



National Information and Communications Technology Authority

DRAFT BAND PLAN

2.3 GHz



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Table of Contents

DOCUMENT REVISION DETAILS.....	1
DISCLAIMER.....	1
LIST OF ABBREVIATIONS.....	2
1. INTRODUCTION.....	3
2. RADIO SPECTRUM PLAN.....	3
3. CHANNELLING PLAN.....	4
4. PRINCIPLES OF ASSIGNMENT.....	5
5. REFERENCES.....	6
Annex A: Extract of Article 5 - ITU Radio Regulation 2024 and Papua New Guinea Spectrum Plan 2025.....	7

DISCLAIMER

Due to the continuous developments in Radiocommunication technologies and enhancement in related applications, the PNG spectrum plan covering Service Allocations and their applications may change with the outcome of each World Radio Conference (WRC).

This document is based on the ITU Radio Regulations of WRC-23 and provisions for ITU Region 3 as well as relevant APT recommendations. This document must be read with all relevant references quoted to understand various sub-band plans and channeling arrangements. The National Information and Communication Technology Authority (NICTA) of Papua New Guinea hereby expressly disclaim all liability connected with or arising from any sole use of or reliance on the contents of this document alone for any purpose whatsoever.

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LIST OF ABBREVIATIONS

APT	Asia Pacific Telecommunity
BS	Base Station
DL	Downlink
FDD	Frequency Division Duplex
IMT	International Mobile Telecommunications
IP	Internet Protocol
ITU	International Telecommunications Union
LTE	Long-Term Evolution
NICTA	National Information and Communications Technology Authority
TDD	Time Division Duplex
UE	User Equipment
UL	Uplink
WRC - 23	World Radio Conference 2023

1. INTRODUCTION

- 1.1 Demand for Mobile Broadband Access continues to increase thus creating the need for more radio frequency spectrum.
- 1.2 To meet the continued exponential increase in data consumption that the digital data age has ushered in, the National Information and Communications Technology Authority is striving to ensure operators in Papua New Guinea are in possession of adequate mid-band spectrum.
- 1.3 This 2.3 GHz Band plan relates to spectrum between 2 300 MHz and 2 400 MHz
- 1.4 Other services within the band are also mentioned briefly for sharing and compatibility reasons.
- 1.5 This document provides information on technical characteristics of radio systems, frequency channeling and coordination initiatives to maximize the band utilization and minimize interference by applications in operation within this band.
- 1.6 This band plan intends to guide assignments and regulate usage of this spectrum in Papua New Guinea.
- 1.7 The 2.3 GHz Band Plan is based on Article 5 of the ITU Radio Regulations, provisions for Region 3 and consequent PNG Allocations as per updates from WRC-23.

2. RADIO SPECTRUM PLAN

- 2.1 In accordance with the ITU Radio Regulations and provisions for region 3, the Papua New Guinea Table of Frequency Allocations (see Annex A) provides for the following Primary Services in this 2.3 GHz Band;
 - FIXED
 - MOBILE
 - RADIOLOCATION
- 2.2 The 2.3 GHz band accommodates the following Service Applications;
 - IMT
 - Fixed Wireless Access (FWA) Systems
- 2.3 Other applications permitted in this band include;
 - Amateur Service (restricted to professional amateurs only)
- 2.4 Globally, the 2.3 GHz band has been identified for IMT Advanced and IMT 2020 (5G) deployment. This core spectrum band is ideal for 4G LTE or 5G deployment as it can provide both capacity and coverage and has been assigned for such services in PNG’s neighbouring countries including Indonesia and Australia and more broadly in the Pacific and ASEAN.
- 2.5 For the benefit of consumers and citizens in PNG, NICTA determines that the highest value use of the 2.3 GHz (2 300 -2 400 MHz) band is IMT.

3. CHANNELLING PLAN

3.1 The channelling arrangement for 2.3 GHz band will be as per Recommendation ITU-R M.1036-8 (02/2026)¹ and 3GPP band specification². Refer to Tables and figure 1 below.

Frequency Arrangement	Paired Arrangements (FDD)				Un-paired arrangements (TDD) (MHz)
	Mobile station transmitter (MHz)	Center gap (MHz)	Base station transmitter (MHz)	Duplex separation (MHz)	
E1	NOT APPLIED				2 300 – 2 400

Table 1: Frequency arrangements in the 2 300 – 2 400 MHz band (ITU-R M.1036-8)

NR operating band	Uplink (UL) operating band BS receive / UE transmit $F_{UL_low} - F_{UL_high}$	Downlink (DL) operating band BS transmit / UE receive $F_{DL_low} - F_{DL_high}$	Duplex Mode
n40	2300 MHz – 2400 MHz	2300 MHz – 2400 MHz	TDD

Table 2: Frequency arrangements in the 2 300 – 2 400 MHz band (3GPP band Specification)



Figure 1: Frequency arrangement E1 (ITU-R M.1036-8)

3.2 Channelling arrangement is based on 10 MHz block for deployment of IMT services. Multiples of 10 MHz contiguous spectrum can also be used depending on spectrum availability and specific requirements. Ideally 40 – 100 MHz of contiguous spectrum is required to support high capacity TDD services.

3.3 Assignments for Papua New Guinea in this band shall be from 2 300 to 2 390 MHz with 10 MHz guard band to protect incumbent services operating in the 2.4 GHz ISM band. Refer to figure 2 below.

¹ <https://www.itu.int/rec/R-REC-M.1036-8-202602-I/en>

² https://www.3gpp.org/ftp/Specs/archive/38_series/38.101-1/

“THE 2.3 GHz BAND”

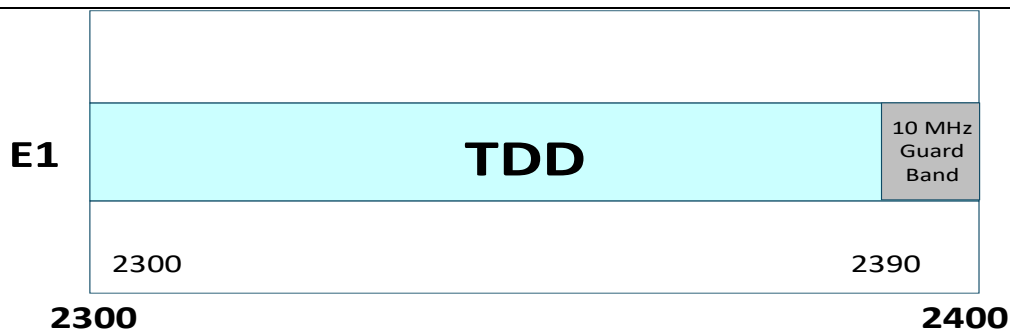


Figure 2: Modified Frequency arrangement E1 (ITU-R M.1036-8) for Papua New Guinea

3.4 Synchronisation of the Networks deployed in this band shall follow NICTA Network Synchronisation Guideline or a method agreed to by operators deploying high capacity TDD services. Appropriate frame structure selection for local, national and international is required to avoid potential harmful interference between adjacent networks operating in this band.

4. PRINCIPLES OF ASSIGNMENT

4.1 Authorisation to use the frequency band;

- Any license assignment for parts or portion of the 2.3 GHz band is subject to conditions in the Operator Licensing Regulation, 2010 and Radio Spectrum Regulation, 2010.

4.2 Required types of Radiocommunications Licences are;

- Spectrum Licence** is needed for the operation of a device or devices within a defined spectrum space (geographic area and frequency band) on the condition that the device(s) operate with accordance to their licence conditions and terms that were set by NICTA for that specific spectrum. This licence is issued for a period of five (5) to fifteen (15) years and fees paid annually.
- Apparatus Licence** is needed for the operation of a device or type of devices at specific locations with specific operating conditions set by NICTA in order to provide an approved service. Apparatus Licences are intended to be directed at certain categories of 'Transmitting' and 'Receiving' apparatus. This licence is issued for a period of five (5) years.

5. REFERENCES

- 1 3GPP TS 38.101-1 V19.5.0 (2026-03)
- 1 ITU Radio Regulations Articles Edition of 2024
- 2 ITU-R Recommendation M.1036-8 (02/2026)
- 3 Papua New Guinea Table of Frequency Allocations 2025
- 4 Papuan New Guinea Radiofrequency Spectrum Allocation Chart January 2026

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Annex A: Extract of Article 5 - ITU Radio Regulation 2024 and Papua New Guinea Spectrum Plan 2025

2 170-2 520 MHz

Allocation to services				
Region 1	Region 2	Region 3	Papua New Guinea	Usage
2 170-2 200 FIXED MOBILE 5.388 MOBILE-SATELLITE (space-to-Earth) 5.351A 5.389A 5.389F			2 170-2 200 FIXED MOBILE 5.388 MOBILE-SATELLITE (space-to-Earth) 5.351A 5.389A 5.389E	Satellite component of IMT-2000 subject to coordination under No. 9.11A. Low capacity microwave links in the 2.1 GHz, 2.2 GHz bands in accordance with ITU-R Rec. F.701, F.382, F.283 and F.1098.
2 200-2 290 SPACE OPERATION (space-to-Earth) (space-to-space) EARTH EXPLORATION-SATELLITE (space-to-Earth) (space-to-space) FIXED MOBILE 5.391 SPACE RESEARCH (space-to-Earth) (space-to-space) 5.392			2 200-2 290 SPACE OPERATION (space-to-Earth) (space-to-space) EARTH EXPLORATION-SATELLITE (space-to-Earth) (space-to-space) FIXED MOBILE 5.391 SPACE RESEARCH (space-to-Earth) (space-to-space) 5.392	Low capacity microwave links in the 2.1 GHz, 2.2 GHz bands in accordance with ITU-R Rec. F.701, F.382, F.283 and F.1098. High density mobile systems are not permitted.
2 290-2 300 FIXED MOBILE except aeronautical mobile SPACE RESEARCH (deep space) (space-to-Earth)			2 290-2 300 FIXED MOBILE except aeronautical mobile SPACE RESEARCH (deep space) (space-to-Earth)	Low capacity microwave links in the 2.1 GHz, 2.2 GHz bands in accordance with ITU-R Rec. F.701, F.382, F.283, F.1098 and F.1243.
2 300-2 450 FIXED MOBILE Amateur Radiolocation 5.150 5.282 5.395	2 300-2 450 FIXED MOBILE 5.384A RADIOLOCATION Amateur 5.150 5.282 5.393 5.394		2 300-2 450 FIXED MOBILE 5.384A RADIOLOCATION Amateur 5.150 5.282	The band 2300-2400 MHz designated for IMT advanced in accordance with "IMT Plan" for high-density applications. Amateur service is restricted to professional amateurs only. 2.4 GHz (2400 – 2483.5 MHz) ISM band. LPD devices are permitted to use this band subject to comply with given standards.
2 450-2 483.5 FIXED MOBILE Radiolocation 5.150	2 450-2 483.5 FIXED MOBILE RADIOLOCATION 5.150		2 450-2 483.5 FIXED MOBILE RADIOLOCATION 5.150	2.4 GHz (2400 – 2483.5 MHz) ISM band. LPD devices are permitted to use this band and shall comply with recognised standards.
2 483.5-2 500 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A RADIODETERMINATION-SATELLITE (space-to-Earth) 5.398 Radiolocation 5.398A 5.150 5.368 5.372A 5.399 5.401 5.402	2 483.5-2 500 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A RADIOLOCATION RADIODETERMINATION-SATELLITE (space-to-Earth) 5.398 5.150 5.368 5.372A 5.402	2 483.5-2 500 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A RADIOLOCATION RADIODETERMINATION-SATELLITE (space-to-Earth) 5.398 5.150 5.368 5.372A 5.401 5.402	2 483.5-2 500 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) 5.351A RADIOLOCATION RADIODETERMINATION-SATELLITE (space-to-Earth) 5.398 5.150 5.368 5.372A 5.401 5.402	Low capacity microwave links in the 2.4 GHz, 2.48 GHz bands in accordance with ITU-R Rec. F.701, F.1243 and F.746. ISM band, up to 2.5 GHz SAP/SAB and ENG/OB (temporary application).
2 500-2 520 FIXED 5.410 MOBILE except aeronautical mobile 5.384A 5.409A 5.412	2 500-2 520 FIXED 5.410 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A 5.409A	2 500-2 520 FIXED 5.410 FIXED-SATELLITE (space-to-Earth) 5.415 MOBILE except aeronautical mobile 5.384A 5.409A MOBILE-SATELLITE (space-to-Earth) 5.351A 5.407 5.414 5.414A 5.404	2 500-2 520 FIXED MOBILE except aeronautical mobile 5.384A 5.409A MOBILE-SATELLITE (space-to-Earth) 5.351A 5.414	The band 2.5-2.69 GHz designated for implementation of IMT systems, in accordance with the 2.6GHz Band Plan. HIBS is permitted and is subject to the provisions of Res. 218 (WRC-23)