 166 of 2019).



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assigned for IMT use to licensees. There is a further 1 145MHz of mid-band spectrum for which feasibility studies are under development in this IMT Roadmap 2026.

16. **Forecasts of demand for IMT (Section 7):** It is likely that the amount of spectrum needed for IMT is considerably higher than the amount of spectrum currently allocated for this purpose. There is a significant degree of uncertainty on how much spectrum may be needed for IMT, which might be as low as approximately 3 000MHz in the event that only a small proportion of the population uses their devices in the busy hour, and if significant numbers of connections are offloaded to fibre to the premises (FTTX) including via WiFi. There may also be substantially greater demand, in excess of 14 000MHz, in the event that FTTX/WiFi offload is low, and busy hour usage is high. Furthermore, the population-density based methodology applied here excludes machine to machine connections, of which there are a growing number. Of the 94m active mobile subscriptions, approximately 13m (approximately 14%) are machine to machine subscriptions. While it is difficult to forecast the amount of spectrum needed with any degree of precision, it is highly likely that considerably greater amounts of spectrum are likely needed for IMT.

17. **Obligations for licensees (Section 9):** Obligations for licensees include those relating to coverage and quality of service:

    17.1. There are significant coverage gaps in mobile broadband services in rural areas. At the same time population density in those provinces is low. There are broadly, two approaches to address those coverage gaps: First, rollout obligations could be considered in 'coverage lots' in future spectrum auctions, which need to take into account relevant activity points and reasonable coverage obligations. Second, HIBS services could be considered as a means of achieving full coverage.

    17.2. Quality of service ("QoS"), including broadband speeds experienced by end users, is an important feature of IMT services. Broadband speeds can be measured and monitored directly or by using crowd-sourced data, although these data have limitations including as a result of uncontrolled test conditions, differences in device capabilities, product speed caps, and differences in test servers. Furthermore, coverage maps with details on transmitters, emissions, and the like, are also a means of measuring QoS.

18. **Timelines for migration (Section 10):** Section 3.3 of the Radio Frequency Spectrum Migration Regulations requires that a number of factors be taken into account where timelines for migration are concerned, including: "*the duration of the spectrum licence, the time frame to migrate existing customers (end users), the economic life of the equipment installed, and adequate forward planning*.[12]" The current timelines proposed are as follows (discussed in more detail in Section 10):

    18.1. 2025-2026: Draft RFSAPs published for: 1710-2200MHz, 1880-1920MHz, 3600-3800MHz, 4800-4990MHz, 6425-7125MHz, 24.24-27.5MHz, 37-43.5GHz, 45.5-47GHz, 47.2-48.2GHz, 66-71GHz.

    18.2. 2026-2027: Final IMT RFSAPs to be developed.

    18.3. 2027-2028: RFSAP for IMT systems implementation.

    18.4. 2028+: Deployment of IMT systems.

[12] Government Gazette 50389 (Notice 4559 of 2024).



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# 3 SOUTH AFRICAN POLICY AND REGULATORY FRAMEWORK

## 3.1 The Independent Communication Authority of South Africa Act, 2000 (Act No. 13 of 2000)

19. The Independent Communications Authority of South Africa Act, 2000 (Act No.13 of 2000) confers upon the Authority its powers and duties. Section 4(3)(c) of the ICASA Act provides that the Authority:

*"(c) must control, plan, administer and manage the use and licensing of radio frequency spectrum in accordance with bilateral agreements or international entered into by the Republic;"*

## 3.2 The Electronic Communications Act, 2005 (Act No. 36 of 2005)

20. The ECA regulates electronic communications in the Republic of South Africa. The objectives of the ECA that are of relevance to the current process are set out in Paragraph 5 of this document.

21. The relevant objects of the ECA are set out in Section 1 as follows:

*"2. The primary object of this Act is to provide for the regulation of electronic communications in the Republic in the public interest and for that purpose to—*

*(a) promote and facilitate the convergence of telecommunications, broadcasting, information technologies and other services contemplated in this Act;*

*(b) promote and facilitate the development of interoperable and interconnected electronic networks, ensure the provision of the services contemplated in the Act and to create a technologically-neutral licensing framework;*

*(c) promote the universal provision of electronic communications networks and electronic communications services and connectivity for all;*

*(d) encourage investment, including strategic infrastructure investment, and innovation in the communications sector;*

*(e) ensure efficient use of the radio frequency spectrum;*

*(f) promote competition within the ICT sector;*

…

*(m) ensure the provision of a variety of quality electronic communications services at reasonable prices;*

*(n) promote the interests of consumers with regard to the price, quality and the variety of electronic communications services;*

…

*(y) refrain from undue interference in the commercial activities of licensees while taking into account the electronic communication needs of the public;*

*(z) promote stability in the ICT sector."*

22. Section 30(1) of the ECA provides that:



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*"In carrying out its functions under this Act and the related legislation, the Authority controls, plans, administers and manages the use and licensing of the radio frequency spectrum except as provided for in section 34."*

23. Section 30(2) provides that the Authority must:

> *"(2)'In controlling, planning, administering, managing, licensing and assigning the use of the radio frequency spectrum, the Authority must -*
>
> *(a) comply with the applicable standards and requirements of the ITU and its Radio Regulations, as agreed to or adopted by the Republic as well as with the national radio frequency plan contemplated in Section 34;*
>
> *(b) take into account modes of transmission and efficient utilisation of the radio frequency spectrum, including allowing shared use of radio frequency spectrum when interference can be eliminated or reduced to acceptable levels as determined by the Authority;*
>
> *(c) give high priority to applications for radio frequency spectrum where the applicant proposes to utilise digital electronic communications facilities for the provision of broadcasting services, electronic communications services, electronic communications network services, and other services licensed in terms of this Act or provided in terms of a licence exemption;*
>
> *(d) plan for the conversion of analogue uses of the radio frequency spectrum to digital, including the migration to digital broadcasting in the Authority's preparation and modification of the radio frequency spectrum plan; and*
>
> *(e) give due regard to the radio frequency spectrum allocated to security services."*

24. Section 30(3) provides that:

*"The Authority must, in performing its functions in terms of subsection (1), ensure that in the use of the radio frequency spectrum harmful interference to authorised or licensed users of the radio frequency spectrum is eliminated or reduced to the extent reasonably possible."*

25. Section 31(4) provides that, the Authority may amend a radio frequency spectrum licence-

*"(a) to implement a change in the radio frequency plan;*

*(b) in the interest of orderly radio frequency spectrum management;*

*(c) to effect the migration of licensees in accordance with a revised radio frequency plan or the transition from analogue to digital broadcasting"*

26. Section 33 of the ECA speaks to frequency co-ordination, and subsection 3 provides that

*"(3) The Authority must prescribe regulations governing the co-ordination contemplated in sub-section (1), which may include a process for the resolution of disputes among radio frequency licensees on an expedited basis."*

### 3.3 Ministerial policies

27. In terms of Section 3(1) of the ECA, the Minister may make policies on national matters applicable to the ICT sector, consistent with the objectives of the ECA and of the relevant legislation in relation to among others:

*"(a) the radio frequency spectrum…*



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*(c) the Republic's obligations and undertakings under bilateral, multilateral, or international treaties and conventions, including technical standards and frequency matters*

*(d)The application of new technologies pertaining to electronic communications services, broadcasting services and electronic communications networks"*

28. In particular, the National Broadband Policy: South Africa Connect: Creating Opportunities, Ensuring Inclusion' ("SA Connect Policy"), which is South Africa's Broadband Policy, was brought into effect in November 2013 by the Department of Communications ("DoC"). The policy aims to create a seamless information infrastructure, which is accessible to and affordable for South Africans.

29. South Africa Connect plays an important role in defining spectrum requirements for government policy directives. The overall goal is to achieve a universal average download speed of 100 Mbps by 2030. The 2020 vision for broadband is to provide 100% of South Africans with broadband services at 2.5% or less of the population's average monthly income.

30. The objectives of the SA Connect Policy (Section 3[13]) are, among others, to ensure:

*"affordable broadband available nationally to meet the diverse needs of public and private users, both formal and informal, consumers and citizens;*

*policy and regulatory conditions that enable public and private sector players to invest and also contribute;*

*public sector delivery, including e-government services, underpinned by the aggregation of broadband needs;*

*that all public institutions at the national, provincial, and municipal level should benefit from broadband connectivity, and this should be extended to the communities they serve;*

*to establish a framework such that public and private enterprises, formal and informal, are able to fully exploit the efficiencies offered by ubiquitous broadband and its potential for innovation."*

31. The SA Connect Policy includes the following targets and timeframes for access to broadband in South Africa (Section 8):

**Table 1: SA Connect Policy Targets**

| Target | Penetration Measure | Baseline (2013) | By 2016 | By 2020 | By 2030 |
|---|---|---|---|---|---|
| Broadband access in Mbps user experience | % of population | 33.7% internet access | 50% at 5 Mbps | 90% at 5 Mbps<br>50% at 100 Mbps | 100% at 10 Mbps<br>80% at 100 Mbps |
| Schools | % schools | 25% Connected | 50% at 10 Mbps | 100% at 10 Mbps<br>80% at 100 Mbps | 100% at 1 Gbps |
| Health facilities | % of health facilities | 13% Connected | 50% at 10 Mbps | 100% at 10 Mbps<br>80% at 100 Mbps | 100% at 1 Gbps |
| Government facilities | % of Government offices | | 50% at 5 Mbps | 100% at 10 Mbps | 100% at 100 Mbps |

[13] Department of Communications. 2013. South Africa's Broadband Policy: South Africa Connect: Creating Opportunities, Ensuring Inclusion. Government Gazette 37119, Notice 953 of 2013. Available at: https://www.dcdt.gov.za/images/documents/Broadband/gazette_version_1__bb_policy__4_dec_2.pdf



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32. The Minister also released a next-generation frequency policy in 2024.[14] In relation to IMT spectrum, the latter policy sets out that:

*"23.2(g) The Authority must investigate and report with recommendation(s) to the Minister, a framework for the release of spectrum for community use and identify IMT spectrum that can be designated for transformation objectives of community networks, including conditions for the distribution of free basic data to the determined beneficiaries, within a year (1) of publication of this spectrum policy."*

33. Investigating a framework for the release of spectrum and providing a report to the Minister within a year of publication of the policy may not be feasible due to the Authority's infrastructure, financial and capacity challenges; and also considering that the policy was published on 28 May 2024, leaving the Authority with about 7 months to conduct the investigation. This may not be necessary due to the Authority has already taken care of the issue as per below.

34. The Authority has already made provisions in Section 13 of the "Invitation To Apply on the Licensing process for IMT in respect of the provision of Mobile Broadband Wireless Access Services[15] (" the ITA"), whereby;

*"In cases where the spectrum is not fully utilised by the licensee within five (5) years of issuance of the Radio Frequency Spectrum Licences, the Authority will initiate the following process for the Licensee:*

*to share unused spectrum in all areas to ECNS licensees who may, inter alia, combine licensed spectrum in any innovative combinations in order to address local and rural connectivity in some municipalities including by entrepreneurial SMMEs;"*

35. Further, the ITA also provides for "Open Access Obligations"[16]:

*"A Licensee assigned spectrum through this auction process is required to provide open access to MVNOs which must have 51% ownership held by persons from Historically Disadvantaged Persons. This provision shall become licence conditions for licences issued in this auction process. The Licensee assigned spectrum through this auction process shall be required to submit to the Authority within a period of between 3 – 6 months the business plans to ensure that the MVNOs are sustainable for the period of 3 years."*

36. Section 21 of the next-generation radio frequency policy also considers IMT spectrum[17], as follows:

*"(a) Due to limitations in spectrum availability, and considering that in certain spectrum bands, demand for access to spectrum resources exceeds supply, such spectrum bands shall be deemed as "*high-demand spectrum*".*

*(b) The International Mobile Telecommunications (IMT) spectrum bands as updated from time to time in the National Radio Frequency Plan are classified as "*high-demand spectrum*" in line with (a) above."*

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[14] Government Gazette 50725 (Notice 166 of 2024).

[15] Government Gazette 45628 (Notice 717 of 2021).

[16] Government Gazette 45628 (Notice 717 of 2021), see Section 12.3.

[17] Government Gazette 50725 (Notice 166 of 2024).



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37. The Authority's process in this regard is prescribed in regulation 6 and 7 of the Radio Frequency Spectrum Regulations 2015, that is, *"Extended Application Procedure"* and *"Procedure Where There is Insufficient Spectrum to Meet Demand or Where an ITA is Published"*.

38. The Authority currently licences IMT bands by issuing an ITA in terms of regulations 6 and 7 of the Regulations.

### 3.4 The National Radio Frequency Plan

39. The NRFP plays an important role in the IMT roadmap, since the NRFP sets out spectrum allocations to different services in South Africa. The NRFP 2026 is currently in force.

### 3.5 Radio Frequency Migration Regulations and Radio Frequency Migration Plans

40. The Radio Frequency Migration Regulations ("RFMR 2013") were issued together with the first Radio Frequency Migration Plan in 2013 ("RFMP 2013")[18] and were updated and superseded by the Radio Frequency Migration Plan in 2019 ("RFMP 2019")[19].

41. Radio frequency migration is carried out in the following circumstances (Section 4 of the RFMR 2013):

    41.1. If this is specified in the Frequency Migration Plan;

    41.2. In order to comply with the ITU's radio regulations, or following from WRC final acts;

    41.3. Where a change is needed in order to harmonise spectrum use with SADC countries;

    41.4. Where the Authority deems it necessary for the efficient use of spectrum or to comply with the Objects of the ECA;

    41.5. Where a radio frequency assignment needs to be amended such as for in-band migration, in order to achieve the efficient use of spectrum;

    41.6. Where a requirement specific to South Africa requires this, such as protection of central astronomy advantage areas in terms of the Astronomy Geographic Advantage Act, Act No. 21 of 2007.

[18] Government Gazette 36334 (Notice 352 of 2013).

[19] Government Gazette 42337 (Notice 166 of 2019).



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### 3.6 Radio Frequency Spectrum Assignment Plans

42. A number of RFSAPs have been developed over time by the Authority in 2015,[20] 2020[21], 2022,[22] 2023[23], and 2024[24].

43. The process of frequency migration is carried out in terms of the Radio Frequency Spectrum Regulations 2015 ("RFSR 2015"), as follows:

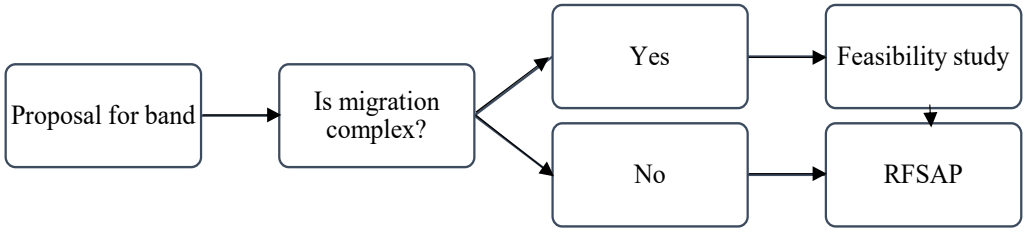
43.1. Preparation of an RFSAP for the particular band or bands (Regulation 3);

43.2. Amendment of a Radio Frequency Spectrum Licence where necessary (Regulation 9).

43.3. When it has been established that migration is required, then the time frame for migration needs to be specified.

43.4. In some cases, it is necessary to carry out a feasibility study on the band in question. This is illustrated in the process flow indicated on Figure 1.

**Figure 1: Process for developing an RFSAP**




44. RFSAPs may include the following (Regulation 3(1) of the RFSR 2015):

*"the types of services to be provided;*

*specific terms and conditions for the use of the frequency bands;*

*specific qualification criteria to be met by applicants;*

*the procedures and timetable to be followed for assignment and licensing, if applicable;*

*the apportionment of the relevant frequency bands in the Radio Frequency Plan for exclusive or shared assignments;*

*detailed frequency channelling arrangements; and*

*any other requirement that the Authority may deem necessary."*

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[20] Government Gazette 38640 (Notices 270-278 of 2015).

[21] Government Gazette 43341 (Notice 284-285 of 2020).

[22] Government Gazette 47788 (Notices 2886 to 2891 of 2022) and Government Gazette 47763 (Notice 2879 of 2022).

[23] Government Gazette 48353 (Notices 3243 to 3246 of 2022) and Government Gazette 49556 (Notices 3999 and 4000 of 2023).

[24] Government Gazette 50657 (Notice 4824 of 2024).



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45. RFSAPs may, in terms of Regulation 3(2) of the RFSR 2015, be limited to only specific geographic areas or parts of the radio frequency spectrum. An RFSAP must indicate whether the band is proposed to be assigned on a first-come first-served or competitive basis in terms of Regulation 3(3). It is possible for the Authority to assign spectrum on a shared basis (Regulation 3(4)), and access to radio apparatus used for the band may be restricted (Regulation 3(5)).

# 4 INTERNATIONAL CONTEXT

## 4.1 Capabilities of IMT

### 4.1.1 Overview

46. The term 'IMT' refers to the series of mobile broadband technologies standardised by the ITU, and used for radiofrequency spectrum planning.[25] The capabilities of IMT have evolved significantly over time, beginning with IMT-2000 (used to deploy 3G mobile services, although the ITU does not define "3G" or later "4G", "5G", or "6G" services), followed by IMT Advanced (used to offer 4G services), IMT-2020 (which 5G is based on), and IMT-2030 (forthcoming 6G services).[26] All of the latter technologies have evolved over time, and the term IMT refers to all of them.

47. IMT standards include terrestrial IMT, and non-terrestrial IMT standards, including satellite services, which were first included in the IMT-2000 standard.[27] The IMT-2030 framework also includes:

*"External standards developing organizations involved in the development of IMT radio interface technologies have ongoing standardization activities that facilitate IMT interworking with nonterrestrial networks of IMT (including satellite communication systems, HIBS and UASs), as well as with other non-IMT terrestrial networks (including RLAN and broadcast)."*

48. This IMT roadmap refers only to the terrestrial component of IMT, although internetworking is taken into account.

49. The development trajectory of the IMT standards and their deployment is shown on Figure 2.

[25] See: https://www.itu.int/en/itu-r/documents/itu-r-faq-imt.pdf

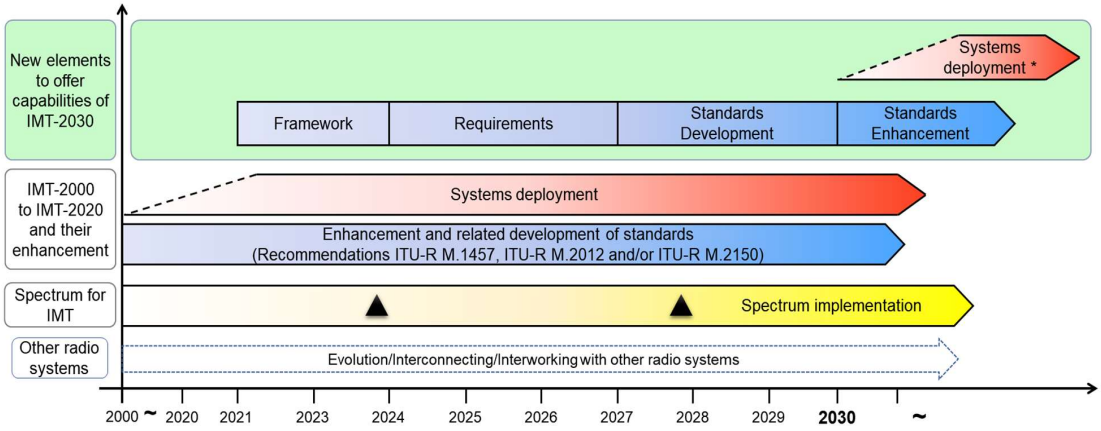
[26] See: ITU-R 56.3, available at: https://www.itu.int/dms_pub/itu-r/opb/res/R-RES-R.56-3-2023-PDF-E.pdf

[27] See: https://www.itu.int/en/itu-r/documents/itu-r-faq-imt.pdf



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**Figure 2: Timeline for the development of IMT between IMT-2000 and IMT 2030**




The sloped dotted lines in systems deployment indicate that the exact starting point cannot yet be fixed.

▲ : Possible spectrum identification at WRC-23, WRC-27 and future WRCs

* : Systems to satisfy the technical performance requirements of IMT-2030 could be developed before year 2030 in some countries.
: Possible deployment around the year 2030 in some countries (including trial systems)

Source: ITU, Recommendation M.2160 https://www.itu.int/rec/R-REC-M.2160-0-202311-I/en

### 4.1.2 IMT-2000 and IMT-Advanced

50. IMT-2000 and IMT-Advanced have the following features, according to the ITU:[28]

*"a high degree of commonality of functionality worldwide while retaining the flexibility to support a wide range of services and applications in a cost efficient manner;*

*compatibility of services within IMT and with fixed networks;*

*capability of interworking with other radio access systems;*

*high quality mobile services;*

*user equipment suitable for worldwide use;*

*user-friendly applications, services, and equipment;*

*worldwide roaming capability; and,*

*enhanced peak data rates to support advanced services and applications: Initially peak data rates of 100 Mbit/s for high and 1 Gbit/s for low mobility were established as targets for IMT-Advanced systems."*

### 4.1.3 IMT-2020

51. IMT-2020, which enabled 5G technologies, provided considerable advances on IMT-2000 and IMT-Advanced. According to the ITU:[29]

[28] See: https://www.itu.int/en/itu-r/documents/itu-r-faq-imt.pdf

[29] See: https://www.itu.int/en/itu-r/documents/itu-r-faq-imt.pdf



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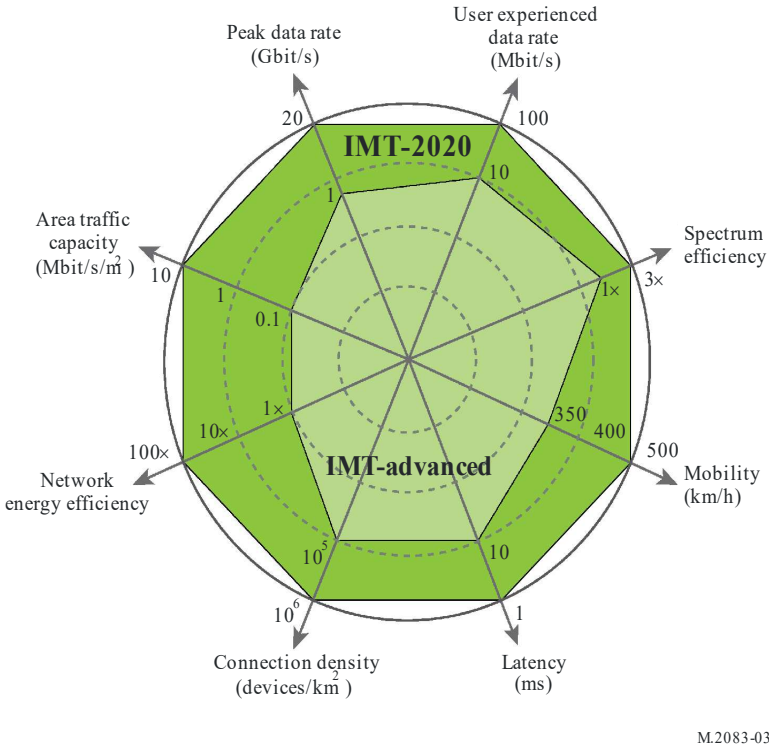
*"The scope of IMT-2020 (5G) is much broader than the previous generations of mobile broadband communication systems and IMT-2020 is designed to provide more capacity for social media, video streaming and other things we are already doing today, but also for new innovative use cases such as securely streaming high-quality video from an ambulance to the hospital and enabling a range of new types of smart devices and industry digitalization. New demands, such as more traffic volume, many more devices with diverse service requirements, better quality of user experience (QoE) and better affordability by further reducing costs, required an increasing number of innovative solutions, which can be provided by the radio interfaces which have been implemented in the IMT-2020 specifications (Recommendation ITU-R M.2150).*

*While previous network generations were mostly designed for phones, IMT-2020 networks were designed for much more flexible use, replacing the need for many special-purpose networks. They can even function as many separate networks – all at the same time. This IMT-2020 feature is called "network slicing". Slices of the network can be tailored for a specific purpose and act as its own independent network. Each slice can optimize the characteristics that are needed for a specific service without wasting resources on things it doesn't need.*

*It's the smart 5G Core that makes slicing possible, which also guarantees the connection and performance that each slice was set up to deliver. It comprises not just an enhancement to the traditional mobile broadband scenarios, but extending the application of this technology to use cases involving ultra- reliable and low latency communications, and massive machine-type communications, as described in the IMT Vision included in Recommendation ITU-R M.2083."*

52. The usage scenarios shown on Figure 3 below:

**Figure 3: Enhancement of key capabilities from IMT-Advanced to IMT-2020**

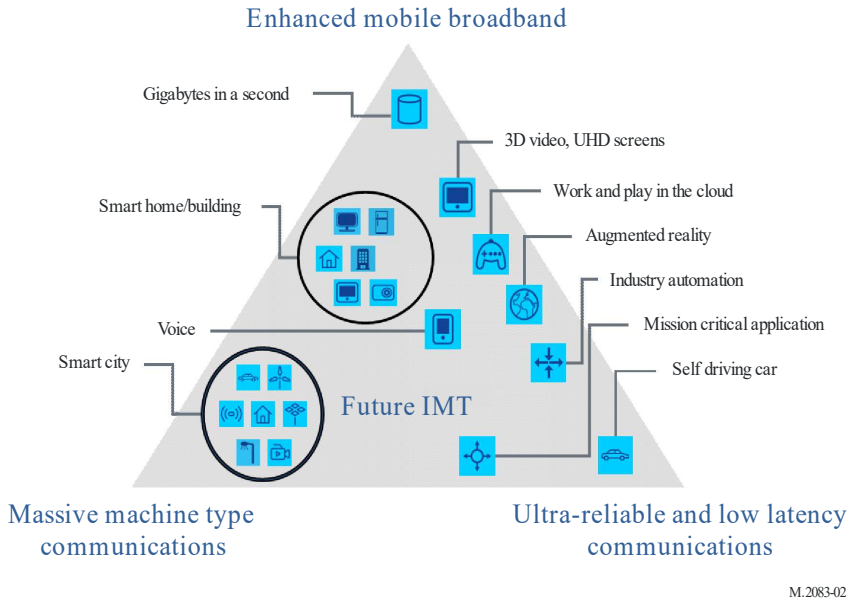



53. The usage scenarios envisaged for IMT-2020 are shown on Figure 4:



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**Figure 4: Usage scenarios of IMT for 2020 and beyond**




### 4.1.4 IMT-2030

54. IMT-2030 continues the evolution of IMT standards, and has the following goals, according to the ITU:[30]

*"Inclusivity: Contributing towards further bridging of digital divides, to the maximum extent feasible, by ensuring affordable access to meaningful connectivity to everyone.*

*– Ubiquitous connectivity: Towards connecting unconnected, IMT-2030 is expected to include affordable connectivity and, at minimum, basic broadband services with extended coverage, including sparsely populated areas.*

*– Sustainability: Sustainability refers to the principle of ensuring that today's actions do not limit the range of economic, social and environmental options to future generations. IMT 2030 is envisaged to be built on energy efficiency, low power consumption technologies, reducing greenhouse gas emissions and appropriate use of resources under the applicable model of circular economy, in order to address climate change and contribute towards the achievement of current and future sustainable development goals.*

*– Innovation: Fostering innovation with technologies that facilitate connectivity, productivity and the efficient management of resources. These technological advances will improve user experience with a view to positively transform economies and lives everywhere.*

*– Enhanced security and resilience: IMT-2030 system is expected to be secure by design. It is expected to have the ability to continue operating during and quickly recover from a disruptive event, whether natural or man-made. Making security and resilience as the key considerations in the design, deployment and operation of IMT-2030 systems is fundamental to achieving broader societal and economic goals.*

[30] See ITU-R M.2160, available at: https://www.itu.int/dms_pubrec/itu-r/rec/m/R-REC-M.2160-0-202311-I%21%21PDF-E.pdf



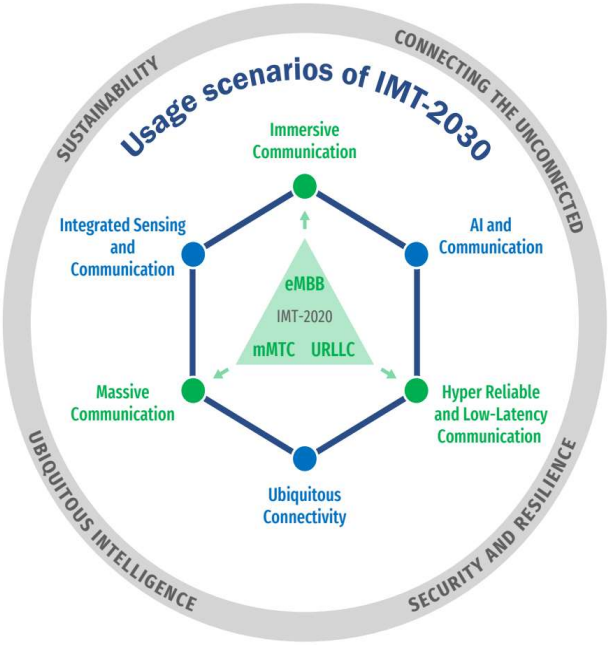
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*– Standardization and interoperability: IMT-2030 systems are expected to be designed from the start to use transparently and member-inclusively standardized and interoperable interfaces, ensuring that different parts of the network, whether from the same or different vendors, work together as a fully functional and interoperable system.*

*– Interworking: IMT-2030 is expected to support service continuity and provide flexibility to users via close interworking with non-terrestrial network implementations, existing IMT systems and other non-IMT access systems. IMT-2030 is also expected to support smooth migration from existing IMT systems, where including support of connectivity to IMT-2020 and potentially IMT-Advanced devices will be advantageous for inclusivity."*

55. The usage scenarios and capabilities for IMT-2030 are shown on Figure 5 and Figure 6. Technologies to enhance the air interface relating to IMT-2030 and beyond are anticipated to include advanced modulation, coding, and access schemes, advanced antenna technologies, in-band full duplex communications, multiple physical dimension transmission, THz communications, and technologies to support ultra-high accuracy positioning.[31] There may be technological improvements that significantly improve spectral efficiency, i.e. providing significantly greater data speeds through the same amount spectrum. At the same time, consideration is being given to using spectrum between the 100GHz and 1THz bands for IMT. However, the ITU has proposed that more work is needed before the mmWave bands above 100GHz are used for IMT.

**Figure 5: Usage scenarios of IMT-2030**

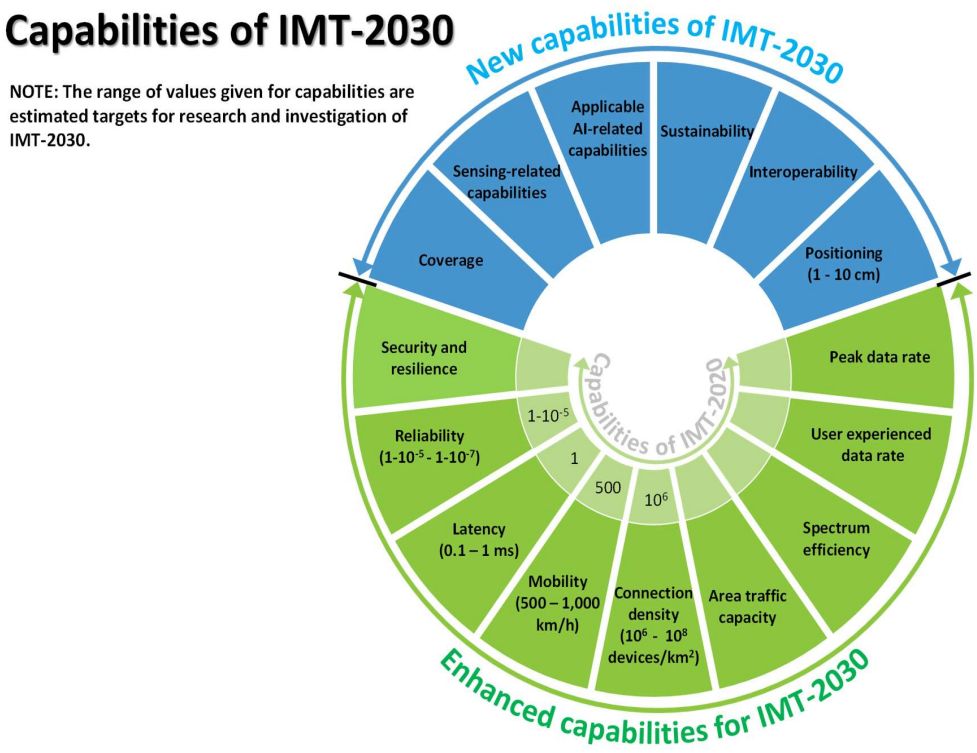



[31] See ITU-R M.2516, 'Future technology trends of terrestrial International Mobile Telecommunications systems towards 2030 and beyond', available at: https://www.itu.int/pub/R-REP-M.2516-2022



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**Figure 6: Capabilities of IMT-2030**




## 4.2 Radio frequencies for IMT identified by the ITU

56. The ITU's world radiocommunications conferences (WRC) allocate frequency bands to services, from which the relevant bands are identified for IMT. This IMT Roadmap 2026 identifies which of these IMT bands (between 450MHz and 71 GHz) could be deployed in South Africa based on the ITU Radio Regulations, 2024. The ITU definitions of IMT bands are set out on Table 2. The channel arrangements for IMT bands are set out in Recommendation ITU-R M.1036-8. Note that ITU-R M.1036-8 is currently being updated. The ITU-R Study Group meeting of 20 December 2024 considered Draft revision of Recommendation ITU-R M.1036-8, which was presented in Document 5/38. The ITU-R Study Group meeting of December 2025 is to consider the Draft revision of Recommendation ITU-R M.1036-8, since there were no consequential changes to the input contribution made in December 2024.

**Table 2: ITU definition of IMT bands**

| Band | Frequency band | RR FN | WRC Resolution/s |
|---|---|---|---|
| 450 MHz | 450 – 470 MHz | 5.286AA | 224 (WRC-23) |
| 700 MHz | 694 – 790 MHz | 5.312A, 5.312B, and 5.317A | 213 (WRC-23), 224 (WRC-23), 749 (WRC-23), and 760 (WRC-23) |
| 750 MHz | 753 MHz to 758 MHz | 5.312A, 5.312B, and 5.317A | 213 (WRC-23), 224 (WRC-23), 749 (WRC-23), and 760 (WRC-23) |
| 800 MHz | 790 - 862 MHz | 5.312B, 5.316B and 5.317A | 213 (WRC-23), 224 (WRC-23), 749 (WRC-23), and 760 (WRC-23) |



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| Band | Frequency band | RR FN | WRC Resolution/s |
|---|---|---|---|
| 900 MHz | 880 - 915 MHz // 925 - 960 MHz | 5.312B and 5.317A | 213 (WRC-23), 224 (WRC-23), , and 760 (WRC-23) |
| 1500 MHz | 1 427 - 1 518 MHz | 5.338A, 5.341A, 5.346, and 5.346A | 223 (WRC-23), 750 (WRC-19), and 761 (WRC-19) |
| 1800 MHz | 1710-1785 MHz // 1805-1880 MHz | 5.384A, 5.388A | 221 (WRC-23) and 223 (WRC-23) |
| 1900 MHz | 1880-1920 MHz | 5.384A, 5.388, and 5.388A | 212 (WRC-23), 221 (WRC-23), and 223 (WRC-23) |
| 2100 MHz | 1920-1980 MHz // 2110-2200 MHz | 5.388, and 5.388A | 212 (WRC-23), 221(WRC-23), and 223 (WRC-23) |
| 2100 MHz | 2010-2025 MHz | 5.388, and 5.388A | 212 (WRC-23), 221(WRC-23), and 223 (WRC-23) |
| 2300 MHz | 2300-2400 MHz | 5.384A | 223 (WRC-23) |
| 2600 MHz | 2500-2690 MHz | 5.384A and 5.409A | 218 (WRC-23) and 223 (WRC-23) |
| 3300 MHz | 3300-3400 MHz | 5.429A and 5.429B | 223 (WRC-23) |
| 3.5 GHz | 3400-3600 MHz | 5.430A | |
| 3.7GHz | 3600-3800MHz | 5.434A and 5.434B | |
| 4.9 GHz | 4800-4990 MHz | 5.441B | 223 (WRC-23) |
| 6 GHz | 6425-7125 MHz | 5.457E | 220 (WRC-23) |
| 26 GHz | 24.25-27.5 GHz | 5.338A and 5.532AB | 242 (WRC-23) and 750 (WRC-19) |
| 40 GHz | 37-43.5 GHz | 5.550B | 243 (WRC-23) |
| 46GHz | 45.5-47 GHz | 5.553 and 5.553A | 244 (WRC-23) |
| 48 GHz | 47.2-48.2 GHz | 5.553B | 243 (WRC-23) |
| 66 GHz | 66-71 GHz | 5.559AA | 241 (WRC-23) |

57. Several bands are being studied for IMT in future, including the 4400-4800MHz, 7125-8400 MHz range (the 7/8 GHz band), and 14.8-15.35GHz ranges for WRC-27 (Resolution 256, WRC-23).

### 4.3 African Telecommunications Union

58. The Africa Telecommunications Union ("ATU") developed and published the African Spectrum Allocation Plan ("AfriSAP")[32] in 2021. It covers the frequency range 8.3 kHz—3000 GHz. AfriSAP includes a table of common spectrum allocations and applications, basic conditions necessary to guide regulators, relevant applicable footnotes, typical applications, and additional information where applicable. The table of spectrum allocations and applications was based on ITU Region 1 allocations. This initiative is tool towards promoting the harmonized usage of spectrum across a given region: a common spectrum allocation plan that acts as a reference for subregional plans as well as national plans.

[32] Available at: https://atuuat.africa/african-spectrum-allocation-plan-afrisap/



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### 4.4 Communications Regulators' Association of Southern Africa (CRASA)

59. South Africa is part of the Southern African Development Community ("SADC") and is a member of the Communications Regulators' Association of Southern Africa ("CRASA"). South Africa actively participated in the preparation of the SADC Radio Frequency Spectrum Allocation Plan ("SADC RFSAP 2021"), 8.3kHz-3000 GHz, Edition 2021[33], and harmonises spectrum planning with neighbouring countries as far as possible to maintain international coordination.

60. The SADC RFSAP 2021 created a framework for harmonisation across SADC on the use of the radio frequency spectrum. Countries included in the SADC RFSAP 2021 are Angola, Botswana, Comoros, Democratic Republic of Congo, Eswatini, Lesotho, Malawi, Madagascar, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Tanzania, Zambia, and Zimbabwe.

## 5 TECHNICAL AND DEPLOYMENT MATTERS

### 5.1 Harmonisation

61. Global harmonisations are a key component for the achievement of economies of scale supported by a technology neutral regime for licensing. The global availability of harmonised regulatory frameworks for generations of technologies' spectrum will enable economies of scale and facilitate cross-border coordination and roaming for end users.

62. Consistent spectrum release timelines and harmonisation measures are key enablers for the successful deployment of these technology generations and beyond. Market-based competitive licensing models and exclusive individual spectrum licences are the preferred authorisation models for the deployment of these technology generations and systems. This licensing regime brings certainty for investments and predictable network performance and quality. At the same time, this does not preclude the shared use of spectrum.

63. The Harmonized Calculation Method for Africa ("HCM4A") is a regional agreement and technical framework created to facilitate cross-border frequency coordination among African nations.[34] HCM4A establishes a standardized approach for countries to manage radio spectrum and prevent harmful interference between their telecommunications networks. It provides a common set of rules, including methods for calculating signal strength and determining acceptable interference levels, for frequency bands ranging from 29.7 MHz to 43.5 GHz. This framework is essential for the efficient deployment of wireless technologies, including IMT systems like 4G and 5G, across the African continent.

64. The HCM4A will be taken into account when developing the RFSAPs.

[33] Available at: https://www.crasa.org/post-category/electronic-communications-regulatory-guidelines

[34] See: https://www.itu.int/en/ITU-D/Technology/Pages/hcm4a.aspx#:~:text=The%20representatives%20of%20the%20administrations,to%20the%20Fixed%20and%20Land



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### 5.2 Coordination / coexistence

65. It is also important to take into account coordination or coexistence of different services in the same radio frequency band. This takes place during the course of the development of feasibility studies and RFSAPs, and prior to licensing the radio frequency spectrum.

66. Studies on the shared use of spectrum will be taken into account where applicable during the preparation of the feasibility studies and the RFSAPs.

### 5.3 High altitude platform system as IMT base station (HIBS)

67. High altitude platform systems ("HAPS") are defined in ITU RR as platforms operating at a fixed point relative to the earth's surface, at an altitude of between 20-50kms.[35] Frequency bands for HAPS were considered at WRC-19, and discussions on how HAPS could operate as IMT base stations ("HIBS") took place at WRC-23. Specifically, several bands were identified for HIBS in Region 1 at WRC-23 and included in the 2024 Edition of the Radio Regulations:

    67.1. 694-960 MHz or portions thereof (Resolution 213 in WRC-23 and FN 5.312B);

    67.2. 1 710-1 980 MHz, 2 010-2 025 MHz and 2 110-2 170 MHz (Resolution 221 in WRC-23 and FN 5.388A); and

    67.3. 2 500-2 690 MHz (Resolution 218 in WRC-23 and FN 5.409A).

68. No protection was afforded to HIBS in the abovementioned IMT bands, and there is no priority for the use of HIBS over other terrestrial IMT use (Resolution 213 of WRC-23).

69. As noted in the WRC-23 Resolution 213, HIBS would operate as a component of terrestrial IMT networks and could utilise the same spectrum bands as ground-based IMT base stations to deliver mobile broadband services, particularly to underserved, rural, and remote communities.

70. HIBS will be incorporated in updated RFSAPs for all frequency bands identified for HIBS.

### 5.4 Flexible spectrum utilisation

71. Unpaired spectrum is much easier to release than paired spectrum. This benefit is becoming increasingly important as the globally available supply of spectrum falls, meaning, the process of releasing new spectrum can be greatly accelerated by designating it as unpaired TDD.

72. Capacity benefits of unpaired spectrum are realised in the size of available TDD spectrum bands, often assigned in large blocks. From a capacity perspective, this is an advantage over the typical 2×10 MHz configuration found in paired FDD spectrum. The current LTE bandwidth limit is 20 MHz, and most equipment could spread the power of ~80 W over ~40 MHz bandwidth depending on the frequency range. Therefore, 40 MHz assignments per operator might be cost-efficient, but this would be hard to assign in multi-operator environments.

73. The asymmetric nature of TDD brings a number of advantages. One key advantage of this is the flexibility it allows in the adjustment of the downlink and uplink resource ratios. Commonly employed, downlink-to-uplink ratios are 8:1, 3:1, 2:2 and 1:3 and the heavily downlink-oriented

[35] See: https://www.itu.int/en/mediacentre/backgrounders/Pages/High-altitude-platform-systems.aspx#:~:text=HAPS%20can%20be%20rapidly%20deployed,terrestrial%20networks%20damaged%20by%20disasters.



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configuration fits perfectly with current user behaviour, where streaming and downloads take up a high proportion of downlink resources.

74. Unpaired spectrum is best suited for the user behaviour of the mobile broadband era.

75. Unpaired LTE is also optimally suited to cover future M2M and 'Internet of Things' demands which will be predominantly uplink oriented. Also, video uploads from closed-circuit television ("CCTV") result in a higher uplink bandwidth capacity requirement, which has to be taken into account in specialised schemes.

76. Additional features of unpaired spectrum are set out below.

### 5.4.1 Network synchronisation

77. Synchronized operation is required for Time Division Duplex ("TDD") networks in order to ensure efficient use of spectrum. In order to avoid interference between TDD networks operating in adjacent frequency carriers, radio transmissions of the TDD networks should be synchronized and their uplink and downlink frames should be time aligned. On the other hand, unsynchronized operation would lead to large inter-operator guard bands which will require additional operator-specific base stations filtering at a high cost of deployment.

### 5.4.2 Interference suppression

78. Thanks to uplink and downlink channel reciprocity (ensured by the fact that the same portion of the spectrum is used in both link directions), TDD technology has unique co-ordination abilities, such as beamforming, which improves system performance by utilising channel-state information to achieve transmit-array gain.

79. Results show that across the 3GPP standard in Release 8~10, single-layer, dual-layer, and multi-user beamforming can generate a cell throughput gain of 15%.

80. Adoption of beamforming and Coordinated Multi-Points ("CoMP"), called 'Co-ordinated beamforming' ("CBF"), can further enhance network performance because interference is mitigated between inter-eNodeBs.

## 5.5 Guard bands

81. To define the possibilities of any co-existing scenario of IMT with existing technologies and applications, the minimum required guard bands and potential other intelligent interference suppression options need to be considered.

82. For instance, unpaired TDD spectrum bands (discussed below) should typically not be interspersed with FDD spectrum except where it may be possible to apply the SDL with FDD spectrum arrangements.

## 5.6 Total radiated power

83. Historically, harmful interference was measured by setting power limits based on equivalent isotropically radiated power ("EIRP"). There is a need to include measures for using total radiated power ("TRP") where active antennae systems ("AAS") are used for IMT systems, since EIRP



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measures an increase in power when multiple antennae systems are used, even though TRP does not increase, and it is only TRP that results in harmful interference.[36]

84. EIRP only represents the interference at a certain point and not the network-level:

84.1. In the case of passive systems, the antenna gain is fixed and almost the same in different directions in the sector, and so the EIRP metric is suitable in passive systems.

84.2. In case of AAS systems, the beam's direction and beam's gain vary depend on the real traffic, hence, the interference caused by the unwanted emissions is averaged in the sector which can be properly measured by TRP.

85. Specifying an EIRP requirement will not allow guaranteed control of the total amount of interference in the network and would lead to misleading results and potentially over protection for co-existing systems.

86. RFSAPs for IMT spectrum therefore need to take into account TRP in respect of AAS and EIRP for non-AAS. Depending on the band, higher power limits may be permitted on a case-to-case basis, of acceptable justification is provided. Further, the authority may specify the Block Edge Masks ("BEM") if necessary.

### 5.7 Spectrum refarming

87. Radio Frequency Spectrum Re-farming means the process by which the use of a Radio Frequency Spectrum band is changed following a change in the technology used and does not necessarily mean that there is a change in assignment or application, nor does it mean that the licensed user has to vacate the frequency.

## 6 IMT IN SOUTH AFRICA

### 6.1 The rationale for alignment of IMT in South Africa with international standards

88. Section 30 of the ECA requires that the Authority must comply with international standards and requirements. The primary objective of IMT specifications is to provide a basis for harmonisation worldwide and reduce ecosystem fragmentation. This is achieved in several ways:

88.1. In terms of the technological capability, IMT specifications provide a basis for standards development for systems, such as IEEE and 3GPP, to ensure that the technologies meet those requirements. In South Africa, the IMT specifications provide the Authority and the industry with benchmarks regarding the capabilities to be expected from upcoming technologies.

88.2. In terms of radio spectrum, IMT specifications provide a predictable basis on which to build a roadmap for the introduction of next-generation technologies. IMT specifications support the Authority in making radio spectrum available in a timely manner for the industry in South Africa.

89. South Africa stands to gain from adhering to a globally harmonised framework in the following areas:

[36] See, for example: https://docdb.cept.org/download/5ffb56c9-9c78/ECCRep281.pdf



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89.1. Economies of scale in the production and deployment of mobile technologies, reducing cost for both consumers and industry for standardised products (terminals and network equipment);

89.2. Global Interoperability which ensures that mobile devices and network from different manufactures and operators can communicate seamlessly, allowing for easy roaming and smooth, cross-border co-ordination;

89.3. Regulatory Framework: Aligning with IMT standards provide countries with a well-established regulatory framework for managing spectrum allocations, licensing, and technical requirements to ensure stability for the mobile communications industry;

89.4. Technological and Competitive advantage: By adopting IMT standards, the country will attract investments, foster innovation, competition, and economic growth in the telecommunication sector;

89.5. Smoother cross-border co-ordination; and

89.6. Easy roaming within the region where harmonisation is implemented.

90. It is important to note that the adoption of IMT need not result unconditionally in the displacement of other existing uses of spectrum. In certain cases, radio spectrum sharing with other technologies is feasible. However, it is in South Africa's interest to adopt IMT specifications fully, wherever feasible, and to manage the IMT radio spectrum bands. In any case, the Authority performs feasibility studies in cases where the benefits of allocating spectrum exclusively to IMT services are not straightforward.

91. In South Africa, it is important to align with IMT specifications in order to take advantage of worldwide standards, technologies, and services.

92. In general, it is desirable to assign long-term IMT bands, so operators, network solution vendors and terminal manufactures have sufficient time to exploit synergies in harmonised designs. Globally harmonised frequency arrangements in the bands identified for IMT will reduce the overall cost of IMT networks and terminals by providing economies of scale, and facilitating deployment and cross-border co-ordination, roaming, etc.

## 6.2 Mobile allocations identified for IMT and assignments

93. The IMT bands currently used in South Africa, and that could potentially be used in future for IMT, are shown on Table 3, Table 4, and Table 5 below. Currently, 220MHz of spectrum in the sub-1GHz range is identified for IMT, 150MHz of which has been assigned for IMT use to licensees. Further, 2 155MHz of spectrum in the mid-band range is identified for IMT, 644MHz of which has been assigned for IMT use to licensees. Finally, 17 250MHz of spectrum in the mmWave range is currently identified for IMT, none of which has been assigned for IMT use to licensees.



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**Table 3: Amount of spectrum allocated currently or potentially in the future to IMT spectrum in the sub-1 GHz range**

| Band | Start – Finish \\ FDD | GG / Feasibility study / RFSAP needed | Identified for IMT | IMT spectrum already assigned | IMT spectrum to be assigned |
|---|---|---|---|---|---|
| 450 FDD | 452.5 – 457.5 \\ 462.5 – 467.5 | Government Gazette 48353 (Notice 3246 of 2023) | 10 | | 10 |
| 700 FDD | 703 – 733 \\ 758 – 788 | Government Gazette 47788 (Notice 2886 of 2022) | 60 | 40 | 20 |
| 750 TDD | 753 – 758 | Government Gazette 47788 (Notice 2887 of 2022) | 20 | | 20 |
| 800 FDD | 791 – 821 \\ 832 – 862 | Government Gazette 47788 (Notice 2888 of 2022) | 60 | 40 | 20 |
| 900 FDD | 880 – 915 \\ 925 – 960 | Government Gazette 49556 (Notice 3999 of 2023) | 70 | 70 | |
| **Total** | | | **220** | **150** | **70** |

**Table 4: Amount of spectrum allocated currently or potentially in the future to IMT spectrum in the mid-band (1.5GHz-7GHz) range**

| Band | Start – Finish \\ FDD | GG / Feasibility study / RFSAP needed | Identified for IMT | IMT spectrum already assigned | IMT spectrum to be assigned |
|---|---|---|---|---|---|
| 1500 TDD | 1427 – 1517 | Government Gazette 48353 (Notice 3244 of 2023) to be reviewed for amendment. | 90 | | 90 |
| 1800 FDD | 1710 – 1785 \\ 1805 – 1880 | RFSAP needed | 150 | 144 | 6 |
| 1900 TDD | 1880 – 1920 | Feasibility study / RFSAP needed | 40 | | 40 |
| 2100 FDD | 1920 – 1980 – 2110 – 2200 | RFSAP needed | 180 | 120 | 60 |
| 2100 TDD | 2010 – 2025 | Feasibility study / RFSAP needed | 15 | | 15 |
| 2300 TDD | 2300 – 2400 | Government Gazette 50657 (Notice 4824 of 2024) | 100 | 60 | 40 |
| 2600 TDD | 2500 – 2690 | Government Gazette 43341 (Notice 285 of 2020) | 190 | 160 | 30 |
| 3300-3400 TDD | 3300 – 3400 | Government Gazette 47788 (Notice 2891 of 2022) | 100 | | 100 |



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| Band | Start – Finish \\ FDD | GG / Feasibility study / RFSAP needed | Identified for IMT | IMT spectrum already assigned | IMT spectrum to be assigned |
|---|---|---|---|---|---|
| 3400-3600 TDD | 3400 – 3600 | Government Gazette 47763 (Notice 2879 of 2022) | 200 | 160 | 40 |
| 3600-3800 TDD | 3600 – 3800 | Feasibility study / RFSAP needed | 200 | | 200 |
| 4800-4990 | 4800 – 4990 | Feasibility study / RFSAP needed | 190 | | 190 |
| 6425-7125 | 6425 – 7125 | Feasibility study / RFSAP needed | 700 | | 700 |
| **Total** | | | **2 155** | **644** | **1 511** |

**Table 5: Amount of spectrum allocated currently or potentially in the future to IMT spectrum in the mmWave (above 7GHz) range**

| Band | Start – Finish \\ FDD | GG / Feasibility study / RFSAP needed / NRFP | Identified for IMT | IMT spectrum already assigned | IMT spectrum to be assigned |
|---|---|---|---|---|---|
| 26 GHz | 24.25 – 27.5GHz | Feasibility study / RFSAP needed | 3 250 | | 3 250 |
| 40 GHz | 37 – 43.5GHz | Feasibility study / RFSAP needed | 6 500 | | 6 500 |
| 46 GHz | 45.5 – 47GHz | Feasibility study / RFSAP needed | 1 500 | | 1 500 |
| 48 GHz | 47.2 – 48.2GHz | Feasibility study / RFSAP needed | 1 000 | | 1 000 |
| 66-71 GHz | 66 – 71GHz | Feasibility study / RFSAP needed | 5 000 | | 5 000 |
| **Total** | | | **17 250** | **0** | **17 250** |

# 7 FORECASTS OF DEMAND FOR IMT

94. In this section, demand for IMT spectrum is considered, in order to estimate the amount of spectrum needed in South Africa for IMT.

## 7.1 ITU forecasts of IMT demand

95. The ITU-R, in 2013 published Recommendation ITU-R M.1768-1 on the "Methodology for calculation of spectrum requirements for the terrestrial component of International Mobile Telecommunications":

*"This Recommendation describes a methodology for the calculation of terrestrial spectrum requirement estimation for International Mobile Telecommunications (IMT). It provides a systematic approach that incorporates service categories (a combination of service type and traffic class), service environments (a combination of service usage pattern and tele-density), radio environments, market data analysis and traffic estimation by using these categories and environments, traffic distribution among radio access technique groups (RATGs), required*



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*system capacity calculation and resultant spectrum requirement determination. The methodology is applicable to packet switch-based traffic and can accommodate multiple services. It can also accommodate circuit switched emulation traffic using a reservation-based concept".*

96. Recommendation ITU-R M.1768-1 provides a useful framework for the calculation of terrestrial spectrum requirement estimation for International Mobile Telecommunications (IMT).

## 7.2 Forecasts of overall IMT demand

97. The ITU developed forecasts for demand for IMT spectrum over a number of years. A brief history of these developments is set out below in respect of ITU-R reports.

98. Report ITU-R M.2072 (2006) on 'World mobile telecommunication market forecast', which considered that: *"The market report highlights strong growth in the wireless market with the share of mobile lines among the total fixed and mobile telecommunications network lines exceeding 50% in 2002 with most regions have higher mobile phone penetration than wireline."*

99. Recommendation ITU-R M.1768-0 (2006) was titled 'Methodology for calculation of spectrum requirements for the future development of the terrestrial component of IMT-2000 and systems beyond IMT-2000'. This was superseded by M.1768-1 (04/2013).

100. Report ITU-R M.2078-0 (2006) on 'Estimated spectrum bandwidth requirements for the future development of IMT-2000 and IMT-Advanced', contained future spectrum requirements for terrestrial IMT were estimated for radio access technologies ("RATG") in respect of pre-IMT, IMT-2000 and its enhancements ("RATG 1") and IMT-Advanced technologies ("RATG 2"), contained on Table 6 and Table 7.

**Table 6: Radio parameters for RATG1 (pre-IMT and IMT-2000) - M.2078-0 (2006)**

| Parameters | Macro cell | Micro cell | Pico cell | Hot spot |
|---|---|---|---|---|
| Application data rate (Mbit/s) | 20 | 40 | 40 | – |
| Supported mobility classes | Stationary/ pedestrian, low, high | Stationary/ pedestrian, low | Stationary/ pedestrian | – |
| Guard band between operators (MHz) | 0 | | – | |
| Minimum deployment per operator per radio environment (MHz) | 40 | 40 | 40 | – |
| Support for multicast | Yes | | – | |
| Number of overlapping network deployment | 1 | | | |

**Table 7: Radio parameters for RATG 2 (IMT-Advanced) - M.2078-0 (2006)**

| Parameters | Macro cell | Micro cell | Pico cell | Hot spot |
|---|---|---|---|---|
| Application data rate (Mbps) | 50 | 100 | 1 000 | 1 000 |
| Supported mobility classes | Stationary / pedestrian | Stationary / pedestrian, low | Stationary / pedestrian | Stationary / pedestrian |



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| Parameters | Macro cell | Micro cell | Pico cell | Hot spot |
|---|---|---|---|---|
| | , low, high | | | |
| Guard band between operators (MHz) | 0 | | | |
| Support for multicast | Yes | | | |
| Minimum deployment per operator per radio environment (MHz) | 20 | 20 | 120 | 120 |
| Granularity of deployment per operator per radio environment (MHz) | 20 | 20 | 20 | 20 |
| Number of overlapping network deployment | 1 | | | |

101. Overall estimated demand for spectrum in high-usage density settings is shown on Table 8.

**Table 8: Ranges of predicted spectrum requirements - M.2078-0 (2006) – high density usage setting**

| | 1 network (see Note 3) | 2 networks (see Note 1) | 3 networks (see Note 1) | 4 networks (see Note 1) | 5 networks (see Note 1) |
|---|---|---|---|---|---|
| RATG 1 (see Note 2) | 880 | 880 | 960 | 1 120 | 1 200 |
| RATG 2 | 840 | 880 | 1 020 | 1 120 | 1 300 |
| RATG 1 + RATG 2 | 1 720 | 1 760 | 1 980 | 2 240 | 2 500 |

NOTE 1 – When more than one network is present in a country the total spectrum requirement may be higher in order to account for packaging the spectrum (integer multiples of 40 MHz for RATG1).

NOTE 2 – The spectrum estimate for RATG1 for the year 2010 may seem high when considering current network deployments. However, the total estimation was performed using a process established by Recommendation ITU-R M.1768 and technical characteristics predicted for RATG1 in the evolution of IMT-2000 technologies. Furthermore, there is not enough statistical market data to predict the exact requirements for RATG1.

NOTE 3 – It should be noted that in Recommendation ITU-R M.1768 and Report ITU-R M.2074 the associated terminology relating to the term 'Network' is the term 'number of overlapping network deployments'.

102. Report ITU-R M.2243-0 (2011) is titled 'Assessment of the global mobile broadband deployments and forecasts for International Mobile Telecommunications'. The report relies on several mobile traffic forecasts beyond 2010 provided by different organisations. Most of these forecasts consider mobile traffic in the years 2011-2015, while only one makes projections for the year 2020, anticipating a 33-fold traffic growth ratio in 2020 compared with 2010. The ITU estimated that data traffic at the time, in 2010, was more than five times that forecast in M.2072.

103. Report ITU-R M.1768-1 (04/2013) updated M.1768-0 and the update title was: 'Methodology for calculation of spectrum requirements for the terrestrial component of International Mobile Telecommunications'. The example radio parameters for RATG1 and RATG2 are presented on Table 9 and Table 10.



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**Table 9: Example required radio parameters for RATG1 (ITU-R1768-01, 04/2013)**

| Attribute | RATG1 | | | | |
|---|---|---|---|---|---|
| | Value | | | | |
| | Unit | Macro cell | Micro cell | Pico cell | Hot spot |
| Application data rate | Mbit/s | 1 | 1 | 2.5 | |
| Supported mobility classes | | Stationary/ pedestrian, low, high | Stationary/ pedestrian, low | Stationary/ pedestrian | |
| Guardband between operators | MHz | 0 | 0 | 0 | |
| Minimum deployment per operator per RE | MHz | 20 | 20 | 20 | |
| Number of overlapping network deployment | No. | 5 | 5 | 5 | |
| Granularity of deployment per operator per RE | MHz | 20 | 20 | 20 | |
| Possibility to flexible spectrum usage (FSU) | Boolean | No | No | No | |
| FSU margin | Multiplier | 1 | 1 | 1 | |
| Typical operating frequency | MHz | < 2 700 | < 2 700 | < 2 700 | |
| Support for multicast | Boolean | Yes | Yes | Yes | |

This example is not applicable to the scenario of large areas with low teledensity coverage.

**Table 10: Example required radio parameters for RATG2 (ITU-R1768-01, 04/2013)**

| Attribute | RATG2 | | | | |
|---|---|---|---|---|---|
| | Value | | | | |
| | Unit | Macro cell | Micro cell | Pico cell | Hot spot |
| Application data rate | Mbit/s | 50 | 100 | 1 000 | 1 000 |
| Supported mobility classes | | Stationary/ pedestrian, low high | Stationary/ pedestrian, low | Stationary/ pedestrian | Stationary/ pedestrian |
| Guardband between operators | MHz | 0 | 0 | 0 | 0 |
| Minimum deployment per operator per RE | MHz | 50-100 | 50-100 | 100 | 100 |
| Granularity of deployment per operator per RE | MHz | 20 | 20 | 20 | 20 |
| Number of overlapping network deployment | No. | 1-4 | 1-4 | 1-4 | 1-4 |
| Possibility to flexible spectrum usage (FSU) | Boolean | Yes | Yes | Yes | Yes |
| FSU margin | Multiplier | 1 | 1 | 1 | 1 |
| Area spectral efficiency | bit/s/Hz/ cell | 2-4 | 2-5 | 3-6 | 5-10 |

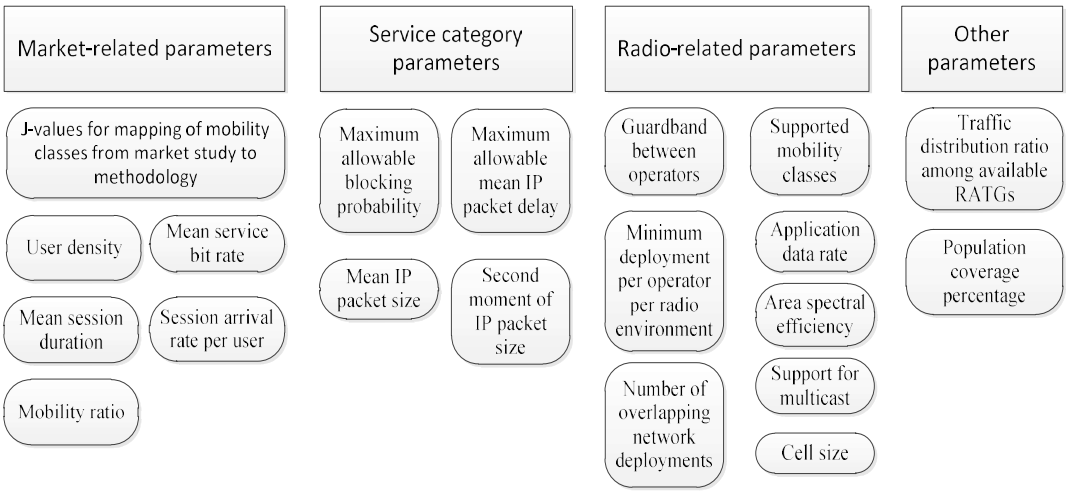


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| Attribute | RATG2 | | | | |
|---|---|---|---|---|---|
| | Value | | | | |
| | Unit | Macro cell | Micro cell | Pico cell | Hot spot |
| Area spectral efficiency for multicasting | bit/s/Hz/ cell | 1-1.5 | 1-2.5 | 1.5-3 | 2.5-5 |
| Typical operating frequency | MHz | < 6 000 | < 6 000 | < 6 000 | < 6 000 |
| Support for multicast | Boolean | Yes | Yes | Yes | Yes |

104. Report ITU-R M.2290-0 (12/2013) is titled 'Future spectrum requirements estimate for terrestrial IMT'.[37] This report shows that mobile traffic growth was expected to increase over the subsequent few years. The input parameters used to estimate demand are shown on Figure 7.

**Figure 7: Input parameters used to estimate demand for spectrum**




Source: ITU-R M.2290

105. To reflect this increasing traffic demand, new, updated market attributes for the lower user density and higher user density settings were provided.

**Table 11: ITU forecasts for spectrum demand for IMT-2000 and IMT-advanced technologies (M.2290)**

| | Total spectrum requirements for RATG 1 | Total spectrum requirements for RATG 2 | Total spectrum requirements for RATGs 1 and 2 |
|---|---|---|---|
| Lower user density settings | 440 MHz | 900 MHz | 1 340 MHz |
| Higher user density settings | 540 MHz | 1 420 MHz | 1 960 MHz |

Source: ITU-R report M.2290

[37] ITU-R report M.2290, available at: https://www.itu.int/dms_pub/itu-r/opb/rep/r-rep-m.2290-2014-pdf-e.pdf



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106. While these forecasts are now outdated, they provide a useful starting point for considering how much spectrum is needed for IMT in South Africa, before the requirements of IMT-2020 and IMT-2030 are considered.

### 7.3 IMT demand in South Africa

107. The demand for high-speed internet capabilities, such as those offered by IMT, is growing in South Africa. The growth in smartphone usage reflects the increasing demand for mobile internet services and advanced digital applications. Overall, mobile cellular subscriptions are growing significantly, increasing from 95m in 2020 to 117.3m in 2025.[38] Smartphone subscriptions grew from 60m in 2020 to 83m in 2025.

108. There is also significant growth in demand for IMT spectrum arising from machine-to-machine ("M2M") devices. According to ICASA's 2026 ICT Sector Report, South Africa had approximately 15.8m M2M SIM mobile subscriptions in 2025.[39] These connections support a range of services, including fleet management, smart metering, security systems, and connected health devices. This segment is expected to continue expanding with increased IoT adoption in both public infrastructure and private enterprise networks. Accordingly, future IMT spectrum planning must account for these growing M2M capacity requirements.

109. IMT demand can be forecast by estimating the amount of radio frequency spectrum needed to serve consumers in high-density population settings. In South Africa, the most densely populated area is Alexandra in the City of Johannesburg.[40] Population density information combined with information on spectral efficiency[41] provides us with a useful basis on which to plan for future spectrum requirements. The network parameters applied to forecast demand are shown on Table 12, and demand for spectrum measured in MHz is shown on Table 13. While one stakeholder suggested that the spectral efficiency assumption used is too high, thereby underestimating the demand for spectrum, the assumption is based on a recent study by the GSMA[42], and international mobile industry body, and is therefore unlikely to be overstated.

110. As the busy hour scenarios and the FTTX / WiFi offload scenarios show, there is a considerable degree of uncertainty on how much spectrum may be needed for IMT, which might be as low as approximately 3 000MHz in the event that only a small proportion of the population uses their devices in the busy hour, and if significant numbers of connections are offloaded to fibre to the premises (FTTX) including via WiFi. There may also be substantially greater demand, in excess

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[38] Source: Acacia Economics analysis of ICASA State of the ICT sector report, 2026.

[39] Source: Acacia Economics analysis of ICASA State of the ICT sector report, 2026.

[40] Alexandra is the most densely populated 'main place' defined in Statistics South Africa's Census 2011.

[41] Coleago Consulting Ltd. (2021). *Estimating the mid-band spectrum needs in the 2025–2030 time frame – Global Outlook*. https://www.gsma.com/spectrum/wp-content/uploads/2021/07/Estimating-Mid-Band-Spectrum-Needs.pdf

StatsSA (2022). *City of Johannesburg and metropolitan population estimates*. https://www.statssa.gov.za/?page_id=1021&id=city-of-johannesburg-municipality

GSMA (2024). *Mobile Evolution in 6 GHz*. https://www.gsma.com/connectivity-for-good/spectrum/wp-content/uploads/2024/09/GSMA_Mobile-Evolution-in-6-GHz.pdf

[42] See: GSMA (2024). *Mobile Evolution in 6 GHz*. https://www.gsma.com/connectivity-for-good/spectrum/wp-content/uploads/2024/09/GSMA_Mobile-Evolution-in-6-GHz.pdf



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of 14 000MHz, in the event that FTTX/WiFi offload is low, and busy hour usage is high. It is important to note that the high-density geographic area modelled on Table 13, being a low-income area, is unlikely to have significant WiFi offload currently and so the lower bound is likely less than 10%, which means that more than 14 000MHz may be needed.

111. Furthermore, the population-density based methodology applied here excludes machine to machine connections, of which there are a growing number. Of the 91.4m active mobile subscriptions, approximately 15.8m (approximately 17%) are machine to machine subscriptions.[43] While certain machine to machine applications, such as automated teller machines sending relatively basic messages, are likely to have low spectrum requirements, other applications such as video cameras used for security purposes likely have far higher spectrum requirements in specific locations. This is likely to mean that spectrum demanded for IMT applications is underestimated on Table 13.

**Table 12: Network parameters for spectrum demand forecast**

| Parameters | Value | Source |
|---|---|---|
| Average downlink (DL) spectral efficiency (bit/s/Hz) | 14.28 | ITU R M.2160 says IMT-2030 should have 1.5-3x spectral efficiency of IMT-2020, which is approximately 6bps/Hz.[44] |
| Sector cell | 3 | Standard industry assumption. |
| Cell density (square kms) | 0.126 | PI()*(200*200)/1000000 |
| Population density | 29 753 | Acacia Economics analysis of Alexandra based on population from Census 2011 and StatsSA population growth estimates. |
| Mbps | 500 | ITU R M.2160 |

**Table 13: Spectrum demand forecast (MHz)**

| | Population active during busy hour (Activity factor) ⇨ | | | | | |
|---|---|---|---|---|---|---|
| **Offload ⇩** | **10%** | **15%** | **20%** | **25%** | **30%** | **35%** |
| 10% | 3 927 | 5 891 | 7 855 | 9 818 | 11 782 | 13 746 |
| 20% | 3 491 | 5 236 | 6 982 | 8 727 | 10 473 | 12 218 |
| 30% | 3 055 | 4 582 | 6 109 | 7 636 | 9 164 | 10 691 |

112. This means that the spectrum currently identified for IMT in South Africa and for which RFSAPs are available or licenses for IMT use have been issued, of approximately 1 155MHz (Table 3 above in Section 6), is unlikely to be adequate in the coming years, and substantial additional spectrum is likely needed for IMT. Between approximately 3 000MHz and 14 GHz is likely going to be needed in the next 5-10 years in South Africa, depending on the extent of WiFi offload, and the proportion of the population active during the busy hour. It is also important to take into account that growth in machine-to-machine connections may result in greater demand for IMT spectrum.

[43] Source: Acacia Economics analysis of ICASA State of the ICT sector report, 2026.

[44] See: GSMA (2024). *Mobile Evolution in 6 GHz*. https://www.gsma.com/connectivity-for-good/spectrum/wp-content/uploads/2024/09/GSMA_Mobile-Evolution-in-6-GHz.pdf



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113. It is also important to note that there may be demand for IMT spectrum for vertical applications, such as for use in a specific mine or for specific transport purposes such as on railway lines. The Authority may consider demand for IMT services in specific bands for vertical applications.

# 8 PROCESS FOR THE DEVELOPMENT OF FEASIBILITY STUDIES

## 8.1 Overall process

114. A feasibility study is undertaken where a migration is complex.

115. Feasibilities studies for allocating radio frequency spectrum bands to IMT may include analysis the following:

115.1. The economic feasibility of allocating the band for IMT, which may include an analysis of the costs and benefits of assigning bands for IMT and compare this to possible use for other services. Affordability of services and devices, and equipment lifespan, may also be analysed.

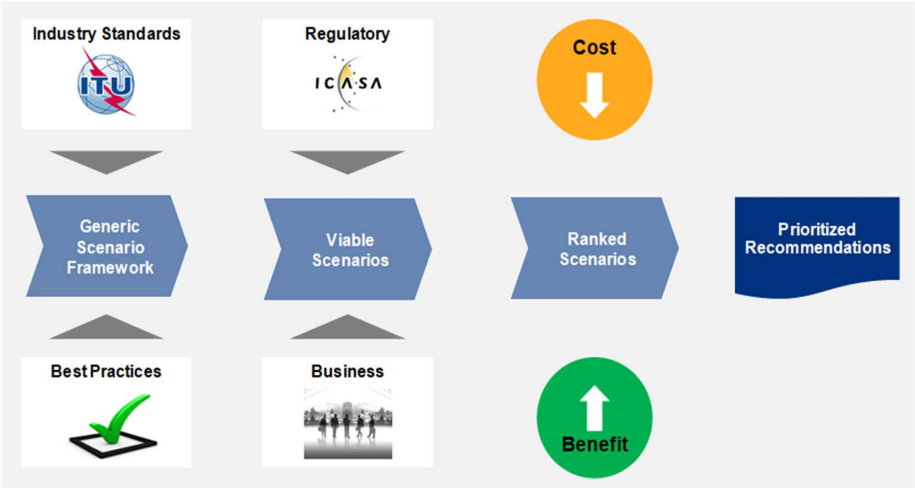
115.2. The technical feasibility for allocating the band for IMT, which will include an analysis of international studies where available, technical standards, interoperability, spectral efficiency, and the like.

115.3. The maturity of the IMT ecosystem for the band, including device availability, where data are available.

115.4. International aspects of the use of the band, including experience with the use of the band for IMT, and spectrum harmonisation.

116. The feasibility studies will be carried out as shown on Figure 8.

**Figure 8: Methodology of the feasibility study**




117. For each sub-band (and the corresponding service categories), the feasibility analysis starts with a review of the applicable regulatory texts.

118. The relevant sections of the ECA provide a legal and regulatory canvas for the subsequent analyses. With the regulatory contour defined, the next step involves the review of band-specific



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documents with an objective to further refine the regulatory context and identify the technical and service specifications.

119. These steps include the review of the latest versions of the National Radio Frequency Plan and the Radio Frequency Migration Regulations (2013), which contain critical information on the permitted services. .

120. Relevant international texts are also brought in at this stage. These include, but are not limited to, SADC and ITU Region 1 documents, relevant ITU reports and trends.

121. Next, consultation documents are reviewed with the goal of understanding industry interests and motivations in technical, regulatory and economic terms.

122. The review of consultation documents completes the stakeholder interest map.

123. The various interests of stakeholders provide a basis for the scenario assessment and final proposal.

124. As a result of the inputs from regulatory texts, consultation documents and international best practices and technical possibilities, a broad set of migration and harmonisation options are derived with advantages and disadvantages with regard to various stakeholder objectives, are determined.

125. The next step is the prioritisation of relevant factors (advantages and disadvantages). The prioritisation criteria reflect the stated objectives of the Authority and its obligations and mandates.

126. For instance, advantages that fulfil the Authority's prioritised objectives score high while disadvantages that hurt the Authority's prioritised objectives score low.

127. Lastly, all the benefits are consolidated to get a picture of the most beneficial scenarios from an aggregated perspective.

128. Many of the advantages and disadvantages are qualitative or cannot reasonably or reliably be predicted.

129. In such cases, qualitative analyses are made based on the best available knowledge and practices.

130. As explained in Section 3.6 above, feasibility studies will only be carried out when the Authority determines that the spectrum migration process is complex.

## 8.2 Co-ordination and interference self-management by licensees

131. In IMT bands, emerging options to manage interference are focused on co-ordination rather than guard bands (prevention) as has been the case until recently.

132. Given the increasing value of spectrum, guard bands that are not absolutely necessary are perceived as wasteful.

133. In the specific case of cellular technologies, the underlying standards have consistently evolved to tolerate more interference than before.

134. As a consequence, strict preventive interference measures, such as the use of internal guard bands, are abandoned.

135. With high-availability and business-sensitive services such as GSM, interference resolution usually needs to be performed very quickly.



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136. Regarding interference resolution, it may be possible that licensees are able to mitigate interference between each other, as provided for in the ECA and the RFSR. In instances where a dispute cannot be resolved, the Authority will intervene.

## 8.3 Cost-benefit analysis

137. The cost-benefit analysis complements the technical feasibility study by assessing the burden that in-band migration scenarios impose on the ecosystem. Such analysis is crucial for definitive conclusions on spectrum migration. It is important to avoid unintended consequences on end-users.

138. This analysis considers three stakeholders and assesses the potential costs and benefits to each. These stakeholders are:

138.1. End-users who represent the most important category. All the regulatory objectives of the Authority could be traced back to the benefits to end-users.

138.2. Licensees who invest in networks and make services available: The objective of assessing costs and benefits in this category is to ensure that licensees are adequately incentivised and not put under conditions where reasonable, profitable business is impossible.

138.3. The Authority who must be able to continue to manage spectrum without incurring unduly high costs or be put in a situation where it must compromise the interests of the end-users.

## 8.4 Perspective of end-users

139. Three categories of impact may be reasonably expected to be felt by end-users:

139.1. Type of service;

139.2. Quality of service; and

139.3. Price of service.

## 8.5 Prioritisation of impact items

140. The Authority aims to comparatively evaluate all the costs as well as benefits associated with the various migration options.

141. The Authority proposes to consider the best option overall based on a balanced consideration of short-, medium- and long-term interests and policy objectives.

142. The impact items (costs, benefits, implementation guidelines) are ranked by decreasing order of importance below:

142.1. Quality of existing services to end-users during and after the migration: this category includes the end-user perception of quality of service, the ability of the network to provide a good quality of service and the incentives for licensees to provide a good quality of service;

142.2. Affordability of existing services to end-users: this category is related to the technical constraints imposed on licensees, the costs of migration to licensees as well as the opportunities afforded to licensees in terms incremental bandwidth; and



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142.3. Availability of broadband services: this category includes the readiness of licensees to provide broadband services and the diversity of technologies available to them.

### 8.6 Processes and governance

143. The Authority will be involved in defining the governance rules that form the basis for decision-making and arbitration for all parties during the migration.

144. Additionally, the Authority will make sure that well-defined migration processes are in place that cover switchover procedures, disaster management and fallback processes.

145. The process of developing governance rules will be inspired by the typical problems that arise in multi-party transition processes in the telecom industry as well as common rules of migration processes.

146. The various interests of parties must be clearly understood and weighed. In addition, governance rules must cover the post-migration periods where multiple adjustments to the network would be necessary to reach a fully operational phase again.

147. All switchovers during migration phases must occur at times of minimal traffic (usually at night).

148. In terms of process, the usual migration processes for frequency retune must be refined to include the cross-operator component.

149. The most critical aspect of processes is to ensure working and speedy interfaces between licensees so that cross-operator notifications during the switchover are seamless.

### 8.7 Project management of the migration

150. The Authority shall ensure that there exists a sound and executable migration plan with input from all stakeholders.

151. Important aspects of the migration plan include the drafting of a co-ordinated project timeline, a communication plan as well as disaster-recovery and business continuity plans.

152. The project plan must clearly identify the phases of the migration (including the sequence of geographical areas affected), the dependencies between various phases and all key milestones related to the beginning and the end of migration within each geographical area.

153. Regular reporting on progress of migration processes will be provided.

## 9 OBLIGATIONS FOR LICENSEES

### 9.1 Broadband and universal service context in South Africa

154. International bodies such as the ITU and the African Union ("AU") have set significant targets for broadband coverage. First, the United Nations ("UN") has set the following sustainable development goal (SDG 9c):[45]

*"Significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020."*

[45] See: https://sdgs.un.org/goals/goal9#targets_and_indicators



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155. According to the Broadband Commission, established by the UN and other partners:[46]

*"By 2025, broadband-Internet user penetration should reach: i) 75% worldwide; ii) 65% in low- and middle-income countries; and iii) 35% in least developed countries."*

156. Second, the African Union has set the following targets:[47]

*"By 2030 all our people should be digitally empowered and able to access safely and securely to at least (6 Mb/s) all the time wherever they live in the continent at an affordable price of no more than (1 cts USD per MB) through a smart device manufactured in the continent at the price of no more than (100 USD) to benefit from all basic e-services and content of which at least 30% is developed and hosted in Africa."*

157. Third, SADC has set the following coverage targets:[48]

*By 2030: 95% of the population is covered or in reach of affordable broadband connectivity."*

158. While South Africa overall has already met these goals in respect of 4G services, coverage in rural areas is insufficient. Overall, coverage in South Africa meets the abovementioned targets in respect of 4G services. Over the period 2018-2025, 3G coverage remained consistently high, reaching 99.9% in 2025, while 4G/LTE coverage increased from 85.7% in 2018 to 99.5% in 2025.[49] 5G coverage, which was negligible before 2020, expanded rapidly from 0.7% in 2020 to 20.0% in 2022, then rose sharply to 38.4% in 2023, 46.6% in 2024, and 58.0% in 2025. This data highlights the near-universal penetration of 3G and 4G/LTE networks, alongside the ongoing and significant expansion of 5G coverage across the country.

158.1. These high levels of overall population coverage are driven by coverage in urban areas where, in 2025, all provinces had approximately 98%-100% population coverage in respect of 3G and 4G services. Gauteng had the highest level of 5G coverage (89%), and the Free State province reported the lowest 5G coverage in urban areas at 38% in 2025.

158.2. However, in 2025, with respect to 4G/LTE, rural population coverage is as low as 89% in the Northern Cape, and is only 93% in the Western Cape, as reported by the licensees. The Eastern Cape province reported the lowest percentage (7%) for 5G coverage in rural areas in 2025. There are therefore significant coverage gaps in rural areas. There is a question as to whether terrestrial IMT ought to be used for this purpose, or whether satellite services could be used. The Authority aims to have achieved near full coverage of IMT-2020 systems, by 2030. Trials for IMT-2030 are expected to start in South Africa by 2030.

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[46] See: https://www.broadbandcommission.org/advocacy-targets/

[47] African Union Digital Transformation Strategy (2020–2030), available at: https://au.int/sites/default/files/documents/38507-doc-DTS_for_Africa_2020-2030_English.pdf#:~:text=%E2%80%A2%20By%202030%20all%20our,and%20able%20to%20access%20safely

[48] SADC Digital Transformation Strategy, 2022, available at: https://www.sadc.int/sites/default/files/2025-08/EN%20-%205.2.3B%20-%20CM--SADC-ICT-INFO-MINISTERS-2023-4.8D%20-%20Draft%20SADC%20DTS_1.pdf

[49] Source: Acacia Economics analysis of ICASA State of the ICT sector report, 2026.



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### 9.2 Universal service obligations for IMT

159. The Authority has imposed universal service obligations on licensees in respect of their individual service licenses, and in respect of spectrum licences. As explained above, there continue to be significant gaps in mobile network coverage in rural areas in the Northern Cape and the Western Cape. There is a question as to how these coverage gaps might be addressed, along two broad themes: the first relates to licence obligations following spectrum auctions, and the second concerns the use of new technologies such as IMT-based mobile satellite services.

160. **Coverage requirements during the course of spectrum auctions:** In the 2022 spectrum auction, for example, there was a 'coverage lot', which had a lower reserve price in return for a higher network coverage requirement. However, this lot remained unsold, possibly due to overly onerous coverage requirements, or due to the lower activity points associated with this lot. The Authority may consider refining its approach to coverage lots in order to improve rural coverage in future auctions of high demand spectrum.

161. **Expanding coverage using HIBS:** As explained above, HIBS have been included in IMT standards. Given the dispersed nature of the populations of rural parts of South Africa, where coverage gaps are the largest, the Authority may consider pursuing broadband coverage by means of HIBS to supplement the coverage of traditional high-site-based terrestrial IMT networks.

### 9.3 Quality of service

162. The Authority defines Quality of Service ("QoS") measurement as:[50]

*"Quality of Service (QoS) measurement refers to the exercise of measuring the performance of services that are delivered over mobile networks. It provides an indication of what a customer experiences when using his/her cellphone on the cellular mobile network."*

163. QoS, including broadband speeds experienced by end users, is an important feature of IMT services. Broadband speeds can be measured and monitored directly or by using crowd-sourced data. Furthermore, coverage maps with details on transmitters, emissions, and the like, are also a means of measuring QoS.

164. The Authority has carried out a number of QoS studies over the years.[51] The results of such direct measurements are valuable and permit operator and regional comparisons within South Africa, and these results can also be used to compare speeds in South Africa with speeds in other countries. When considering crowd-sourced data on broadband speeds in South Africa compared with speeds in other countries, South Africa ranks in the bottom-half of countries by average mobile speeds (Figure 9). South Africa's average mobile broadband speed of 67.2Mbps is well below the global average of 93.47Mbps.[52] While crowd-sourced data are useful, they have limitations including as a result of uncontrolled test conditions, differences in device capabilities, product speed caps, and differences in test servers. It is important for IMT spectrum license

[50] See: https://www.icasa.org.za/pages/quality-of-service-reports

[51] See: https://www.icasa.org.za/legislation-and-regulations/engineering-and-technology/quality-of-service-reports

[52] In a similar study, was ranked first in Africa overall for broadband speeds. In that study, South Africa's average mobile broadband speed was comparable, at 68Mbps, below the global average of 74.8Mbps measured in that study. See: https://mybroadband.co.za/news/broadband/508626-south-africas-internet-speeds-and-prices-versus-the-world.html



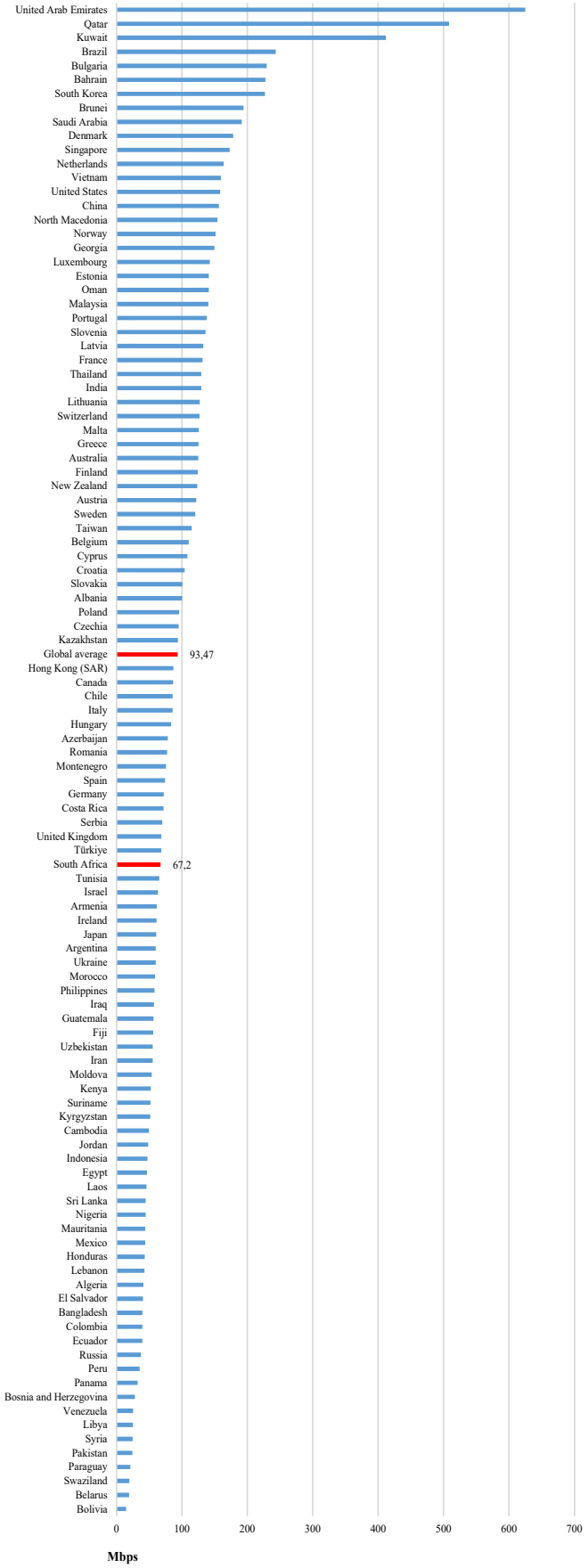
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holders to report average speeds experienced by consumers, including in different geographies. This data may be obtained from crowd-sourced data providers acquired by licensees or the Authority, or through direct measurements.



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**Figure 9: Ookla mobile speed tests**




Source: Ooka, 'Median Country Speeds Updat
September 2025, available at:

https://www.speedtest.net/global-index



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165. Furthermore, the ITU recommendation ITU-R SM.1447-0 contains recommendations regarding coverage maps containing QoS-related information that ought to be provided by licensees, including on:[53]

*165.1. "The main emission characteristics that determine the radio coverage of mobile networks;*

*165.2. "The main siting characteristics of the station that determine the radio coverage of mobile networks;*

*165.3. "The equipment characteristics for the various land mobile services;*

*165.4. "The main emission characteristics that can be objectively measured to determine the radio coverage of mobile networks."*

166. Quality of service measurement, including network coverage, is an important aspect of administering IMT spectrum.

# 10 IMPLEMENTATION TIMELINES

167. The Radio Frequency Migration Regulations, 2013[54], contemplates the following in respect of timelines for migration:

*"In principle, ICASA can migrate a user to another location as part of sound radio frequency spectrum management as required. However, an appropriate time frame should be applied as a standard practice.*

*In determining the time frame, the following factors are taken into account:*

- *The duration of the spectrum licence,*
- *The time frame to migrate existing customers (end users),*
- *The economic life of the equipment installed, and*
- *Adequate forward planning."*

168. The abovementioned factors will be taken into account in the development of the migration plans for any bands to be allocated to IMT.

169. The following are indicative timelines for the deployment of IMT bands and the associated migration timelines. There are some essential conditions for this current draft time plan:

**Table 14: Timelines for implementation of the IMT Roadmap 2026**

| Years | Proposed timeline from 2025 |
|---|---|
| 2025-2026 | Draft RFSAPs to be developed, including those listed below :<br>1710-2200MHz<br>1880-1920MHz<br>3600-3800MHz<br>4800-4990MHz<br>6425-7125MHz |

[53] See: https://www.itu.int/dms_pubrec/itu-r/rec/sm/R-REC-SM.1447-0-200004-I!!PDF-E.pdf

[54] Government Gazette 36334 (Notices 352 and 353 of 2013).



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| Years | Proposed timeline from 2025 |
|---|---|
| | 24.24-27.5MHz<br>37-43.5GHz<br>45.5-47GHz<br>47.2-48.2GHz<br>66-71GHz |
| 2026-2027 – final RFSAPs | Final IMT RFSAPs to be developed, including those listed below:<br>1710-2200MHz<br>1880-1920MHz<br>3600-3800MHz<br>4800-4990MHz<br>6425-7125MHz<br>24.24-27.5MHz<br>37-43.5GHz<br>45.5-47GHz<br>47.2-48.2GHz<br>66-71GHz |
| 2027-2028 | RFSAP for IMT systems implementation in terms of Section 31(3) of the ECA, including those listed below:<br>1710-2200MHz<br>1880-1920MHz<br>3600-3800MHz<br>4800-4990MHz<br>6425-7125MHz<br>24.24-27.5MHz<br>37-43.5GHz<br>45.5-47GHz<br>47.2-48.2GHz<br>66-71GHz |
| 2028+ | Deployment of IMT systems |

# 11 APPENDIX A: GLOSSARY OF TERMS, ABBREVIATIONS AND ACRONYMS

| Acronym | Explanation |
|---|---|
| 3G | Third generation mobile telecommunications is a generation of standards for mobile phones and mobile telecommunication relating to the ITU-R IMT-2000 specifications. |
| 4G | Fourth Generation Network Technology relating to ITU-R IMT-Advanced specifications. |
| 5G | Fifth Generation Network Technology, relating to the ITU-R IMT-2020 specifications. |
| 6G | Sixth Generation Network Technology, relating to the ITU-R IMT-2030 specifications. |
| Act | Electronic Communications Act, 2005 (Act No. 36 of 2005). |



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| Acronym | Explanation |
|---|---|
| AAS | Active antennae systems. |
| Administration | Members States of the International Telecommunications Union. |
| Allocation | Entry in the Table of Frequency Allocations of a given frequency band for the purpose of its use by one or more terrestrial or space *radiocommunication services* or the *radio astronomy service* under specified conditions. |
| Assignment | The authorisation given by the authority to a licensee to use a radio frequency or radio frequency channel under specified conditions. |
| ATU | African Telecommunications Union. |
| Authority | The Independent Communications Authority of South Africa. |
| BFWA | Broadband fixed wireless access. |
| BS | Base stations. |
| CEPT | Conference of European Posts and Telecommunications Authorities. |
| CRASA | Communications Regulators' Association of Southern Africa. |
| DC-MSS-IMT | Direct Connectivity between Mobile-Satellite Service space station and IMT UEs. |
| DECT | Digital Enhanced Cordless Telecommunications 1880 - 1900 MHz which is a digital communication standard, primarily used for creating cordless phone systems. |
| ECA | The Electronic Communications Act of South Africa, Act No 36 of 2005. |
| EIRP | Effective isotropical radiated power. |
| ERP | Effective radiated power, which is the product of the power supplied to an antenna and its gain relative to a half wave dipole in a given direction. |
| FWA | Fixed wireless access. |
| FSS | Fixed satellite service. |
| Gbps | Gigabits per second. |
| GHz | Gigahertz of Radio Frequency Spectrum. |
| GSM | Global System for Mobile Communications, (originally Groupe Spécial Mobile), and is a standard set developed by the European Telecommunications Standards Institute (ETSI) to describe technologies for second generation (2G) digital cellular networks. |
| IMT | The name that encompasses IMT-2000, IMT-Advanced, IMT-2020 and IMT-2030 collectively known as International Mobile Telecommunications. |
| IMT-2000 | The International Mobile Telecommunications, as envisioned in ITU-R Recommendation ITU-R M.687 and M.816. |
| IMT-Advanced | The International Mobile Telecommunications, as envisioned in Recommendation ITU-R M.1645. |
| IMT-2020 | The International Mobile Telecommunications, as envisioned in Recommendation ITU-R M.2083. |
| IMT-2030 | The International Mobile Telecommunications, as envisioned in Recommendation ITU-R M.2160. |
| IoT | Internet of Things. |
| ITU | International Telecommunication Union. |
| ITU RR | International Telecommunication Union Radio Regulations. |
| kHz | Kilohertz of Radio Frequency Spectrum. |
| LTE | Long Term Evolution and is a standard for wireless communication of high-speed data for mobile phones and data terminals. It is based on the GSM/EDGE and UMTS/HSPA network technologies. |
| M2M | Machine to machine. |
| MHz | Megahertz of Radio Frequency Spectrum. |
| MIMO | Multiple-Input and Multiple-Output and is the use of multiple antennas at both the transmitter and receiver to improve communication performance. |
| NRFP | The National Radio Frequency Plan for South Africa. |
| NTN | Non-terrestrial network. |



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| Acronym | Explanation |
|---|---|
| PMSE | Programme making and special events applications (PMSE). |
| PRASA | Passenger Rail Agency of South Africa. |
| PTM | Point to multipoint. |
| PTP | Point to point. |
| Radio-communication | All electronic communication by means of radio waves. |
| RATG | Radio Access Technology Group. |
| RFSAP | Radio Frequency Spectrum Assignment Plan. |
| RLAN | Radio Local Access Network and is the high data rate two-way (duplex) wireless data communications network. |
| SABRE | South African Band Re-Planning Exercise. |
| SADC | Southern African Development Community. |
| SADC RFSAP | Southern African Development Community Frequency Allocation Plan. |
| SAPS | South African Police Service. |
| SDL | Supplemental downlink. |
| Service licence | BS, ECS or ECNS licence. |
| SF | Single frequency. |
| SFN | Single frequency network. |
| TDD | Time division duplex. |
| TRP | Total radiated power. |
| VSAT | Very small aperture terminal used for fixed satellite services. |
| WAS | Wireless Access Systems and is end-user radio connections to public or private core networks. |
| WOAN | Wireless open access network. |

# 12 APPENDIX B: EXPLANATORY NOTE TO THE IMT ROADMAP

170. The comments received by stakeholders thus far, and the Authority's views, are set out thematically in the tables below.

**Table 15: General comments**

| Stakeholder comments | Authority's comment |
|---|---|
| In comments on the second draft IMT Roadmap published in 2025, Cell C, Qualcomm, and MTN encouraged the Authority to align its approach with plans for IMT adopted internationally. Cell C supports the alignment with IMT-2020 and IMT-2030 standards. | The IMT Roadmap is aligned with approaches adopted for IMT by international organisations, including resolutions adopted at WRC-23. |
| In comments on the second draft IMT Roadmap published in 2025, Cell C commented that the Authority should ensure the objective to promote competition in the sector, particularly that licensees should not unduly benefit from acquiring valuable high-demand spectrum through the migration process. Cell C has recommended that the assignment of the returned spectrum in the 900 MHz band follow a transparent process. In comments on the first draft IMT Roadmap | The Authority is in the process of considering migration and related questions whilst developing the Feasibility Studies and RFSAPs.<br><br>The Authority explained in its decision on the migration required out of IMT850[55] that the incumbent |

[55] Government Gazette 48353 (Notice 3243 of 2023).



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| Stakeholder comments | Authority's comment |
|---|---|
| published in 2024, SACF commented that there is an inconsistent approach to compensation for migration, since the Authority proposes no compensation, while rain was offered an additional 1 x 5MHz in the 2600MHz band, and Liquid Telecom was offered 2x5MHz to migrate within the 900MHz band. | in that case would lose all access to sub-1GHz spectrum, which would impact its competitive position if it could not access the 900MHz band. The 2600MHz in-band migration involved a change from FDD to TDD.[56] |
| When commenting on the first draft Roadmap published in 2024, Cell C, SACF, and Telkom recommend waiting for the finalisation of the NRFP before proceeding with RFSAPs and spectrum migration plans. The GSOA had a similar recommendation in a previous comment regarding the finalisation of the IMT Roadmap. | The NRFP 2026 has been finalised. |
| In comments on the second draft Roadmap published in 2025, Vodacom supports the development of an investor-friendly environment for IMT, and is encouraged by the Authority's proposed approach to assign spectrum to its highest value use, under the heading 'spectrum set-asides are inefficient'. When commenting on the first draft Roadmap published in 2024, SACF also emphasized promoting regulatory certainty. | Investment is one of the objects of the ECA that the Authority seeks to promote in the development of the IMT Roadmap, as explained in Section 1. |
| In comments on the second draft Roadmap published in 2025, Vodacom indicates that there is an IMT spectrum deficit in the medium term for both urban areas and rural areas. Vodacom acknowledges the growing demand for mid-band spectrum and requests the Authority to follow a transparent approach in this regard, as well as to account for rapid M2M growth and IoT connections. Huawei notes the growing demand for IMT in Sub-Saharan Africa, as well as the importance of access to the entire upper 6 GHz band to cater for a multi-operator market. Huawei further indicates the cost efficiency of wider bandwidths, whereby making wider contiguous bandwidths available reduces the cost per MHz and therefore fosters more efficient and sustainable network expansion. | The Authority has considered demand for IMT spectrum in Section 7.3 of this Roadmap. While IMT demand from M2M applications has not been explicitly modelled, Section 7.3 of this document acknowledges growing demand as well as the need for future IMT spectrum planning to account for growing M2M capacity requirements. |
| SACF previously commented on the first draft Roadmap published in 2024 that the Authority licenses spectrum on a technology-neutral basis. | The Authority's approach to licensing is technology-neutral, as explained in Section 5.1. |
| In a previous comment regarding the first draft IMT Roadmap, Vodacom considered that the Ministerial Policy on Next-Generation Radio Frequency Spectrum for Economic Development ("NG Policy") published in 2024 has material errors in law. Vodacom suggests that even though the Authority must consider it, it need not blindly apply the policy and that all decisions must be based on evidence and merit. Similarly, Comsol provided an extract from the same policy in a previous comment regarding the first draft IMT Roadmap and suggested that the Authority's spectrum outlook must be updated every five years. Comsol provided an extract of text from the NG Policy indicating that it supersedes the 2010 | The Authority considers Ministerial policies in terms of the ECA, while exercising its independent regulatory mandate and will do so in this case when planning IMT spectrum, as set out in Section 3.3. The spectrum outlook will be considered in due course. |

[56] Government Gazette 43341 (Notice 285 of 2020).



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| Stakeholder comments | Authority's comment |
|---|---|
| Radio Frequency Spectrum Policy for South Africa[57] and spectrum-related aspects of the 2016 National Integrated ICT Policy White Paper[58]. | |
| Telkom commented, in its submission regarding the first draft IMT Roadmap, that there is uncertainty around the wholesale open access network (WOAN), but that the Policy on High Demand Spectrum and Policy Direction on the licensing of a Wireless Open Access Network[59] are still in force. When commenting on the first draft Roadmap published in 2024, SACF suggested that the set-aside for the WOAN be licensed on a temporary basis. In comments on the second draft Roadmap published in 2025, MTN argues against continuing to set aside high-demand spectrum for WOAN. MTN cites multiple international failures of similar models, urging the Authority to release valuable, currently unused spectrum for commercial deployment. Cell C has requested clarification on the status of the WOAN set aside of the remaining 1 x 30 MHz in the IMT2600 band and the 2 x 10 MHz in IMT 700MHZ, particularly whether this will be made available for use by the State Digital Infrastructure Company ("SDIC"). Cell C requests for the Authority to follow a transparent process in this regard. Vodacom has emphasized the inefficiency of set-asides, asserting that these reduce competition, artificially limit participation, and risk spectrum underutilisation. Vodacom recommends that the Authority discourages set-asides in favour of the promotion of a technology-neutral framework. | The Authority notes the submission regarding WOAN. However, given the uncertainties around the WOAN, including that it is not mentioned in the latest spectrum-related policy direction from the Minister dated 13 March 2026[60], this is not discussed in the IMT Roadmap. |
| Vodacom's comments regarding the first draft IMT Roadmap published in 2024 consider that a single wholesale operator or active radio access network ("RAN") sharing involving a number of mobile network operators using TDD spectrum may not be optimal. This is because fragmented assignments of less than 40/50MHz does not allow the full benefits of IMT-Advanced or IMT-2020 to be realised. While small assignment blocks may be sub-optimal, they can have benefits for consumers when combined with a licensee's other spectrum assignments. | The spectrum block sizes will be considered when developing RFSAPs. The Authority notes the development of RAN sharing in South Africa and considers this on a case-by-case basis. The new ministerial policy direction on next generation radio frequency spectrum for economic development is discussed in Section 3.3. |
| In comments on the second draft Roadmap published in 2025, Vodacom proposes that timelines for migration be published (made transparent) and that quarterly updates are provided. Huawei supports the implementation timelines outlined in Section 11 of this IMT Roadmap. However, suggests it is | The proposed timelines are set out in Section 10, and will be included in RFSAPs, which will be published in the government gazette. |

[57] Government Gazette 33119 (Notice 306 of 2010).

[58] Government Gazette 40325 (Notice 1212 of 2016).

[59] Government Gazette 42597 (Notice 1013 of 2019).

[60] Department of Communications and Digital Technologies. (2026). Draft Policy Direction seeks to Speed Up Broadband and Mobile Network Deployment. Available: https://www.dcdt.gov.za/media-statements-releases/649-draft-policy-direction-seeks-to-speed-up-broadband-and-mobile-network-deployment.html



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| Stakeholder comments | Authority's comment |
|---|---|
| likely that not all additional IMT bands can be released within the same timeframe due to factors such as equipment availability and differing migration requirements. Qualcomm encouraged the Authority to accelerate spectrum planning, migration and assignment given the growing demand for IMT spectrum availability. | |
| Vodacom's comments regarding the first draft IMT Roadmap published in 2024 consider, that licensees which have national spectrum licences are in a better position to supply the needs of potential spectrum park users given the Authority's findings that spectrum parks can be spectrally inefficient when there are different competing interests of the users. | Spectrum parks are not proposed in the current version of the IMT Roadmap but might be considered in future. |
| In comments on the second draft Roadmap published in 2025, Vodacom comments that HIBS should only be permitted for use by existing IMT licensees in respect of their own assignments, following the approach adopted by the FCC Supplementary Coverage Order. WRC-23 resolutions 221 and COM4/4 recommend protections for existing services on a primary basis. Cross-border interference needs to be considered, and interference with existing services needs to be prevented. Vodacom further recommends that the Authority needs to include the appropriate pfd limits into the RFSAPs for the additional bands for IMT. Existing licenses will need to be amended to accommodate HIBS. Telkom agrees that HIBS could be used to address network coverage gaps in the future. However, Telkom urges the Authority to adopt a technology-neutral approach to the deployment of HIBS. Telkom further suggests that HIBS deployment in existing licensed IMT bands should be undertaken by licensees under their existing licenses. SACF proposed, in a previous submission regarding the first draft IMT Roadmap, that should HIBS be licensed to new licensees, they should pay for the IMT spectrum in the same way that incumbents did. SACF recommended that access seekers ought to rather approach existing licensees on a commercial basis to use HIBS. SARAO requested clarification, in a previous comment regarding the first draft IMT Roadmap, on the deployment of HIBS, since this threatens radio frequency interference in the square kilometre array area. | Existing RFSAPs will be updated in due course to accommodate HIBS, as explained in Section 5.3. The appropriate pfd limits are discussed in Section 5.6. Interference management is addressed in Sections 5.4, 5.5, 5.6 and 8.2. RFSAPs govern the licensing arrangements for the respective frequency bands. |
| When commenting on the initial draft Roadmap published in 2024, SACF suggested that the Roadmap is not an appropriate place to consider universal service obligations. | The IMT Roadmap provides a broad framework for all of the key aspects of the management of IMT spectrum, including universal service, as set out in Section 9.2. |
| In comments on the second draft Roadmap published in 2025, Huawei and MTN recommended adopting TRP requirements for AAS and maintaining EIRP requirements for non-AAS. MTN provided detailed comments in this regard. Similarly, the Council for Scientific and Industrial Research ("CSIR") suggested accommodating EIRP limits, in addition to TRP, so as to avoid overreliance on TRP limits. | The Authority has taken a combined approach in this regard, taking into account TRP limits for AAS and EIRP limits for non-AAS. This will be evident in the forthcoming RFSAPs for additional IMT bands, to be published in the 2026/7 financial year. |



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| Stakeholder comments | Authority's comment |
|---|---|
| In comments on the second draft Roadmap published in 2025, the CSIR expressed concerns regarding cybersecurity resilience, requesting for the inclusion of regulatory standards and frameworks that relate to cybersecurity and privacy. | The Authority notes the importance of cybersecurity, however, the IMT Roadmap specifically relates to spectrum used for mobile services and hence cybersecurity falls outside of the scope of this particular process. However, Sections 35 and 36 of the ECA apply in protecting the integrity of electronic communication networks. |
| In comments on the second draft Roadmap published in 2025, the CSIR has made several recommendations regarding stylistic edits, including formatting, language, and typography. | The Authority has made the necessary edits accordingly. |
| In comments on the second draft Roadmap published in 2025, Telkom recommended that the language used with reference to the allocation of frequency bands by the ITU be amended, as well as reference to ITU-R M.1036-7 be updated to ITU-R M.1036-8. Further, Telkom suggested various edits to Table 2 regarding references to Radio Regulation footnotes and WRC Resolutions. | The Authority has made the necessary edits accordingly. |
| In comments on the second draft Roadmap published in 2025, Telkom recommends clarifying the references to the Radio Frequency Migration Plan 2013, and incorporating the Radio Frequency Migration Regulations 2013 into the Radio Frequency Spectrum Regulations, and separating out the Radio Frequency Migration Plan. | The Radio Frequency Migration Plan 2013 has been repealed by the Radio Frequency Migration Plan 2019, and the IMT Roadmap has been updated accordingly. The Authority will consider its approach to the Radio Frequency Migration Regulations and the Radio Frequency Spectrum Regulations at the appropriate time. |
| In comments on the second draft Roadmap published in 2025, the CSIR requested for the coverage statistics in Section 9 to be updated. | The Authority has included the most recently available coverage statistics, as published in the 2026 State of the ICT Sector Report of South Africa. |
| In comments on the second draft Roadmap published in 2025, Huawei noted the growing demand for IMT deployment in vertical sectors, such as PPDR, recommending that the Authority considers these sectors when updating IMT Roadmaps, band plans, and future allocation decisions. | Vertical deployments are now considered in Section 7.3 of this IMT Roadmap. |
| In comments on the second draft Roadmap published in 2025, Vodacom and MTN raise concerns regarding interference management. Vodacom suggested the Authority's approach to interference management, whereby the Authority will only intervene when cooperation amongst licensees cannot be achieved, will result in delays in resolution which would disadvantage licensees and consumers. Vodacom recommended that the Authority take a proactive approach in this regard. MTN suggests that the provision of logistical and technical assistance for dispute resolution falls within the Authority's mandate. | The Authority notes the suggestion and has altered its approach accordingly to be in line with the ECA and the RFSR, as described in Section 8.2 of this document. |



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| Stakeholder comments | Authority's comment |
|---|---|
| In comments on the second draft Roadmap published in 2025, MTN urges that any coverage and social obligations attached to future spectrum be reasonable, commercially viable, and unambiguously defined. It warns that overly ambiguous obligations risk spectrum remaining unsold, as occurred in the 2022 spectrum auction. Cell C also requested clarification on the unsold Lot 9 in the 800 MHz band. MTN cites five coverage levels where coverage is concerned. Further, instead of forcing coverage obligations that entail a trade-off between coverage and competition, MTN recommends that the Authority promotes infrastructure sharing and competitor collaboration. For the most rural areas, MTN suggests establishing Wholesale Open Access Rural Network (WOARN) funded by government subsidies and the Universal Service Access Fund. | The Authority has outlined its approach to coverage obligations in Section 9. |
| In comments on the second draft Roadmap published in 2025, Telkom recommended that crowd-sourced data only be used as an indicative measure for monitoring broadband speeds. Telkom suggests that crowd-source data does not accurately reflect network performance due to uncontrolled test conditions, differences in device capabilities, tariff and plan variations, and test server and internet paths. | Crowd-sourced data is only one measure of network quality, and its limitations described by Telkom are included in the IMT roadmap. |
| In comments on the second draft Roadmap published in 2025, Telkom recommends that coordination and coexistence rules should be finalised prior to the licensing of frequency bands and IMT deployment. Telkom warns against altering these rules once the band has been licensed so as to avoid devaluation of the band. | Section 5.2 of this IMT Roadmap now indicates that coordination and coexistence rules will be finalised prior to the licensing of radio frequency spectrum, in RFSAPs. |

**Table 16: Comments on bands that have existing RFSAPs or that may in future be relevant for IMT**

| Stakeholder comments | Authority's comment |
|---|---|
| When commenting on the initial draft IMT Roadmap published in 2024, Vodacom noted that the Authority has allocated spectrum in the ranges 380 - 387 & 387 – 390 & 390 – 399.9MHz to SAPS, but indicates that it is unclear whether SAPS has completed its migration. The 380MHz band will be complementary to the 450MHz band once standardised by the 3GPP and so Vodacom proposes allocating the band for IMT in addition to PAMR, PPDR, and PMR services. That way the band could be used for IMT when not in use for the other applications. | The Authority plans to implement international recommendations such as those agreed to in WRC-23. Since the 380MHz, 410-430MHz, and 600MHz bands were not identified for IMT in Region 1 at WRC-23, they are not currently being considered for reallocation to IMT. |
| Vodacom proposed, in a previous comment regarding the first draft IMT Roadmap, that the bands 410 – 420 & 420-430 MHz not be allocated exclusively to be Digital Public Trunking as set out in the current RFSAP for the band.[61] | |
| The National Association of Broadcasters ("NAB") recognised, in a previous comment regarding the first draft IMT Roadmap, that the Authority is following the decision in | |

[61] Government Gazette 49079 (Notice 3766 of 2023).



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| Stakeholder comments | Authority's comment |
|---|---|
| WRC-23 to the effect that the 470-694MHz band be allocated exclusively to broadcasting. Vodacom, on the other hand proposed, in a previous submission regarding the first draft IMT Roadmap, that IMT600MHz (3GPP band 71 ranging between 617 – 652 and 663 – 698 MHz) be considered for IMT by the Authority due to its coverage characteristics, and since the analogue switch-off will allow retuning of transmitters to below the IMT600MHz range (potentially below 575MHz). Vodacom noted that this band has deep indoor penetration capabilities, for example. Vodacom further suggests that the band could be allocated to IMT on a secondary basis before the analogue switch off, to enable its use for IMT in areas where the band is not being used for broadcasting purposes. According to Vodacom, there are 624 device variants that support B71 or n71. Vodacom thus encouraged the Authority to set out a plan to enable more efficient use of spectrum for broadcasting, and a plan to make available the third digital dividend for assignment for IMT. SACF similarly proposed, in a previous comment regarding that first draft IMT Roadmap, that the 600MHz band be considered for IMT. | |
| In comments on the second draft Roadmap published in 2025, Vodacom recommends expediting the auction of the IMT450MHz band. SARAO proposed, in its previous submission regarding the first draft IMT Roadmap published in 2024, removing all links in the 450MHz band in the Karoo Central Astronomy Advantage Areas ("KCAAA"). In comments on the second draft Roadmap published in 2025, Cell C suggests that incumbents, such as Transnet, will need to be migrated. Cell C further notes that as per the GSA, there are currently 135 devices available for IMT use in this band. | This IMT450MHz RFSAP is in force and the band is planned to be auctioned. The RFSAP provides protection for the KCAAA. The incorrect references have been removed. |
| In comments on the second draft Roadmap published in 2025, Huawei and Cell C consider there to be limited devices that support the IMT 750 TDD band. | The Authority notes the limited device ecosystem, however, an RFSAP is already in force in this band. In the interests of promoting regulatory certainty, is it important to note that this will continue to be an IMT band. |
| In comments on the second draft Roadmap published in 2025, Huawei comments that there are over 1 200 LTE devices that support the core L-band (Band 32 SDL), 1452-1496 MHz, and almost 200 devices that support the extended L-band (5G NR SDL Band 75 and Band 76), 1432-1517 MHz and 1427-1432 MHz. Huawei further recommends the assignment of this band in SDL mode, and that the Authority aligns the national L-band framework with ATU-R Recommendation 008-0 of July 2025 which specifies a downlink-only band plan in the 1427-1517 range. Vodacom recommends that the Authority issues an open ITA to assign spectrum in this band. Telkom's comments on the first draft Roadmap published in 2024 indicate that the band needs to be cleared of FS links if it is to be licensed for IMT. In their submissions regarding the first draft IMT Roadmap published in 2024, the GSOA and Viasat previously commented that there has been little deployment of | The band will be auctioned in due course, and current occupancy of the band will be monitored and tested by the Authority.<br><br>The RFSAP for 1427-1518MHz is in force. The Authority may update this RFSAP to mitigate possible interference with adjacent frequency bands.<br><br>The IMT 1500 RFSAP has designated a guard band between MSS and IMT at 1517-1518 MHz. The RFSAP is to be reviewed and amended. |



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| Stakeholder comments | Authority's comment |
|---|---|
| IMT services in the 1427-1518MHz band to date. Viasat proposes that mitigation measures be put in place for satellite services in the L-band, such as a suitable guard band. In comments on the second draft Roadmap published in 2025, Cell C supports the use of this band for IMT, however, notes that the migration of incumbents needs to be considered. Cell C further supports feasibility studies for coexistence between IMT and mobile satellite services ("MSS"). | |
| When commenting on the initial draft Roadmap published in 2024, the GSOA notes that the frequency ranges 1518-1559 MHz (space-to-Earth) and 1626.5-1660.5 and 1668-1675 MHz (Earth-to-space) are used for a variety of mobile satellite services ("MSS") including Global Maritime Distress and Safety System (GMDSS), Public Protection and Disaster Relief (PPDR) and Aeronautical Mobile Satellite (Route) Service (AMS(R)S). There are also advances in non-terrestrial-network ("NTN") technologies such as Direct to Device ("D2D") and IoT services compatible with 3GPP's 5G NTN standards. Viasat made similar comments in its submission regarding the first draft IMT Roadmap published in 2024, and requested protection from IMT services by ruling out single frequency links in 1518-1525MHz, limiting emitted power, adopting indoor-use only requirements in 1492-1518MHz, and establishing a suitable guard band, or limiting IMT use to below 1492MHz. SARAO, in its previous submission regarding the first draft IMT Roadmap published in 2024, raised concerns about D2D services and possible radio frequency interference at the SKA, and requests clarity on the Authority's approach to IMT-satellite, and enforcement measures to protect the SKA. | The Authority may consider ITU recommendation ITU-R M.2159-0 for coordination / coexistence between IMT and MSS, as explained in Section 5.2. The Authority notes that the ITU has agreed to use the term Direct Connectivity between Mobile-Satellite Service space station and IMT UEs ("DC-MSS-IMT") for all connectivity between terrestrial IMT and MSS.<br><br>A suitable guard band may be considered for the 1427-1517MHz IMT band as discussed above. |
| When commenting on the initial draft IMT Roadmap published in 2024, Vodacom proposed that the band 2290 – 2300 MHz might be used by incumbents in the 2300-2400MHz band so as to ensure a more competitive assignment of spectrum in the latter band. | The bands adjacent to the 2300-2400MHz bands are outside of the scope of the IMT Roadmap. |
| When commenting on the initial draft IMT Roadmap published in 2024, Vodacom proposed that the ISM range should be limited to 2410 – 2493.5 MHz in order to make the 2300-2400MHz freely available. Furthermore, Vodacom noted that the RFSAP for the band 2300-2400MHz needs to be updated to reflect the migration of the incumbent out of this band. Telkom's comments regarding the first draft Roadmap published in 2024 note that 2300-2400MHz is used for IMT, including fixed wireless access (FWA). Telkom further noted that the upper part of 2.4GHz is used for WLAN (WiFi), among other services. Cell C asserts that incumbents should be migrated from this band timeously. Following which, Cell C encourages the Authority to proceed with the assignment process given the mature device ecosystem and the global precedent of demand for licenses in this band. The Wireless Access Providers' Association ("WAPA") has indicated that it represents more than 280 organisations, offering mainly fixed-wireless connectivity, and supports the positions of the | The band above 2400MHz is outside of the scope of the IMT Roadmap, and the RFSAP for 2300-2400MHz is in force. |



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| Stakeholder comments | Authority's comment |
|---|---|
| Dynamic Spectrum Alliance. WAPA supports the allocation of more spectrum for WLAN/RAS. | |
| In comments on the second draft Roadmap published in 2025, Qualcomm commented that the 7125-8400 MHz band range (the 7/8 GHz band) is being considered for IMT under WRC-27 Agenda Item 1.7. | This is now noted in the IMT Roadmap in Section 6.2. |

**Table 17: Stakeholder comments and the Authority's response regarding the initial feasibility studies for additional IMT bands**

| Stakeholder comments | Authority's comment |
|---|---|
| The Authority has received numerous comments on the initial draft IMT Roadmap published in 2024 regarding the initial feasibility studies for additional IMT bands. | The Authority has addressed these submissions in the Feasibility Studies, as they now fall under a separate process. The Authority's responses to these comments are included in the respective forthcoming feasibility studies. |



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Printed by and obtainable from the Government Printer, Bosman Street, Private Bag X85, Pretoria, 0001
Contact Centre Tel: 012-748 6200. eMail: info.egazette@gpw.gov.za
Publications: Tel: (012) 748 6053, 748 6061, 748 6065

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