



Feasibility Study

66 GHz to 71 GHz

1 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).
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 <i>radiocommunication services</i> or the <i>radio astronomy service</i> 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.
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 isotropically 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.
FDD	Frequency Division Duplex.
FWA	Fixed Wireless Access.
FS	Fixed Service.
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.
GSMA	Global System for Mobile Communications Association.
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.

Acronym	Explanation
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
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.
Revocation Period	A period of transition during which incumbent users are migrated out of the band in question to clear sufficient spectrum for new service providers.
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.
Service licence	BS, ECS or ECNS licence.
SF	Single Frequency.
SFN	Single Frequency Network.
TDD	Time Division Duplex.
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.

2 Introduction

- 2.1 The frequency range 66-71GHz falls under TDD band plan M1, as shown on Figure 9 below. The arrangements for the band are set out in Section 14 of ITU-R M.1036-7. This frequency range falls under the E-band, which is the frequency range from 60-90GHz band has been allocated to mobile, inter-satellite, and radionavigation-satellite services in Region 1. This band also falls under the mmWave frequency range and is suitable for IMT.

Figure 9: Frequency arrangements between 66GHz-71GHz

GHz	66	71
M1		
	TDD	
	66	71

M.1036-14

Source: ITU-R 1036

3 Regulatory context

- 3.1 This band is allocated to mobile services and has been identified for IMT in all three Regions.⁸⁵ The band is allocated to inter-satellite, mobile, mobile-satellite, and radionavigation-satellite services in the NRFP. There is provision for IMT allocation in the entire band.

4 Economic feasibility for IMT

- 4.1 No spectrum auctions for IMT have been held for this band, and no licenses have been recorded. However, the US Federal Communications Commission ("FCC") has allowed unlicensed IMT services within the band.⁸⁶ The highest value use of the band is somewhat uncertain at this stage.

5 Technical feasibility

- 5.1 While the band has been identified for the terrestrial component of IMT, the ITU has not established protection for IMT services in this band. Therefore, there is a risk of interference with incumbent users. For example, there may be licensees operating in this band in terms of the 2021 amendment to the Radio Frequency Spectrum Regulations⁸⁷,

⁸⁵ See WRC-19 Footnote 5.559AA.

⁸⁶ See GSMA. 2018. IMT Spectrum Between 24.25 and 86 GHz GSMA Public Policy Position. 2018, available at: <https://www.gsma.com/connectivity-for-good/spectrum/wp-content/uploads/2018/12/AI-1.13-Positions.pdf>

⁸⁷ See Government Gazette 45690 (Notice 737 of 2021).

which permits Multi-Gigabit Wireless Systems (“MGWS”). Mitigation and coordination strategies may be necessary.

6 Maturity of the IMT ecosystem

6.1 The device ecosystem is limited. There are no devices that support this band.⁸⁸

7 International considerations

7.1 This band is identified for IMT in all three Regions. However, no licenses have been granted to IMT operators in Region 1. The GSMA recommends that licenses be awarded flexibly in this band to encourage both IMT and non-IMT use.⁸⁹

8 Stakeholder comments

8.1 Table 9 below for a summary of stakeholders’ comments on the Draft IMT Roadmap 2024, Second Draft IMT Roadmap 2025, and Draft Radio Frequency Migration Plan 2024, alongside the Authority’s response.

Table 9: Stakeholder comments and the Authority’s response for the 66-71GHz band

Stakeholder comments	Authority’s comment
Cell C, Vodacom, and MTN support the assignment of this band for IMT, following the development of a RFSAP. Telkom supports RFSAP development for this band, however, notes that this band is of lesser priority in terms of licensing than the 26 GHz and 40 GHz bands. Telkom also proposes that in fact no feasibility study is needed for this band because it is either unused, or there is minimal use of it currently.	The Authority is in the process of developing an RFSAP for this band given that it has been recommended for IMT in WRC-23. While the band may be unused, part of the reason for preparing this feasibility study is to solicit feedback from stakeholders on the use or otherwise of the band.
Cell C advises that coexistence with incumbent users be considered, proposes technology neutrality, and recommends that timelines be developed for consultation, assignment, and implementation.	Coordination / coexistence will be considered during the course of developing the feasibility study and RFSAP for the band. Stakeholders are encouraged to provide comments in this regard.
Huawei, however, notes the limited device ecosystem for this band.	Despite the current limited device ecosystem, it is likely that devices will be developed for the band given the licence-free IMT allocation in the USA.

⁸⁸ See ATU-R recommendation relating to International Mobile Telecommunications (IMT) Spectrum Roadmap For Africa. 2025, available at: <https://atuuat.africa/wp-content/uploads/2025/08/Project-4-IMT-Spectrum-Roadmap-for-Africa-Final.pdf>

⁸⁹ See GSMA. 2018. IMT Spectrum Between 24.25 and 86 GHz GSMA Public Policy Position, available at: <https://www.gsma.com/connectivity-for-good/spectrum/wp-content/uploads/2018/12/AI-1.13-Positions.pdf>

9 Considerations in favour of and against IMT allocation

- 9.1 The advantage of using this band for IMT is that it has been identified for IMT by the ITU, as well as the NRFP.
- 9.2 At the same time, there is potential for coexistence between IMT and unlicensed use for WAS/RLAN.
- 9.3 However, there is a lack of devices that support this band, and stakeholders' views on the suitability of the band for IMT are mixed.
- 9.4 Given the advantages arising from the allocation of the band for IMT in other regions, and the potential for coexistence with unlicensed use for WAS/RLAN, the considerations in favour of the allocation of the band to IMT on a shared basis with WAS/RLAN, outweigh those in favour of not doing so.