



Feasibility Study

1880 MHz to 1900 MHz

1 Glossary of Terms, Abbreviations, and Acronyms

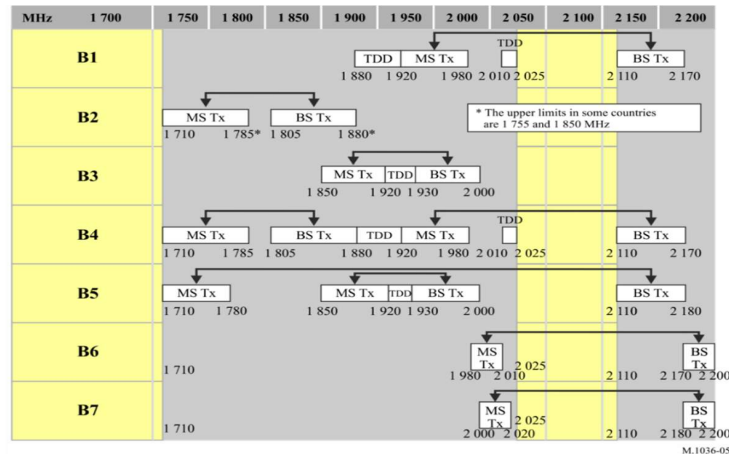
Acronym	Explanation
3G	Third generation mobile telecommunications is a generation of standards for mobile phones and mobile telecommunication relating to the ITU-R IMT-2000 specifications.
4G	Fourth Generation Network Technology relating to ITU-R IMT-Advanced specifications.
5G	Fifth Generation Network 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 arrangements for this band are set out in Section 5 of ITU-R M.1036-7. This band forms part of Band 4 for the overall range between 1710MHz and 2200MHz (see Figure 1). There are other users of this band, such as for Digital Enhanced Cordless Telecommunications (“DECT”) technologies.

Figure 1: Frequency arrangements between 1710MHz-2200MHz



Source: ITU M.1036

3 Regulatory context

- 3.1 The NRFP allocations for this band are shown in the NRFP.
- 3.2 The IMT1900 TDD (1880 – 1900 MHz) band is allocated to mobile services on a primary basis in the NRFP.

4 Economic feasibility for IMT

- 4.1 The 1880-1900 MHz band is currently allocated to DECT. Shure has proposed expanding the DECT band to include using the band 1910-1920 MHz for DECT services, at least in the United Kingdom (“UK”)¹, however it is not clear how many users would be served by allocating parts of the band to DECT services.
- 4.2 Given that it is unlikely that a significant number of consumers use DECT services in South Africa, it is unlikely that the band should remain allocated to DECT. Furthermore, given the scarcity of mid-band spectrum between 1GHz and 6GHz, it is likely that this band would be highly valued for IMT services. In addition, the adjacent band 1900-

¹ See: <https://www.ofcom.org.uk/siteassets/resources/documents/consultations/category-1-10-weeks/future-authorisation-of-the-19001920-mhz-band/responses/shure-uk-ltd.pdf?v=403939>

1915MHz is likely to be allocated to IMT services (FRMCS). Accordingly, the band is likely to be highly valued for IMT services.

5 Technical feasibility

- 5.1 There are risks of interference between DECT and IMT services in the 1880-1900MHz band.

6 Maturity of the IMT ecosystem

- 6.1 There is already a strong device ecosystem that supports this band (n39), which is likely to grow further given the identification of the band 1880-1900 MHz for IMT services by the ITU, as shown on Figure 1 above.

7 International considerations

- 7.1 South Africa has an obligation in accordance with the Act to harmonise its allocations of spectrum with other countries in Region 1, including countries in the EU and the UK, which are in the process of allocating the band to mobile services.

8 Stakeholder comments

- 8.1 Refer to Table 1 below for a summary of the 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 1: Stakeholder comments and the Authority's responses for the 1880 – 1900 MHz band

Stakeholder comments	Authority's comment
Vodacom and Cell C support the allocation of this band for IMT. Vodacom expresses scepticism about the band's use for DECT services and considers that the IMT1900 band has strong terminal support, and recommends a deployment of band b/n39. Vodacom further asserts that there already exists a strong device ecosystem for this band. Cell C recommends that incumbent users should be mandated to reapply for IMT spectrum.	The Authority will consider information on the value of this band for IMT use, such as potential auction values, the network costs avoided by using this band for IMT, and any other benefits that stakeholders may wish to provide information on.
The DECT Forum has previously expressed concern, when commenting on the Draft Radio Frequency Migration Plan 2024, regarding the interference of new technologies with incumbent DECT users in the 1880-1900 MHz subrange. The Forum has further expressed their interest in introducing DECT NR+ to this subrange, which may be used for technologies such as Programme Making and Special Events (PMSE). Their recommendation is to allocate the entire 1880-1920 MHz band to DECT.	There is substantial demand for additional spectrum for IMT use including for railway mobile communications, as set out in the feasibility study for FRMCS, and it is improbable that alternative niche uses such as DECT and PMSE command equally high demand. Nonetheless, the Authority is considering information on the value of the use of these bands for alternative services, and stakeholders are
Shure has previously alluded, when commenting on the Draft Radio Frequency Migration Plan 2024, to the importance of PMSE in the 1880-1900 MHz band, suggesting that the Authority studies the compatibility of IMT services with the	

Stakeholder comments	Authority's comment
band's incumbent DECT technologies.	encouraged to provide
Telkom is of the view that only the band 1900-1920MHz is currently available for IMT use.	information on this. Stakeholders are encouraged to comment in this regard.
Telkom advised that no VSAT services have been deployed in this band.	The Authority has made this correction.

9 Considerations in favour of and against IMT allocation

9.1 The advantages of allocating the band for IMT are:

- 9.1.1 The NRFP has proposed the allocation of the 1880-1900 MHz band to IMT;
- 9.1.2 There is a high likelihood that the highest value use of the band is for IMT rather than alternatives such as DECT;
- 9.1.3 The allocation of this band to IMT is technically feasible, i.e. that this will not interfere with systems in adjacent bands;
- 9.1.4 There are a number of jurisdictions proposing the allocation of the band for IMT, and thus there is a likely developing ecosystem;
- 9.1.5 Other countries in Region 1 are allocating the band for IMT, and South Africa must harmonise its allocations with other countries in Region 1;
- 9.1.6 Several stakeholders consider that the band should be allocated for IMT.

9.2 The disadvantage of allocating the band to IMT is that DECT users will have to migrate out of the band. Nevertheless, given the likely very small number of DECT users, compared to the very large number of potential mobile users in the band, it is highly unlikely that the disadvantages of allocating the band to IMT outweigh the advantages, and so this band ought to be allocated to IMT.