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**APT report on**

**CURRENT STATUS AND FUTURE PLAN OF USAGE IN THE FREQUENCY RANGES OF 7.125 - 24 GHZ AND 92 - 300 GHZ in**

**asia pacific region**

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**apt report on**

**CURRENT STATUS AND FUTURE PLAN OF USAGE IN THE FREQUENCY RANGES OF 7.125-24 GHZ AND 92-300 GHZ in asia pacific region**

**1. Introduction**

In this survey, AWG has initiated the study on current status and future plan of usage in the frequency ranges of 7.125-24 GHz and 92-300 GHz in Asia Pacific countries.

The objective of this Report is to collect information on the current status and future plan in the frequency ranges of 7.125-24 GHz and 92-300 GHz in APT countries.

**2. Terminologies and definitions**

3GPP : 3rd Generation Partnership Project

AI: Artificial Intelligence

A-ESIM: Aeronautical Earth Station in Motion

D2D: Device to Device

ESIM: Earth Station in Motion

IMT: International Mobile Telecommunications

mmWave : Millimetre Waves

M-ESIM: Maritime Earth Station in Motion

RLAN: Radio Local Area Network

THz : Tera Hertz

UHF: Ultra-High Frequency

EHF: Extremely High Frequency

WRC: World Radiocommunication Conference

**3. Current Applications and Usage in the frequency ranges of 7.125 – 24 GHz and 92 – 300 GHz in Some APT Members**

Based on the responses to question# 1 of the questionnaire on current status and future plan usage in the frequency ranges 7.125 – 24 GHz and 92 – 300 GHz from some APT Members received as of AWG-31 meeting, below are their responses to Question#1:

3.1 Current application(s) and usage in the frequency ranges of 7.125 – 24 GHz and 92 – 300 GHz in Thailand

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Frequency Portion** | **Applications (Services)** | **Number of** | **Type of use** |  |
|  |  |  |
|  | **licences** |  |  |
|  |  |  |  |  |
|  |  |  |  |  |  |
| 7.128 – 7.1955 GHz | Fixed | Point – to – point link | 64 | Government |  |
|  | State Enterprise |  |
|  |  |  |  |  |
|  | Fixed | Point – to – point link |  | Government |  |
|  | Studiolink |  |  |
| 8.0 – 8.5 GHz |  | 22 |  |
|  | State Enterprise |  |
|  | Radar |  |
|  | Radio Location |  |  |
|  |  | Commercial |  |
|  |  |  |  |
|  |  |  |  |  |
|  | Fixed | Radar |  | Government |  |
|  | Radio Navigation |  |  | Commercial |  |
| 9.2 – 9.445 GHz | Radio Location |  | 17 |  |  |
|  | Aeronautical |  |  |  |  |
|  | Radio Navigation |  |  |  |  |
| 10.5 – 11.685 GHz | Fixed | Point – to – point link | 11 | State Enterprise |  |
| Fixed Satellite |  | Commercial |  |
|  |  |  |  |
|  | Fixed | Point – to – point link |  | Government |  |
| 12.2 – 13.775 GHz |  | 17 |  |  |
| Fixed Satellite |  | State Enterprise |  |
|  |  |  |  |
|  |  |  | Commercial |  |
|  |  |  |  |  |
|  | Fixed | Point – to – point link |  | Government |  |
| 14.0 – 15.860 GHz | Fixed Satellite |  | 27 | State Enterprise |  |
|  | Radio Location | Radar |  | Commercial |  |
|  |  |  |  |
|  | Fixed | Point – to – point link |  | Government |  |
| 17.7 – 19.7 GHz | Fixed Satellite |  | 8 | State Enterprise |  |
|  |  |  |  | Commercial |  |
|  |  |  |  |  |  |
| 20.001 – 22.631 GHz | Fixed | Point – to – point link | 4 | State Enterprise |  |
| Fixed Satellite |  | Commercial |  |
|  |  |  |  |  |
| 92 – 300 GHz | - | - | - | - |  |

3.2 Current application(s) and usage in the frequency ranges of 7.125 – 24 GHz and 92 – 300 GHz in Myanmar

Please see the current applications and usage services in the frequency ranges of 7.125-24 GHz and 92-300 GHz

|  |  |  |  |
| --- | --- | --- | --- |
| **Frequency Portion** | **Applications (Services)** | **Number of systems/licences** | **Type of use** |
| 7.075-7.145 GHz | FIXED, MOBILE, 5.458 |  | Microwave |
| 7.145-7.190 GHz | FIXED, MOBILE, SPACE RESEARCH (deep space) (Earth-to- space)5.458 5.459 |  | Microwave |
| 7.190-7.250 GHz | FIXED, MOBILE, 5.458 |  | Microwave |
| 7.250-7.300 GHz | FIXED, MOBILE, FIXED- SATELLITE (space-to-Earth), S5.461 |  | Microwave |
| 7.300-7.375 GHz | FIXED, MOBILE except aeronautical mobile, FIXED- SATELLITE (space-to-Earth), S5.461 |  | Microwave |
| 7.375-7.450 GHz | FIXED, MOBILE except aeronautical mobile, FIXED- SATELLITE (space-to-Earth), MARITIME MOBILE-SATELLITE (space-to-Earth), ADD5.A192 ADD5.B192 |  | Microwave |
| 7.450-7.550 GHz | FIXED, MOBILE except aeronautical mobile, FIXED- SATELLITE (space-to-Earth) METEOROLOGICAL-SATELLITE (space-to-Earth), MARITIME MOBILE SATELLITE (space-to- Earth), ADD5.A192 ADD5.B192, 5.461A |  | Microwave |
| 7.550-7.750 GHz | FIXED, MOBILE except aeronautical mobile, MARITIME MOBILE-SATELLITE (space-to- Earth), ADD5.A192 ADD5.B192 |  | Microwave |
| 7.750-7.900 GHz | FIXEDMOBILE except aeronautical mobileMETEOROLOGICAL-SATELLITE (space-to-Earth)5.461B |  | Microwave |
| 7.900-8.025 GHz | FIXED, FIXED-SATELLITE (Earth- to-space), MOBILE, S5.461 |  | Microwave |
| 8.025-8.175 GHz | FIXED, MOBILE5.463, EARTH EXPLORATION-SATELLITE (space-to-Earth), FIXED- SATELLITE (Earth-to-space), S5.462A |  | Microwave/ISRO |
| 8.175-8.215 GHz | FIXED, MOBILE 5.463, EARTH EXPLORATION-SATELLITE (space-to-Earth), FIXED- SATELLITE (Earth-to-space), METEOROLOGICAL-SATELLITE (Earth-to-space), S5.462A |  | Microwave/ISRO |
| 8.215-8.400 GHz | FIXED, MOBILE 5.463, EARTH EXPLORATION-SATELLITE (space-to-Earth), FIXED- SATELLITE (Earth-to-space), S5.462A |  | Microwave/ISRO |
| 8.400-8.500 GHz | FIXED, MOBILE except aeronautical mobile |  | Microwave |
| 8.500-8.550 GHz | RADIOLOCATION, BRM4 |  |  |
| 8.550-8.650 GHz | RADIOLOCATION, EARTH EXPLORATION-SATELLITE (active), Space Research (active), BRM4 5.469A |  | ISRO |
| 8.650-8.750 GHz | RADIOLOCATION, BRM4 |  |  |
| 8.750-8.850 GHz | RADIOLOCATION,AERONAUTICAL,RADIONAVICATION, 5.470 BRM4 |  |  |
| 8.850-9.000 GHz | RADIOLOCATION, MARITIME, RADIONAVIGATION5.472 BRM4 |  |  |
| 9.000-9.200 GHz | AERONAUTICAL,RADIONAVIGATION5.337,RADIOLOCATION, BRM4 5.4715.473A |  |  |
| 9.200-9.300 GHz | RADIOLOCATION, MARITIME, RADIONAVIGATION5.472, EARTH EXPLORATION­SATELLITE (active) 5.A112 5.C112 5.D112, BRM4 5.474 5.B112 |  | ISRO |
| 9.300-9.500 GHz | RADIONAVIGATION, EARTH EXPLORATION-SATELLITE (active), RADIOLOCATION, SPACE RESEARCH (active) BRM4 5.476A 5.427 5.475A 5.475B |  | ISRO |
| 9.500-9.800 GHz | EARTH EXPLORATION­SATELLITE (active), RADIOLOCATION, RADIONAVIGATION, SPACE RESEARCH (active) BRM4 5.476A |  | ISRO |
| 9.800-9.900 GHz | RADIOLOCATION, Earth exploration satellite (active), Space research (active), Fixed, BRM4 5.479 5.478B 5.478A |  | ISRO |
| 9.900-10.000GHz | RADIOLOCATION, EARTH EXPLORATION-SATELLITE(ACTIVE) 5.A112 5.C112 5.D112, BRM4 5.478A 5.478B 5.479 5.B112 |  | ISRO |
| 10-10.45 GHz | FIXED, MOBILE, RADIOLOCATION, Amateur, EARTH EXPLORATION­SATELLITE (active), ADD 5.A112 ADD 5.C112 Add 5.D112, BRM4 5.479 5.B112 |  | ISRO |
| 10.45-10.5 GHz | RADIOLOCATION, Amateur, Amateur-satellite, BRM30 5.481 |  |  |
| 10.5-10.55 GHz | FIXED, MOBILE, RADIOLOCATION, BRM4 |  |  |
| 10.55-10.6 GHz | FIXED, MOBILE except aeronautical mobile, RADIOLOCATION, BRM4 |  |  |
| 10.6-10.68 GHz | FIXED, MOBILE except aeronautical mobile, EARTH EXPLORATION- SATELLITE (passive), RADIOLOCATION, BRM4 BRM9 S5.482 5.149 5.482A |  | ISRO |
| 10.68-10.7 GHz | EARTH EXPLORATION- SATELLITE (passive), RADIO ASTRONOMY SPACE RESEARCH (passive), BRM4 5.340 |  | ISRO |
| 10.7-11.7 GHz | FIXED, MOBILE except aeronautical mobile, FIXED- SATELLITE (space-to-Earth)5.441 5.484A 5.A15, BrM4 |  | Microwave |
| 11.7-12.2 GHz | FIXED, MOBILE except aeronautical mobile, BROADCASTING, BROADCASTING-SATELLITE, 5.492 5.487 5.487A |  | Microwave |
| 12.2-12.5 GHz | FIXED, MOBILE except aeronautical mobile, FIXED- SATELLITE (space-to-Earth) 5.484A 5.A15, Broadcasting, BRM4 5.487 |  |  |
| 12.5-12.75 GHz | FIXED, MOBILE except aeronautical mobile, FIXED- SATELLITE (space-to-Earth) 5.484A 5.A15 Broadcasting satellite 5.493 BRM4 |  | Microwave |
| 12.75-13.25 GHz | FIXED, MOBILE, FIXED- SATELLITE (Earth-to-space)5.441, BRM4 |  | Microwave |
| 13.25-13.4 GHz | EARTH EXPLORATION- SATELLITE (active), AERONAUTICAL,RADIONAVIGATION 5.497, SPACE RESEARCH (active), BRM4 5.498A |  | ISRO |
| 13.4-13.75 GHz | EARTH EXPLORATION- SATELLITE (active), RADIOLOCATION, SPACE RESEARCH5.501A ADD 5.B161ADD 5.B161A, Standard frequency and time signal satellite (Earth-to- space), BrM4 5.501B |  | ISRO |
| 13.75-14 GHz | FIXED-SATELLITE (Earth-to- space) 5,484A, RADIOLOCATION, Standard frequency and time signal satellite (Earth-to-space), Space research BRM4 5,502 5.503 |  |  |
| 14-14.3 GHz | FIXED-SATELLITE (Earth-to- space)5.457A 5.484A 5.506, RADIONAVIGATION5.504 5.A15, Mobile-satellite (Earth-to-space) 5.506A, Space research, 5.504A BRM4 5.505 |  |  |
| 14.3-14.4 GHz | FIXED, MOBILE except aeronautical mobile, FIXED- SATELLITE (Earth-to-space)5.457A 5.484A 5.506 5.A15, Mobile-satellite (Earth-to-space) 5.506A, Radio navigation-satellite, BRM4 5.540A |  |  |
| 14.4-14.47 GHz | FIXED, MOBILE except aeronautical mobile, FIXED- SATELLITE (Earth-to-space)5.457A 5.484A 5.506 5.A15, Mobile-satellite (Earth-to-space) 5.506A, Space |  |  |
|  | research (space-to-Earth), BRM4 5.540A |  |  |
| 14.47-14.5 GHz | FIXED, MOBILE except aeronautical mobile, FIXED- SATELLITE (Earth-to-space)5.457A 5.484A 5.506 5.A15, Mobile-satellite (Earth-to-space) 5.506A, Radio astronomy, BRM4 BRM9 5.149 5.504A |  |  |
| 14.5-14.8 GHz | FIXED, MOBILE, FIXED- SATELLITE (Earth-to-space)5.510 5.A16 5.B16 5.D16 5.E16 5.F16, Space research 5.C16 BRM4 |  | Microwave |
| 14.8-15.35 GHz | FIXED, MOBILE, Space research BRM4 5.339 |  | Microwave |
| 15.35-15.4 GHz | EARTH EXPLORATION­SATELLITE (passive) RADIO ASTRONOMY, SPACE RESEARCH (passive) 5.340 BRM4 |  | ISRO |
| 15.4-15.43 GHz | RADIOLOCATION 5.511E 5.511F, AERONAUTICAL, RADIONAVIGATION, BRM4 5.511D |  |  |
| 15.43-15.63 GHz | FIXED-SATELLITE (Earth-to- space), AERONAUTICAL, RADIONAVIGATION, BRM4 S5.111A S5.111C |  |  |
| 15.63-15.7 GHz | AERONAUTICAL,RADIONAVIGATION, BRM4 |  |  |
| 15.7-17.2 GHz | RADIOLOCATION, BRM4 |  |  |
| 17.2-17.3 GHz | EARTH EXPLORATION­SATELLITE (active), RADIOLOCATION, SPACE RESEARCH (active), BRM4 5.513A |  | ISRO |
| 17.3-17.7 GHz | FIXED-SATELLITE (Earth-to- space), Radiolocation, S5.516 |  |  |
| 17.7-18.1 GHz | FIXED, MOBILE, FIXED- SATELLITE (space-to-Earth)5.484A (Earth-to-space)5.516, BRM4 |  | Microwave |
| 18.1-18.4 GHz | FIXED, MOBILE, FIXED- SATELLITE (space-to-Earth)5.484A 5.516B (Earth-to-space)5.520 BRM4 5.519 |  | Microwave |
| 18.4-18.6 GHz | FIXED, MOBILE, FIXED- SATELLITE (space-to-Earth)5.484A 5.516B, BRM4 |  | Microwave |
| 18.6-18.8 GHz | FIXED, MOBILE except aeronautical mobile, EARTH EXPLORATION-SATELLITE (passive), FIXED-SATELLITE (space-to-Earth), Space research (passive) 5.522B, BrM4 5.522A |  | Microwave/ISRO |
| 18.8-19.3 GHz | FIXED, MOBILE, FIXED- SATELLITE (space-to-Earth)5.516B 5.523A |  | Microwave |
| 19.3-19.7 GHz | FIXED, MOBILE, FIXED- SATELLITE (space-to-Earth) (Earth- to-space)5.523B 5.523C 5.523D 5.523E, BRM4 |  | Microwave |
| 19.7-20.1 GHz | FIXED-SATELLITE (space-to- Earth)5.484A 5.516B 5.5X 5.A15, Mobile-satellite (space-to-Earth), BRM4 BRM33 |  |  |
| 20.1-20.25.484A5.516B | FIXED-SATELLITE (space-to- Earth) 5.5X 5.A15 MOBILE- SATELLITE (space-to-Earth), BRM4 5.525 5.526 5.527 5.528 |  |  |
| 20.2-21.2 GHz | FIXED-SATELLITE (space-to- Earth), MOBILE-SATELLITE (space-to-Earth), Standard frequency and time signal-satellite (space-to- Earth), BRM4 |  |  |
| 21.2-21.4 GHz | FIXED, MOBILE, EARTH EXPLORATION-SATELLITE (passive), SPACE RESEARCH (passive), BRM4 |  | Microwave/ISRO |
| 21.4-22 GHz | FIXED, MOBILE, BROADCASTING-SATELLITE 5.208B, BRM4 5.530A 5.530B 5.530D |  | Microwave |
| 22-22.21 GHz | FIXED, MOBILE except aeronautical mobile, BRM4 BRM9 5.149 |  | Microwave |
| 22.21-22.5 GHz | FIXED, MOBILE except aeronautical mobile, EARTH EXPLORATION-SATELLITE (passive), RADIO ASTRONOMY SPACE RESEARCH (passive), BRM4 BRM9 5.149 5 532 |  | Microwave/ISRO |
| 22.5-22.55 GHz | FIXED, MOBILE, BRM4 |  | Microwave |
| 22.55-23.55 GHz | FIXED, MOBILE, INTER- SATELLITE5.538A, BRM4 BRM9 |  | Microwave |
| 23.55-23.6 GHz | FIXED, MOBILE, BRM4 |  | Microwave |
| 23.6-24 GHz | EARTH EXPLORATION­SATELLITE (passive), RADIO ASTRONOMY SPACE RESEARCH (passive), BRM4 5.340 |  | ISRO |
| Above 86 GHz not allocated | - | - | - |

3.3 Current application(s) and usage in the frequency ranges of 7.125 – 24 GHz and 92 – 300 GHz in Japan

It is difficult to list all of applications and usages for each frequency band exhaustively since the frequency ranges indicated in the questionnaire are too extensive. Instead, the frequency assignment plan in Japan is attached. You can find the allocated services (in column 4) and the type of use (in column 5) for each frequency band. Regarding the number of licenses, more than 200 licenses have been issued for 92-300GHz, and considerable number of licenses for 7.125-24GHz.

 

3.4 Current application(s) and usage in the frequency ranges of 7.125 – 24 GHz and 92 – 300 GHz in New Zealand

Current usage details are extracted from the [Table of Radio Spectrum Usage in New Zealand (PIB 21)](https://www.rsm.govt.nz/about/publications/pibs/pib-21/). New Zealand licence information can be found on the public online [Register of Radio Frequencies](https://rrf.rsm.govt.nz/smart-web/smart/page/-smart/WelcomePage.wdk).

**7.125 – 24 GHz Frequency Bands**

|  |  |  |  |
| --- | --- | --- | --- |
| **Frequency Portion (MHz)** | **Applications (Services)** | **Number of systems/licenses**  | **Type of use** |
| 7075 – 7250 MHz | Fixed  | 6440 – 7100 MHz Fixed “7 GHz (Lower)” band | Commercial, private |
| 7100 – 7425 MHz Fixed “7 GHz (Middle)” band |
| 7250 – 7750 MHz  | Fixed and Fixed – Satellite (Space-to-Earth) | 7250 – 7750 MHz Fixed satellite “X” band – downlink | Commercial, private |
| 7425 – 7725 MHz Fixed “7 GHz (Upper)” band  |
| 7725 – 8275 MHz Fixed “8 GHz (Lower)” band |
| 7750 – 7900 MHz  | Fixed  | 7725 – 8275 MHz Fixed “8 GHz (Lower)” band  | Commercial, private |
| 7900 – 8400 MHz  | Fixed and Fixed – Satellite (Earth-to-Space) | 7725 – 8275 MHz Fixed “8 GHz (Lower)” band  | Commercial, private  |
| 7900 – 8400 MHz Fixed satellite “X” band – uplink  |
| 8275 – 8500 MHz Fixed “8 GHz (Upper)” band |
| 8400 – 8500 MHz | Fixed  | 8275 – 8500 MHz Fixed “8 GHz (Upper)” band | Commercial, private |
| 8500 – 8750 MHz  | Radiolocation  | Short Range Devices – Limited to radiolocation use  | Commercial, Private  |
| 8750 – 8850 MHz  | Radiolocation and Aeronautical Radionavigation | 8750 – 8850 MHz Airborne Doppler radar  | Commercial, private |
| 8500 – 10000 MHz Short Range Devices – Limited to radiolocation usage |
| 8850 – 9000 MHz  | Radiolocation Maritime Radionavigation | 8500 – 10000 MHz Short Range Devices – Limited to radiolocation usage | Commercial, private  |
| 9000 – 9200 MHz  | Aeronautical Radionavigation  | 8500 – 10000 MHz Short Range Devices – Limited to radiolocation usage | Commercial, private  |
| 9200 – 9300 MHz  | Radiolocation and Maritime Radionavigation  | 8500 – 10000 MHz Short Range Devices – Limited to radiolocation usage | Commercial, private, and emergency |
| 9200 – 9500 MHz Maritime radar  |
| 9200 – 9500 MHz Search and rescue transponders  |
| 9300 – 9500 MHz  | Radiolocation and Maritime Radionavigation | 8500 – 10000 MHz Short Range Devices – Limited to radiolocation usage | Commercial, private, and emergency  |
|  |  | 9200 – 9500 MHz Maritime radar  |
| 9200 – 9500 MHz Search and rescue transponders  |
| 9500 – 10000 MHz  | Radiolocation  | 8500 – 10000 MHz Short Range Devices – Limited to radiolocation usage | Commercial, private  |
| 10 – 10.5 GHz  | Radiolocation Amateur and Amateur-Satellite  | 10 – 10.5 GHz Amateur usage  | Commercial, private  |
| 10-10.6 GHz Short Range Devices – limited to radiolocation usage  |
| 10.5 – 10.68 GHz  | Fixed and Radiolocation  | 10 – 10.6 GHz Short Range Devices – limited to radiolocation usage  | Commercial, private |
| 10.5 – 10.68 GHz Fixed “10 GHz” band  |
| 10.68 – 10.7 GHz  | Radio astronomy and Space research (passive)  | All emissions prohibited |
| 10.7 – 11.7 GHz  | Fixed  | 10.7 – 11.7 GHz Fixed “11 GHz” Band  | Commercial, private  |
| 11.7 – 12.2 GHz  | Broadcasting – Satellite  | 11.7 – 12.75 GHz Fixed satellite “Ku” band – downlink  | Commercial |
| 12.5 – 12.75 GHz  | Broadcasting – Satellite and Fixed-Satellite (Space-to-Earth) | 11.7 – 12.75 GHz Fixed satellite “Ku” band – downlink  | Commercial, private  |
| 12.2 – 12.75 GHz Broadcasting-satellite – Freeview and Sky TV satellite services  |
| 12.75 – 13.25 GHz  | Fixed  | 12.75 – 13.25 GHz Fixed “13 GHz” band  | Commercial, private |
| 13.25 – 13.4 GHz  | Earth exploration satellite (active), Aeronautical radionavigation, and Space research (active) | Aeronautical radionavigation applications – airborne Doppler radar  | Commercial  |
| 13.4 – 14 GHz  | Earth exploration satellite (active), Radiolocation, and Space research  | Government radiolocation usage  | Government  |
| 14 – 14.5 GHz  | Fixed-Satellite (Earth-to-space) and Mobile-Satellite (Earth-to-Space) | 14 – 14.5 Fixed satellite “Ku” band – uplink (including earth station in-motion) | Commercial, private |
| 14-14.5 GHz Maritime mobile satellite service – uplink  |
| 14 – 14.5 GHz Aeronautical mobile satellite service – uplink  |
| 14.5 – 15.35 GHz | Fixed  | 14.5 – 15.35 GHz Fixed “15 GHz” band  | Commercial, private |
| 15.35 – 15.4 GHz  | Radio astronomy and Space research (passive) | All emissions prohibited  |
| 15.4 – 15.43 GHz  | Aeronautical navigation  | No current use  |
| 15.43 – 15.63 GHz  | Fixed satellite (Space-to-Earth), Aeronautical, and Radionavigation | No current usage |
| 15.63 – 15.7 GHz  | Aeronautical navigation  | No current usage  |
| 15.7 – 16.6 GHz  | Radiolocation  | 15.7 – 17.3 GHz Short Range Devices – limited to radiolocation usage  | Commercial, private  |
| 16.6 – 17.1 GHz | Radiolocation and Space research (Deep Space, Earth-to-Space) | 15.7 – 17.3 GHz Short Range Devices – limited to radiolocation usage  | Commercial, private  |
| 17.1 – 17.2 GHz  | Radiolocation  | 15.7 – 17.3 GHz Short Range Devices – limited to radiolocation usage  | Commercial, private  |
| 17.2 – 17.3 GHz  | Earth exploration-satellite (active), Radiolocation, and Space research (active)  | 15.7 – 17.3 GHz Short Range Devices – limited to radiolocation usage  | Commercial, private  |
| 17.3 – 17.7 GHz  | Fixed-satellite (Earth-to-Space) and Radiolocation  | No current usage |
| 17.7-19.7 GHz  | Fixed and Fixed satellite (Space-to-Earth) | 17.7 – 19.7 GHz Fixed satellite “Ka” band – downlink  | Commercial, private |
| 17.7 – 19.7 GHz Fixed “18 GHz” band  |
| 19.7 – 20.2 GHz  | Fixed satellite (Space-to-Earth) and Mobile-satellite (Space-to-Earth) | 19.7 – 20.2 GHz Fixed satellite “Ka” band – downlink (including Earth station in-motion)  | Commercial, private |
| 19.7 – 20.2 GHz Mobile satellite “Ka” band – downlink  |
| 20.2 – 21.2 GHz  | Fixed satellite (Space-to-Earth) and Mobile-satellite (Space-to-Earth) | Government fixed and mobile satellite – downlink  | Government  |
| 21.2 – 23.6 GHz  | Fixed and Mobile  | Fixed “23 GHz” band  | Commercial, private |
| 23.6 – 24 GHz  | Radio astronomy and Space research (passive) | All emissions prohibited |

**92 – 300 GHz Frequency Bands**

|  |  |  |  |
| --- | --- | --- | --- |
| **Frequency Portion (MHz)** | **Applications (Services)** | **Number of systems/licenses**  | **Type of use** |
| 92 – 94 GHz  | Unallocated  | All emissions prohibited |
| 94 – 102 GHz  | Unallocated  | No current usage  |
| 102 – 105 GHz  | Unallocated  | All emissions prohibited  |
| 105 – 109.5 GHz  | Unallocated  | No current usage  |
| 109.5 – 111.8 GHz  | Unallocated  | No current usage  |
| 111.8 – 114.25 GHz | Unallocated  | All emissions prohibited  |
| 114.25 – 119.98 GHz  | Unallocated  | No current usage  |
| 119.95 – 122.25 GHz  | Mobile  | Short Range Devices  | Commercial, private |
| 122.25 – 123 GHz  | Mobile Amateur  | 122 – 123 GHz Short Range Devices  | Commercial, private  |
| 122 – 123 GHz Industrial scientific and medical band  |
| 122.25 – 123 GHz Amateur usage  |
| 123 – 134 GHz  | Unallocated  | No current usage  |
| 134 – 141 GHz  | Amateur and Amateur-satellite  | Amateur usage  | Private  |
| 141 – 241 GHz  | Unallocated  | No current usage  |
| 241 – 250 GHz  | Radiolocation, Amateur, and Amateur-satellite  | 241-250 Amateur usage  | Commercial, private |
| 244-246 Short Range Devices |
| 244 – 246 GHz Industrial, scientific, and medical band  |
| 250 – 300 GHz  | Unallocated  | No current usage  |

3.5 Current application(s) and usage in the frequency ranges of 7.125 – 24 GHz and 92 – 300 GHz in Korea, Republic Of

|  |  |  |  |
| --- | --- | --- | --- |
| **Frequency Portion** | **Applications (Services)** | **Number of systems/licences** | **Type of use** |
| 7075-7300 MHz7750-7900 MHz8025-8175 MHz8215-8500 MHz10-10.45 GHz10.5-11.7 GHz12.5-13.25 GHz14.4-15.35 GHz17.7-18.4 GHz18.8-19.7 GHz21.2-23.6 GHz | Mobile(see AFIS for more information) | To be updated | To be updated |
| 7075-8500 MHz10-10.45 GHz10.5-13.25 GHz14-15 GHz17.7-19.7 GHz21.2-23.6 GHz | Fixed(see AFIS for more information) | To be updated | To be updated |
| 8.5-10.55 GHz13.4-14 GHz15.4-17.3 GHz | Radiolocation(see AFIS for more information) | To be updated | To be updated |
| 9.2-10GHz10.7-14.8 GHz17.3-22 GHz23.6-24 GHz | Satellite (FSS, EESS and etc.)(see AFIS for more information) | To be updated | To be updated |

|  |  |  |  |
| --- | --- | --- | --- |
| **Frequency Portion** | **Applications (Services)** | **Number of systems/licences** | **Type of use** |
| 92-94 GHz94.1-95 GHz95-100 GHz102-109.5 GHz111.8-114.25 GHz122.25-123 GHz130-134 GHz141-148.5 GHz151.5-164 GHz167-171 GHz171.16-172.2 GHz172.8-173.3 GHz174-174.8 GHz191.8-200 GHz209-217 GHz217-226 GHz231.5-235 GHz238-241 GHz252-275 GHz | Mobile(see AFIS for more information) | To be updated | To be updated |
| 92-94 GHz94.1-95 GHz95-100 GHz102-109.5 GHz111.8-114.25 GHz122.25-123 GHz130-134 GHz141-148.5 GHz151.5-164 GHz167-171 GHz171.16-172.2 GHz172.8-173.3 GHz174-174.8 GHz191.8-200 GHz209-217 GHz217-226 GHz231.5-235 GHz238-241 GHz252-275 GHz | Fixed(see AFIS for more information) | To be updated | To be updated |
| 92-100 GHz136-148.5 GHz151.5-155.5 GHz238-248 GHz | Radiolocation(see AFIS for more information) | To be updated | To be updated |
| 92-94 GHz94.1-116 GHz128-134 GHz136-158.5 GHz164-167 GHz171-171.16 GHz172.2-172.8 GHz173.3-174 GHz182-185 GHz200-231.5 GHz | Radio Astronomy | To be updated | To be updated |
| 94-94.1 GHz100-102 GHz105-136 GHz148.5-151.5 GHz158.5-171 GHz171.16-172.2 GHz172.8-173.3 GHz174-231.5 GHz232-240 GHz248-275 GHz | Satellite (FSS, EESS and etc.)(see AFIS for more information) | To be updated | To be updated |

3.6 Current application(s) and usage in the frequency ranges of 7.125 – 24 GHz and 92 – 300 GHz in Indonesia

|  |  |  |  |
| --- | --- | --- | --- |
| **Frequency Portion (MHz)** | **Applications (Services)** | **Number of systems/licenses\*** | **Type of use** |
| 7 125–7 425 | Point-to-point link | 30.367 | Commercial  |
| 7 425–8 500  | Earth exploration-satellite,Fixed satellite service (BSS feeder link),point-to-point link  |  77.705 | Government and commercial  |
| 10 154–10 294 | Wireless broadband |  159 | Commercial  |
| 10 504–10 644 | Wireless broadband | 2 | Commercial  |
| 10 500–10 550 | Point-to-multipoint | 1 | Commercial  |
| 10 700–11 700 | Point-to-point link,Fixed Satellite service | 43.054 | Commercial  |
| 10 700–10 950 | Point-to point link, Fixed satellite-service (planned band) | 12.581 | Commercial  |
| 10 990–11 662 | Point-to-point, Fixed Satellite Service/FSS Ku band (downlink)  | 26.997 | Commercial  |
| 11 150–11 222 | Point-to-point,Fixed Satellite Service/FSS Ku band (downlink) |  1.061 | Commercial  |
| 11 200–11 450 | Point-to-point,Fixed satellite-service (planned band) |  12.578 | Commercial  |
| 11 490–11 562 | Point-to-point, Fixed Satellite Service/FSS Ku band (downlink) | 1.331 | Commercial  |
| 11 650–11 700 | Point-to-point,Fixed Satellite Service/FSS Ku band (downlink) | 1.060 | Commercial  |
| 11 700–12 200 | Broadcasting satellite-service (planned band), | 2 | Commercial  |
| 12 750–13 250 | point-to-point link  |  41.701 | Commercial  |
| **Frequency Portion (MHz)** | **Applications (Services)** | **Number of systems/licenses\*** | **Type of use** |
| 13 790–13 862 | Fixed Satellite Service/FSS Ku band (uplink) | 8 | Commercial  |
| 13 950–14 022 | Fixed Satellite Service/FSS Ku band (uplink) | 6 | Commercial  |
| 14 290–14 362 | Fixed Satellite Service/FSS Ku band (uplink) | 16 | Commercial  |
| 14 400–15 350 | Point-to-point link,Fixed satellite service  |  72.485 | Commercial  |
| 14 450–14 522 | Point-to-point,Fixed Satellite Service/FSS Ku band (uplink) | 4.949 | Commercial  |
| 14 500–14 800 | Point-to-point,Fixed satellite service |  24.886 | Commercial  |
| 17 300–18 100 | Point-to-point,Fixed satellite service  | 33 | Commercial  |
| 17 700–19 700 | Point-to-point link,Fixed satellite service | 115 | Commercial  |
| 21 200–23 600 | Point-to-point link |  132.179 | Commercial  |

***\*including blanket license for FSS and BSS***

3.7 Current application(s) and usage in the frequency ranges of 7.125 – 24 GHz and 92 – 300 GHz in Viet Nam

|  |  |  |  |
| --- | --- | --- | --- |
| **Frequency Portion****(GHz)** | **Applications (Services)** | **Number of systems/licences** | **Type of use** |
| **7,125-7,145** | **Point-to-point link (Fixed)** (Mobile) | **1500 Licenses Point-to-point link (Fixed)** | **Commercial** |
| **7,145-7,190** | **Point-to-point link (Fixed)** (Mobile)(Space Research) |
| **7,190-7,235** | (Earth Exploration - Satellite)**Point-to-point link (Fixed)**(Mobile)(Space Research) |
| **7,235-7,250** | (Earth Exploration - Satellite) **Point-to-point link (Fixed)** (Mobile) |
| **7,250-7,300** | **Point-to-point link (Fixed)** (Fixed - Satellite)(Mobile) |
| **7,300-7,375** | **Point-to-point link (Fixed)** (Fixed - Satellite)(Mobile except Aeronautical Mobile) |
| **7,375-7,450** | **Point-to-point link (Fixed)**(Fixed - Satellite)(Mobile except Aeronautical Mobile)(Maritime Mobile - Satellite) |
| **7,450-7,550** | **Point-to-point link (Fixed)** (Fixed - Satellite)(Meteorological - Satellite)(Mobile except Aeronautical Mobile)(Maritime Mobile - Satellite) | **1000 Licenses Point-to-point link (Fixed)** |
| **7,550-7,750** | **Point-to-point link (Fixed)**(Fixed - Satellite)(Mobile except Aeronautical Mobile) (Maritime Mobile - Satellite) |
| **7,750-7,900** | **Point-to-point link (Fixed)** (Meteorological - Satellite)(Mobile except Aeronautical Mobile) | **300 Licenses Point-to-point link (Fixed)** |
| **7,900-8,025** | **Point-to-point link (Fixed)** (Fixed - Satellite)(Mobile) |
| **8,025-8,175** | **Point-to-point link (Fixed)** (Fixed - Satellite)(Mobile)(Earth Exploration – Satellite) |
| **8,175-8,215** | **Point-to-point link (Fixed)** (Fixed - Satellite)(Meteorological - Satellite)(Mobile)(Earth Exploration – Satellite) |
| **8,215-8,400** | **Point-to-point link (Fixed)** (Fixed - Satellite)(Mobile)(Earth Exploration – Satellite) | **Several Licenses Point-to-point link (Fixed)** |
| **8,400-8,500** | **Point-to-point link (Fixed)**(Mobile except Aeronautical Mobile)(Space Research) |
| **8,500-8,550** | (Radiolocation) | **/** | **/** |
| **8,550-8,650** | (Earth Exploration - Satellite)(Radiolocation)(Space Research) | **/** | **/** |
| **8,650-8,750** | (Radiolocation) | **/** | **/** |
| **8,750-8,850** | (Radiolocation)(Aeronautical Radionavigation) | **/** | **/** |
| **8,850-9,000** | (Radiolocation)(Maritime Radionavigation) | **/** | **/** |
| **9,000-9,200** | (Aeronautical Radionavigation)**Radar (Radiolocation)** | **2000 Licenses Radar (Maritime Radionavigation)****Several Licenses Radar (Radiolocation)** | **Government****Private****Commercial**  |
| **9,200-9,300** | (Earth Exploration - Satellite)**Radar (Radiolocation)****Radar (Maritime Radionavigation)** |
| **9,300-9,500** | **Radar (Radiolocation)**(Earth Exploration - Satellite)(Space Research Radiolocation) |
| **9,500-9,800** | (Earth Exploration - Satellite)(Radiolocation) (Radionavigation)(Space Research) | **/** | **/** |
| **9,800-9,900** | (Radiolocation)(Earth Exploration - Satellite)(Space Research)**Point-to-point link (Fixed)** | **Several Licenses Point-to-point link (Fixed)** | **Commercial** |
| **9,900-10,000** | (Earth Exploration - Satellite)(Radiolocation)**Point-to-point link (Fixed)** |
| **10-10,4** | (Earth Exploration - Satellite)**Point-to-point link (Fixed)**(Mobile)(Radiolocation)(Amateur) |
| **10,4-10,45** | **Point-to-point link (Fixed)**(Mobile)(Radiolocation)(Amateur) |
| **10,45-10,5** | (Radiolocation)(Amateur)(Amateur - Satellite) | **/** | **/** |
| **10,5-10,55** | **Point-to-point link (Fixed)**(Mobile)(Radiolocation) | **Several Licenses Point-to-point link (Fixed)** | **Commercial** |
| **10,55-10,6** | **Point-to-point link (Fixed)**(Mobile except Aeronautical Mobile)(Radiolocation) |
| **10,6-10,68** | (Earth Exploration - Satellite)**Point-to-point link (Fixed)**(Mobile except Aeronautical Mobile)(Radio Astronomy)(Space Research)(Radiolocation) |
| **10,68-10,7** | (Earth Exploration - Satellite)(Radio Astronomy)(Space Research) | **/** | **/** |
| **10,7-10,95** | **Point-to-point link (Fixed)****(Fixed – Satellite)**(Mobile except Aeronautical Mobile) | **Several Licenses (Fixed - Satellite)****1500 Licenses Point-to-point link (Fixed)** | **Government****Private****Commercial** |
| **10,95-11,2** |
| **11,2-11,45** |
| **11,45-11,7** |
| **11,7-12,2** | **Point-to-point link (Fixed)**(Mobile except Aeronautical Mobile)(Broadcasting)(Broadcasting - Satellite) |
| **12,2-12,5** | **Point-to-point link (Fixed)****(Fixed – Satellite)**(Mobile except Aeronautical Mobile)(Broadcasting) |
| **12,5-12,75** | **Point-to-point link (Fixed)****(Fixed – Satellite)**(Mobile except Aeronautical Mobile)(Broadcasting - Satellite) |
| **12,75-13,25** | **Point-to-point link (Fixed)****(Fixed – Satellite)**(Mobile)(Space Research) |
| **13,25-13,4** | (Earth Exploration - Satellite)(Aeronautical Radionavigation)(Space Research) |
| **13,4-13,65** | (Earth Exploration - Satellite)(Radiolocation)(Space Research)(Standard frequency and Time Signal - Satellite) |
| **13,65-13,75** | (Earth Exploration - Satellite)(Radiolocation)(Space Research)(Standard frequency and Time Signal - Satellite) |
| **13,75-14** | **(Fixed – Satellite)**(Radiolocation)(Earth Exploration - Satellite) (Standard frequency and Time Signal - Satellite)(Space Research) |
| **14-14,25** | **(Fixed – Satellite)**(Radionavigation)(Mobile - Satellite)(Space Research) |
| **14,25-14,3** | **(Fixed – Satellite)**(Radionavigation)(Mobile - Satellite)(Space Research) |
| **14,3-14,4** | **(Fixed – Satellite)****Point-to-point link (Fixed)**(Mobile except Aeronautical Mobile) (Mobile - Satellite)(Radionavigation - Satellite) |
| **14,4-14,47** | **Point-to-point link (Fixed)****(Fixed – Satellite)** (Mobile except Aeronautical Mobile)(Mobile - Satellite)(Space Research) |
| **14,47-14,5** | **(Fixed)****(Fixed – Satellite)**(Mobile except Aeronautical Mobile)(Mobile - Satellite)(Radio Astronomy) | **/** | **/** |
| **14,5-14,8** | **Point-to-point link (Fixed)****(Fixed – Satellite)**(Mobile)(Space Research) | **6000 Licenses Point-to-point link (Fixed)** | **Commercial** |
| **14,8-15,35** | **Point-to-point link (Fixed)**(Mobile)(Space Research) |
| **15,35-15,4** | (Earth Exploration - Satellite)(Radio Astronomy)(Space Research) | **/** | **/** |
| **15,4-15,43** | (Radiolocation)(Aeronautical Radionavigation) | **/** | **/** |
| **15,43-15,63** | (Fixed - Satellite)(Radiolocation)(Aeronautical Radionavigation) | **/** | **/** |
| **15,63-15,7** | (Radiolocation)(Aeronautical Radionavigation) | **/** | **/** |
| **15,7-16,6** | (Radiolocation) | **/** | **/** |
| **16,6-17,1** | (Radiolocation)(Space Research) | **/** | **/** |
| **17,1-17,2** | (Radiolocation) | **/** | **/** |
| **17,2-17,3** | (Radiolocation) (Earth Exploration - Satellite)(Space Research) | **/** | **/** |
| **17,3-17,7** | (Fixed - Satellite)(Radiolocation) | **/** | **/** |
| **17,7-18,1** | **Point-to-point link (Fixed)** (Fixed - Satellite)(Mobile) | **1000 Licenses Point-to-point link (Fixed)** | **Commercial** |
| **18,1-18,4** | **Point-to-point link (Fixed)** (Fixed - Satellite)(Mobile) |
| **18,4-18,6** | **Point-to-point link (Fixed)** (Fixed - Satellite) (Mobile) |
| **18,6-18,8** | **Point-to-point link (Fixed)** (Fixed - Satellite) (Mobile except Aeronautical Mobile)(Earth Exploration - Satellite) (Space Research) |
| **18,8-19,3** | **Point-to-point link (Fixed)** (Fixed - Satellite) (Mobile) |
| **19,3-19,7** | **Point-to-point link (Fixed)** (Fixed - Satellite)(Mobile) |
| **19,7-20,1** | (Fixed - Satellite)(Mobile - Satellite) | **/** | **/** |
| **20,1-20,2** | (Fixed - Satellite)(Mobile - Satellite) | **/** | **/** |
| **20,2-21,2** | (Fixed - Satellite)(Mobile - Satellite)(Standard frequency and Time Signal - Satellite) | **/** | **/** |
| **21,2-21,4** | **Point-to-point link (Fixed)**(Mobile)(Earth Exploration - Satellite) (Space Research) | **2000 Licenses Point-to-point link (Fixed)** | **Commercial** |
| **21,4-22** | **Point-to-point link (Fixed)**(Mobile)(Broadcasting - Satellite) |
| **22-22,21** | **Point-to-point link (Fixed)** (Mobile except Aeronautical Mobile) |
| **22,21-22,5** | **Point-to-point link (Fixed)**(Mobile except Aeronautical Mobile)(Earth Exploration - Satellite) (Radio Astronomy)(Space Research) |
| **22,5-22,55** | **Point-to-point link (Fixed)** (Mobile) |
| **22,55-23,15** | **Point-to-point link (Fixed)**(Inter - Satellite)(Mobile)(Space Research) |
| **23,15-23,55** | **Point-to-point link (Fixed)**(Inter - Satellite)(Mobile) |
| **23,55-23,6** | **Point-to-point link (Fixed)**(Mobile) |
| **23,6-24** | (Earth Exploration - Satellite) (Radio Astronomy)(Space Research)  | **/** | **/** |
| **92-94** | (Fixed)(Mobile)(Radio Astronomy) (Radiolocation) | **/** | **/** |
| **94-94,1** | (Earth Exploration - Satellite) (Radiolocation)(Space Research) (Radio Astronomy) | **/** | **/** |
| **94,1-95** | (Fixed) (Mobile) (Radio Astronomy)(Radiolocation) | **/** | **/** |
| **95-100** | (Fixed)(Mobile) (Radio Astronomy) (Radionavigation)  (Radionavigation - Satellite)(Radiolocation) | **/** | **/** |
| **100-102** | (Earth Exploration - Satellite) (Radio Astronomy)(Space Research)  | **/** | **/** |
| **102-105** | (Fixed) (Mobile)(Radio Astronomy) | **/** | **/** |
| **105-109,5** | (Fixed) (Mobile) (Radio Astronomy)(Space Research)  | **/** | **/** |
| **109,5-111,8** | (Earth Exploration - Satellite) (Radio Astronomy)(Space Research)  | **/** | **/** |
| **111,8-114,25** | (Fixed) (Mobile) (Radio Astronomy)(Space Research)  | **/** | **/** |
| **114,25-116** | (Earth Exploration - Satellite) (Radio Astronomy)(Space Research)  | **/** | **/** |
| **116-119,98** | (Earth Exploration - Satellite) (Inter - Satellite)(Space Research)  | **/** | **/** |
| **119,98-122,25** | (Earth Exploration - Satellite) (Inter - Satellite)(Space Research)  | **/** | **/** |
| **122,25-123** | (Fixed)(Inter - Satellite)(Mobile)(Amateur) | **/** | **/** |
| **123-130** | (Fixed - Satellite)(Mobile - Satellite)(Radionavigation)(Radionavigation - Satellite)(Radio Astronomy) | **/** | **/** |
| **130-134** | (Earth Exploration - Satellite) (Fixed)(Inter - Satellite)(Mobile)(Radio Astronomy) | **/** | **/** |
| **134-136** | (Amateur) (Amateur - Satellite) (Radio Astronomy) | **/** | **/** |
| **136-141** | (Radio Astronomy) (Radiolocation) (Amateur) (Amateur - Satellite) | **/** | **/** |
| **141-148,5** | (Fixed)(Mobile) (Radio Astronomy) (Radiolocation)  | **/** | **/** |
| **148,5-151,5** | (Earth Exploration - Satellite) (Radio Astronomy)(Space Research)  | **/** | **/** |
| **151,5-155,5** | (Fixed) (Mobile)(Radio Astronomy) (Radiolocation) | **/** | **/** |
| **155,5-158,5** | (Fixed)(Mobile)(Radio Astronomy) | **/** | **/** |
| **158,5-164** | (Fixed) (Fixed - Satellite)(Mobile)(Mobile - Satellite) | **/** | **/** |
| **164-167** | (Earth Exploration - Satellite) (Radio Astronomy)(Space Research)  | **/** | **/** |
| **167-174,5** | (Fixed) (Fixed - Satellite)(Inter - Satellite)(Mobile) | **/** | **/** |
| **174,5-174,8** | (Fixed) (Inter - Satellite)(Mobile) | **/** | **/** |
| **174,8-182** | (Earth Exploration - Satellite) (Inter - Satellite)(Space Research)  | **/** | **/** |
| **182-185** | (Earth Exploration - Satellite) (Radio Astronomy)(Space Research)  | **/** | **/** |
| **185-190** | (Earth Exploration - Satellite) (Inter - Satellite)(Space Research)  | **/** | **/** |
| **190-191,8** | (Earth Exploration - Satellite) (Space Research)  | **/** | **/** |
| **191,8-200** | (Fixed) (Inter - Satellite)(Mobile)(Mobile - Satellite)(Radionavigation) (Radionavigation - Satellite) | **/** | **/** |
| **200-202** | (Earth Exploration - Satellite) (Radio Astronomy)(Space Research)  | **/** | **/** |
| **202-209** | (Earth Exploration - Satellite) (Radio Astronomy)(Space Research)  | **/** | **/** |
| **209-217** | (Fixed) (Fixed - Satellite)(Mobile)(Radio Astronomy) | **/** | **/** |
| **217-226** | (Fixed) (Fixed - Satellite)(Mobile)(Radio Astronomy)(Space Research)  | **/** | **/** |
| **226-231,5** | (Earth Exploration - Satellite) (Radio Astronomy)(Space Research)  | **/** | **/** |
| **231,5-232** | (Fixed) (Mobile)(Radiolocation) | **/** | **/** |
| **232-235** | (Fixed)(Fixed - Satellite)(Mobile)(Radiolocation) | **/** | **/** |
| **235-238** | (Earth Exploration - Satellite) (Fixed - Satellite)(Space Research)  | **/** | **/** |
| **238-240** | (Fixed) (Fixed - Satellite)(Mobile)(Radiolocation)(Radionavigation)(Radionavigation - Satellite) | **/** | **/** |
| **240-241** | (Fixed) (Mobile)(Radiolocation) | **/** | **/** |
| **241-248** | (Radio Astronomy)(Radiolocation)(Amateur)(Amateur - Satellite) | **/** | **/** |
| **248-250** | (Amateur) (Amateur - Satellite)(Radio Astronomy) | **/** | **/** |
| **250-252** | (Earth Exploration - Satellite) (Radio Astronomy)(Space Research)  | **/** | **/** |
| **252-265** | (Fixed) (Mobile) (Mobile - Satellite)(Radio Astronomy) (Radionavigation) (Radionavigation - Satellite) | **/** | **/** |
| **265-275** | (Fixed) (Fixed - Satellite)(Mobile)(Radio Astronomy) | **/** | **/** |
| **275-300** | Unallocated | **/** | **/** |

***NOTE:***

In the Applications (Services) column:

- Bold letters, eg. **Point-to-point link (Fixed)**: system in operation and associated service

- Normal letters, eg. (Fixed): no system in operation, with allocated service only

3.8 Current application(s) and usage in the frequency ranges of 7.125 – 24 GHz and 92 – 300 GHz in Papua New Guinea

The current usage in the frequency ranges of 7.125 – 24 GHz and 92 – 300 GHz could be referred to Papua New Guinea national frequency plan (i.e. <https://www.nicta.gov.pg/regulatory/spectrum-radio-communications/radiofrequency-spectrum-allocation-chart/>).

Papua New Guinea would like to share the following table and figure represent the number of satellite systems/networks filed at the ITU in the 7-24 GHz range for Asia Pacific region from 25 APT Members including Papua New Guinea.

|  |  |
| --- | --- |
|  | Number of satellite systems/networks filed in 7-24GHz range  |
|  | GSO | non-GSO |
| Asia Pacific Region | 2603 | 732 |

The high number of both GSO and NGSO systems/networks for planned and unplanned bands in the range 7-24 GHz demonstrates the importance of this frequency range for current and future satellite services.

***Please provide detail***

***NOTE:***

* *Type of use, for example: commercial, private, government, etc.*

3.9 Current application(s) and usage in the frequency ranges of 7.125 – 24 GHz and 92 – 300 GHz in India

|  |  |
| --- | --- |
| **Frequency Portion** (in MHz below 10 GHz and in GHz beyond 10 GHz) | **Applications (Services) and RR no.s** |
| **7 075-7 145** | FIXEDMOBILE5.458    |
| **7 145-7 190** | FIXEDMOBILESPACE RESEARCH (deep space) (Earth-to-space)5.458    |
| **7 190-7 235** | EARTH EXPLORATION-SATELLITE (Earth-to-space)      5.460A   5.460BFIXEDMOBILESPACE RESEARCH (Earth-to-space)   5.4605.458 |
| **7 235-7 250** | EARTH EXPLORATION-SATELLITE (Earth-to-space)      5.460AFIXEDMOBILE5.458 |
| **7 250-7 300** | FIXEDFIXED-SATELLITE (space-to-Earth)MOBILE 5.461 |
| **7 300-7 375** | FIXEDFIXED-SATELLITE (space-to-Earth)MOBILE except aeronautical mobile 5.461 |
| **7 375-7 450** | FIXEDFIXED-SATELLITE (space-to-Earth)MOBILE except aeronautical mobileMARITIME MOBILE-SATELLITE (space-to-Earth)      5.461AA   5.461AB |
| **7 450-7 550** | FIXEDFIXED-SATELLITE (space-to-Earth)METEOROLOGICAL-SATELLITE (space-to-Earth)MOBILE except aeronautical mobileMARITIME MOBILE-SATELLITE (space-to-Earth)      5.461AA   5.461AB5.461A |
| **7 550-7 750** | FIXEDFIXED-SATELLITE (space-to-Earth)MOBILE except aeronautical mobileMARITIME MOBILE-SATELLITE (space-to-Earth)      5.461AA   5.461AB |
| **7 750-7 900** | FIXEDMETEOROLOGICAL-SATELLITE (space-to-Earth)    5.461BMOBILE except aeronautical mobile |
| **7 900-8 025** | FIXEDFIXED-SATELLITE (Earth-to-space)MOBILEMOBILE-SATELLITE (Earth-to-space)5.461 |
| **8 025-8 175** | EARTH EXPLORATION-SATELLITE (space-to-Earth)FIXEDFIXED-SATELLITE (Earth-to-space)MOBILE   5.4635.462A |
| **8 175-8 215** | EARTH EXPLORATION-SATELLITE (space-to-Earth)FIXEDFIXED-SATELLITE (Earth-to-space)METEOROLOGICAL-SATELLITE (Earth-to-space)MOBILE   5.4635.462A |
| **8 215-8 400** | EARTH EXPLORATION-SATELLITE (space-to-Earth)FIXEDFIXED-SATELLITE (Earth-to-space)MOBILE   5.4635.462A |
| **8 400-8 500** | FIXEDMOBILE except aeronautical mobileSPACE RESEARCH (space-to-Earth)   5.465 |
| **8 500-8 550** | RADIOLOCATION |
| **8 550-8 650** | EARTH EXPLORATION-SATELLITE (active)RADIOLOCATIONSPACE RESEARCH (active)5.469A |
| **8 650-8 750** | RADIOLOCATION |
| **8 750-8 850** | RADIOLOCATIONAERONAUTICAL RADIONAVIGATION   5.470 |
| **8 850-9 000** | RADIOLOCATIONMARITIME RADIONAVIGATION   5.472 |
| **9 000-9 200** | RADIOLOCATIONAERONAUTICAL RADIONAVIGATION 5.3375.473A |
| **9 200-9 300** | EARTH EXPLORATION-SATELLITE (active)   5.474A      5.474B   5.474CRADIOLOCATIONMARITIME RADIONAVIGATION   5.4725.474   5.474D |
| **9 300-9 500** | EARTH EXPLORATION-SATELLITE (active)RADIOLOCATIONRADIONAVIGATION   5.475SPACE RESEARCH (active)5.427   5.474   5.475A   5.475B   5.476A |
| **9 500-9 800** | EARTH EXPLORATION-SATELLITE (active)RADIOLOCATIONRADIONAVIGATIONSPACE RESEARCH (active)5.476A |
| **9 800-9 900** | FIXEDRADIOLOCATIONEarth exploration-satellite (active)Space research (active) 5.477   5.478A   5.478B |
| **9 900-10 000** | FIXEDEARTH EXPLORATION-SATELLITE (active)   5.474A      5.474B   5.474CRADIOLOCATION 5.474D   5.477   5.479 |
| **10-10.4** | EARTH EXPLORATION SATELLITE (active)   5.474A   5.474B   5.474CFIXED   MOBILERADIOLOCATIONAmateur 5.474D   5.479 |
| **10.4-10.45** | FIXED   MOBILERADIOLOCATIONAmateur |
| **10.45-10.5** | RADIOLOCATIONAmateurAmateur-satellite |
| 10.5-10.55 | FIXED   MOBILERADIOLOCATION |
| **10.55-10.6** | FIXED   MOBILE except aeronautical mobileRadiolocation |
| **10.6-10.68** | EARTH EXPLORATION-SATELLITE (passive)FIXED   MOBILE except aeronautical mobileRADIO ASTRONOMYSPACE RESEARCH (passive)Radiolocation5.149   5.482   5.482A |
| **10.68-10.7** | EARTH EXPLORATION-SATELLITE (passive)RADIO ASTRONOMYSPACE RESEARCH (passive)5.340 |
| 10.7-10.95 | FIXEDFIXED-SATELLITE (space-to-Earth)   5.441   IND 17MOBILE except aeronautical mobile |
| 10.95-11.2 | FIXEDFIXED-SATELLITE (space-to-Earth)   5.484A   5.484B   IND 17   IND 30MOBILE except aeronautical mobile |
| 11.2-11.45 | FIXEDFIXED-SATELLITE (space-to-Earth)   5.441   IND 17MOBILE except aeronautical mobile |
| 11.45-11.7 | FIXEDFIXED-SATELLITE (space-to-Earth)   5.484A   5.484B   IND 17   IND 30MOBILE except aeronautical mobile |
| **11.7-12.2** | FIXEDMOBILE except aeronautical mobileBROADCASTINGBROADCASTING-SATELLITE  5.492 5.487  5.487A |
| **12.2-12.5** | FIXEDFIXED-SATELLITE (space-to-Earth)  5.484B   IND 30MOBILE except aeronautical mobileBROADCASTING   5.487  5.484A |
| **12.5-12.75** | FIXEDFIXED-SATELLITE  (space-to-Earth) 5.484A      5.484B   IND 17   IND 30MOBILE except aeronautical mobileBROADCASTING- SATELLITE  5.493 |
| **12.75-13.25** | FIXEDFIXED-SATELLITE (Earth-to-space)   5.441MOBILESpace research (deep space) (space-to-Earth) |
| **13.25-13.4** | FIXEDEARTH EXPLORATION-SATELLITE (active)AERONAUTICAL RADIONAVIGATION   5.497SPACE RESEARCH (active)5.498A   5.499 |
| 13.4-13.65 | FIXEDEARTH EXPLORATION-SATELLITE (active)RADIOLOCATIONSPACE RESEARCH   5.499C   5.499DStandard frequency and time signal-satellite (Earth-to-space) 5.499   5.501B |
| **13.65-13.75** | FIXEDEARTH EXPLORATION-SATELLITE (active)RADIOLOCATIONSPACE RESEARCH   5.501AStandard frequency and time signal-satellite (Earth-to-space)5.499   5.501B |
| **13.75-14** | FIXED FIXED-SATELLITE (Earth-to-space)  5.484ARADIOLOCATIONEarth exploration-satelliteStandard frequency and time signal-satellite (Earth-to-space)Space research5.499   5.502   5.503 |
| **14-14.25** | FIXEDFIXED-SATELLITE (Earth-to-space)   5.457A       5.484A   5.484B   5.506   5.506B   IND 17RADIONAVIGATION   5.504Mobile-satellite (Earth-to-space)   5.504B   5.504C   5.506ASpace research5.504A   5.505 |
| **14.25-14.3** | FIXEDFIXED-SATELLITE (Earth-to-space)   5.457A         5.484A   5.484B   5.506   5.506B   IND 17RADIONAVIGATION  5.504Mobile-satellite (Earth-to-space)   5.504B   5.506A   5.508ASpace research5.504A   5.505   |
| **14.3-14.4** | FIXEDFIXED-SATELLITE (Earth-to-space)   5.457A   5.484A   5.484B   5.506   5.506B   IND 17MOBILE except aeronautical   mobileMobile-satellite (Earth-to-space)  5.504B   5.506A   5.509A Radionavigation-satellite5.504A |
| **14.4-14.47** | FIXEDFIXED-SATELLITE (Earth-to-space)   5.457A       5.484A   5.484B   5.506   5.506B   IND 17MOBILE except aeronautical mobileMobile-satellite (Earth-to-space)   5.504B   5.506A   5.509ASpace research (space-to-Earth)5.504A |
| **14.47-14.5** | FIXEDFIXED-SATELLITE (Earth-to-space)   5.457A        5.484A   5.506   5.506B   IND 17MOBILE except aeronautical mobileMobile-satellite (Earth-to-space)   5.504B   5.506A   5.509ARadio astronomy5.149   5.504A |
| **14.5-14.8** | FIXEDFIXED-SATELLITE (Earth-to-space)   5.509B   5.509C      5.509D   5.509E   5.509F   5.510  MOBILESpace research   5.509G |
| **14.8-15.35** | FIXEDMOBILESpace research5.339 |
| **15.35-15.4** | EARTH EXPLORATION-SATELLITE (passive)RADIO ASTRONOMYSPACE RESEARCH (passive)5.340    |
| **15.4-15.43** | RADIOLOCATION   5.511E   5.511FAERONAUTICAL RADIONAVIGATION |
| **15.43-15.63** | FIXED-SATELLITE (Earth-to-space)   5.511ARADIOLOCATION  5.511E  5.511FAERONAUTICAL RADIONAVIGATION5.511C |
| **15.63-15.7** | RADIOLOCATION   5.511E   5.511FAERONAUTICAL RADIONAVIGATION |
| **15.7-16.6** | FIXEDMOBILERADIOLOCATION5.512 |
| **16.6-17.1** | FIXEDMOBILERADIOLOCATIONSpace research (deep space) (Earth-to-space)5.512 |
| **17.1-17.2** | FIXEDMOBILERADIOLOCATION5.512 |
| **17.2-17.3** | FIXEDMOBILEEARTH EXPLORATION-SATELLITE (active)RADIOLOCATIONSPACE RESEARCH (active)5.512   5.513A |
| **17.3-17.7** | FIXED-SATELLITE (Earth-to-space)   5.516RadiolocationFixedMobile 5.514 |
| **17.7-18.1** | FIXEDFIXED-SATELLITE    (space-to-Earth)   5.484A   5.517A   (Earth-to-space)   5.516MOBILE |
| **18.1-18.4** | FIXEDFIXED-SATELLITE (space-to-Earth)   5.484A   5.516B   5.517A   (Earth-to-space)   5.520 5.519     |
| **18.4-18.6** | FIXEDFIXED-SATELLITE (space-to-Earth)   5.484A   5.516B   5.517A |
| **18.6-18.8** | EARTH EXPLORATION-SATELLITE (passive)   IND 31FIXEDFIXED-SATELLITE (space-to-Earth)   5.517A   5.522BMOBILE except aeronautical mobileSpace research (passive)5.522A |
| **18.8-19.3** | FIXEDFIXED-SATELLITE (space-to-Earth)   5.516B   5.523A   5.517A IND 17 MOBILE |
| **19.3-19.7** | FIXEDFIXED-SATELLITE (space-to-Earth) (Earth-to-space)   5.517A   5.523B   5.523C   5.523D   5.523E IND 17       MOBILE |
| **19.7-20.1** | FIXEDMOBILEFIXED-SATELLITE (space-to-Earth)   5.484A   5.484B   5.516B    5.527A   IND 17   IND 32Mobile-satellite (space-to-Earth)5.524 |
| **20.1-20.2** | FIXEDMOBILEFIXED-SATELLITE (space-to-Earth)   5.484A   5.484B      5.516B   5.527A   IND 17   IND 32MOBILE-SATELLITE (space-to-Earth) 5.524   5.525   5.526   5.527   5.528 |
| **20.2-21.2** | FIXEDMOBILEFIXED-SATELLITE (space-to-Earth)   IND 32MOBILE-SATELLITE (space-to-Earth)Standard frequency and time signal-satellite (space-to-Earth)5.524 |
| **21.2-21.4** | EARTH EXPLORATION-SATELLITE (passive)FIXEDMOBILESPACE RESEARCH (passive) |
| **21.4-22** | FIXEDMOBILEBROADCASTING-SATELLITE    5.208B 5.530A   5.530B    |
| **22-22.21** | FIXEDMOBILE except aeronautical mobile5.149 |
| **22.21-22.5** | EARTH EXPLORATION-SATELLITE (passive)FIXEDMOBILE except aeronautical mobileRADIO ASTRONOMYSPACE RESEARCH (passive)5.149   5.532 |
| **22.5-22.55** | FIXEDMOBILE |
| **22.55-23.15** | FIXEDINTER-SATELLITE  5.338AMOBILESPACE RESEARCH (Earth-to-space)   5.532A5.149 |
| **23.15-23.55** | FIXEDINTER-SATELLITE   5.338AMOBILE |
| **23.55-23.6** | FIXEDMOBILE |
| **23.6-24** | EARTH EXPLORATION-SATELLITE (passive)RADIO ASTRONOMYSPACE RESEARCH (passive)5.340 |
| **92-94** | FIXED   5.338AMOBILERADIO ASTRONOMYRADIOLOCATION5.149 |
| **94-94.1** | EARTH EXPLORATION-SATELLITE (active)RADIOLOCATIONSPACE RESEARCH (active)Radio astronomy5.562   5.562A |
| **94.1-95** | FIXEDMOBILERADIO ASTRONOMYRADIOLOCATION5.149 |
| **95-100** | FIXEDMOBILERADIO ASTRONOMYRADIOLOCATIONRADIONAVIGATIONRADIONAVIGATION-SATELLITE5.149   5.554 |
| **100-102** | EARTH EXPLORATION-SATELLITE (passive)RADIO ASTRONOMYSPACE RESEARCH (passive)5.340   5.341 |
| **102-105** | FIXEDMOBILERADIO ASTRONOMY5.149   5.341 |
| **105-109.5** | FIXEDMOBILERADIO ASTRONOMYSPACE RESEARCH (passive)   5.562B5.149   5.341 |
| **109.5-111.8** | EARTH EXPLORATION-SATELLITE (passive)RADIO ASTRONOMYSPACE RESEARCH (passive)5.340   5.341 |
| **111.8-114.25** | FIXEDMOBILERADIO ASTRONOMYSPACE RESEARCH (passive)  5.562B5.149   5.341 |
| **114.25-116** | EARTH EXPLORATION-SATELLITE (passive)RADIO ASTRONOMYSPACE RESEARCH (passive)5.340   5.341 |
| **116-119.98** | EARTH EXPLORATION-SATELLITE (passive)INTER-SATELLITE   5.562CSPACE RESEARCH (passive)5.341 |
| **119.98-122.25** | EARTH EXPLORATION-SATELLITE (passive)INTER-SATELLITE   5.562CSPACE RESEARCH (passive)5.138   5.341 |
| **122.25-123** | FIXEDINTER-SATELLITEMOBILE   5.558Amateur5.138 |
| **123-130** | FIXED-SATELLITE (space-to-Earth)MOBILE-SATELLITE (space-to-Earth)RADIONAVIGATIONRADIONAVIGATION-SATELLITERadio astronomy5.149   5.554 |
| **130-134** | EARTH EXPLORATION-SATELLITE (active)   5.562EFIXEDINTER-SATELLITEMOBILE   5.558RADIO ASTRONOMY5.149   5.562A |
| **134-136** | AMATEURAMATEUR-SATELLITERadio astronomy |
| **136-141** | RADIO ASTRONOMYRADIOLOCATIONAmateurAmateur-satellite5.149 |
| **141-148.5** | FIXEDMOBILERADIO ASTRONOMYRADIOLOCATION5.149 |
| **148.5-151.5** | EARTH EXPLORATION-SATELLITE (passive)RADIO ASTRONOMYSPACE RESEARCH (passive)5.340 |
| **151.5-155.5** | FIXEDMOBILERADIO ASTRONOMYRADIOLOCATION5.149 |
| **155.5-158.5** | FIXEDMOBILERADIO ASTRONOMY 5.149 |
| **158.5-164** | FIXEDFIXED-SATELLITE (space-to-Earth)MOBILEMOBILE-SATELLITE (space-to-Earth) |
| **164-167** | EARTH EXPLORATION-SATELLITE (passive)RADIO ASTRONOMYSPACE RESEARCH (passive)5.340 |
| **167-174.5** | FIXEDFIXED-SATELLITE (space-to-Earth)INTER-SATELLITEMOBILE   5.5585.149 |
| **174.5-174.8** | FIXEDINTER-SATELLITEMOBILE   5.558 |
| **174.8-182** | EARTH EXPLORATION-SATELLITE (passive)INTER-SATELLITE   5.562HSPACE RESEARCH (passive) |
| **182-185** | EARTH EXPLORATION-SATELLITE (passive)RADIO ASTRONOMYSPACE RESEARCH (passive)5.340 |
| **185-190** | EARTH EXPLORATION-SATELLITE (passive)INTER-SATELLITE   5.562HSPACE RESEARCH (passive) |
| **190-191.8** | EARTH EXPLORATION-SATELLITE (passive)SPACE RESEARCH (passive)5.340 |
| **191.8-200** | FIXEDINTER-SATELLITEMOBILE   5.558MOBILE-SATELLITERADIONAVIGATIONRADIONAVIGATION-SATELLITE5.149   5.341   5.554 |
| **200-209** | EARTH EXPLORATION-SATELLITE (passive)RADIO ASTRONOMYSPACE RESEARCH (passive)5.340   5.341   5.563A |
| **209-217** | FIXEDFIXED-SATELLITE (Earth-to-space)MOBILERADIO ASTRONOMY5.149   5.341 |
| **217-226** | FIXEDFIXED-SATELLITE (Earth-to-space)MOBILERADIO ASTRONOMYSPACE RESEARCH (passive)  5.562B5.149   5.341 |
| **226-231.5** | EARTH EXPLORATION-SATELLITE (passive)RADIO ASTRONOMYSPACE RESEARCH (passive)5.340 |
| **231.5-232** | FIXEDMOBILERadiolocation |
| **232-235** | FIXEDFIXED-SATELLITE (space-to-Earth)MOBILERadiolocation |
| **235-238** | EARTH EXPLORATION-SATELLITE (passive)FIXED-SATELLITE (space-to-Earth)SPACE RESEARCH (passive)5.563A   5.563B |
| **238-240** | FIXEDFIXED-SATELLITE (space-to-Earth)MOBILERADIOLOCATIONRADIONAVIGATIONRADIONAVIGATION-SATELLITE |
| **240-241** | FIXEDMOBILERADIOLOCATION |
| **241-248** | RADIO ASTRONOMYRADIOLOCATIONAmateurAmateur-satellite5.138   5.149 |
| **248-250** | AMATEURAMATEUR-SATELLITERadio astronomy5.149 |
| **250-252** | EARTH EXPLORATION-SATELLITE (passive)RADIO ASTRONOMYSPACE RESEARCH (passive)5.340   5.563A |
| **252-265** | FIXEDMOBILEMOBILE-SATELLITE (Earth-to-space)RADIO ASTRONOMYRADIONAVIGATIONRADIONAVIGATION-SATELLITE5.149   5.554 |
| **265-275** | FIXEDFIXED-SATELLITE (Earth-to-space)MOBILERADIO ASTRONOMY5.149   5.563A |
| **275-3 00** | (Not allocated) 5.564A   5.565 |

The following table provides some applications in the frequency band (or portion thereof). India has not identified IMT in any of these frequency bands as of now.

|  |  |  |  |
| --- | --- | --- | --- |
| **Frequency Portion** | **Applications (Services)** | **Number of systems/licences** | **Type of use** |
| 7 125-9 500 MHz | point-to-point link, Radar,EESS (s-to-E)Space Research | Multiple | Government,Public sector,Private,Commercial |
| 9 500-9 800 MHz | Radars | Multiple | Public sectorPrivate |
| 9 800-10 000 MHz | point-to-point link, Radar | Multiple | Government |
| 10 -10.5 GHz | Radars | Multiple | Government |
| 10.7 – 14.5 GHz | point-to-point linkpoint-to-multipoint linkVSATDTH, ESIMSNGRadar | Multiple | Government, Public Sector,Private,Commercial |
| 14.5 – 15.5 GHz | point-to multipoint linkVSAT | Multiple | Commercial |
| 15.7 – 17.7 GHz | Radar | Multiple  | GovernmentPublic Sector,Private  |
| 17.7 – 21.2 GHz | point-to multipoint link, VSATESIMPassive sensor | Multiple | Government, Public Sector,Commercial |
| 21.2 – 23.6 GHz | point-to-point linkpoint-to multipoint linkInter-satellite links | Multiple | Government,Public Sector, Commercial |

3.10 Current application(s) and usage in the frequency ranges of 7.125 – 24 GHz and 92 – 300 GHz in Lao PDR

|  |  |  |  |
| --- | --- | --- | --- |
| **Frequency Portion** | **Applications (Services)** | **Number of systems/licences** | **Type of use** |
| 7.125-7.725 GHz | Microwave link |  | commercial |
| 12.75-13.25 GHz | Microwave link |  | commercial |
| 14.4-15.35 GHz | Microwave link |  | commercial |
| 92-300 GHz | None | - | - |

3.11 Current application(s) and usage in the frequency ranges of 7.125 – 24 GHz and 92 – 300 GHz in Australia

|  |  |  |  |
| --- | --- | --- | --- |
| **Frequency Portion (GHz)** | **Applications (Services)** | **Number of licences** | **Type of use** |
| **7.125-9.0** | **Fixed** | **26345** | **e.g., Point-to-point links, X-band Uplink/Downlink Government Satellite communications shared with Electronic news gathering services. Government Radiolocation** |
| **Earth Receive** | **86** |
| **Earth** | **61** |
| **Government** | **13 (licences authorise ubiquitous access)** |
| **Radiodetermination** | **10** |
| **Government receive** | **4**  |
| **9.0-10.7** | **Fixed** | **1062** | **e.g., Aeronautical navigation, Government Radiolocation, Amateur service.** |
| **Radiodetermination** | **396** |
| **Amateur** | **35** |
| **Scientific** | **4** |
| **Government** | **6 (licences authorise ubiquitous access)** |
| **Aircraft** | **2** |
| **10.7-12.75** | **Fixed** | **44658** | **e.g. Government & commercial Satellite Communications, point-to-point links** |
| **Earth Receive** | **253 (licensed + ubiquitous unlicensed)** |
| **Space** | **47** |
| **Scientific** | **11** |
| **12.75-14.5** | **Fixed** | **3979** | **e.g. Government & commercial Satellite Communications, Radiolocation for Government purposes, point-to-point links** |
| **Earth** | **197** |
| **Space Receive** | **33 licensed (+ ubiquitous unlicensed, in 14-14.5 GHz)** |
| **Scientific** | **6** |
| **Radiodetermination** | **3** |
| **Earth receive** | **6** |
| **14.5-17.7** | **Fixed** | **5292** | **e.g. Radiolocation and mobile for Government purposes, point-to-point links, Commercial Satellite Communications,** |
| **Radiodetermination** | **137** |
| **Earth** | **33** |
| **Government** | **10 (licences authorise ubiquitous access)** |
| **Aeronautical** | **2** |
| **17.7-19.7** | **Fixed** | **21024** | **e.g. Satellite communications for Government & commercial purposes, point-to-point links** |
| **Earth receive** | **235 licensed (+ ubiquitous unlicensed)** |
| **Space** | **23** |
| **Scientific** | **3** |
| **Earth** | **6** |
| **19.7—21.4** | **Earth receive** | **99 licensed (+ ubiquitous unlicensed up to 20.2 GHz)** | **e.g. Satellite communications for Government & commercial purposes** |
| **space** | **20** |
| **21.4-24** | **Fixed** | **4446** | **e.g. point-to-point links** |
| **Earth receive** | **4** |
| **Earth** | **2** |

|  |  |  |  |
| --- | --- | --- | --- |
| **Frequency Portion (GHz)** | **Applications (Services)** | **Number of systems/licences** | **Type of use** |
| **92-122.25** | **Radiodetermination** | **6** |  |
| **122.25-275** | **No current assignments** |  |  |

**4. Future Plan Usage in the Frequency Ranges 7.125 – 24 GHz and 92 – 300 GHz in Some APT Members**

Based on the responses to question# 2 of the questionnaire on current status and future plan usage in the frequency ranges 7.125 – 24 GHz and 92 – 300 GHz from APT Members received as of AWG-31 meeting, below are their responses to question#2 whether they have any plan to change the current applications or not:

|  |  |
| --- | --- |
| **Country** | **Plan to Change the current Applications** |
| Thailand | There is no plan to change the current applications mentioned above in the near future. |
| Myanmar | Not yet |
| Japan | The attached frequency assignment plan is revised regularly, so in general the plan for the frequency bands questioned could also be changed in future. |
| New Zealand | No current plans although we continue to monitor developments. |
| Korea, Republic Of | The Republic of Korea is considering planning which application(s) could be shared with IMT in the future, depending on the studies below Question 3. |
| Indonesia | No plan, taking into account those frequency bands anticipating future plan. |
| Viet Nam | Consider the feasibility of new IMT bands in the frequency bands of 7.125-24 GHz and 92-300 GHz based on sharing and compatibility studies with incumbent primary services |
| Papua New Guinea | Depending on the outcome of WRC-23, A-ESIM and M-ESIM applications in the band 12.75 – 13.25 GHz are the possible changes to the current applications for the band between 7 – 24 GHz.In general, Papua New Guinea administration believe the changes to the current frequency allocation table (i.e. Article 5 of RR) for the band 7 – 24 GHz and 92 – 300 GHz will depend on the outcome of WRC-23 and future WRC. It would be a challenge to answer the above question without knowing the outcome of WRC-23 and future WRC. In this regard, planning to deploy IMT-2030 in the band 7 – 24 GHz or in the band 92 – 300 GHz would not be reasonable answer to the above question without the proper process and appropriate ITU-R study. Meanwhile, Papua New Guinea noticed that some administrations have proposed to conduct future ITU-R study on the possible IMT identification for the band 7 – 24 GHz. In this regard, Papua New Guinea don’t have any plan to allow IMT-2030 deployment for the band 7 – 24 GHz at this stage due to the following reasons:1. Below are the chart indicated all of the services for the band 7 – 24 GHz on primary basis

1. Refer to the outcome of WRC-19, there are already significant amount of spectrum with a total of 17.25 GHz which 14.75 GHz of spectrum have been identified for IMT globally
2. During this WRC-23 study cycle, there are total of 2.2 GHz of spectrum which will be considered for possible IMT identification in regional/global basis.
3. The below chart show the total amount of spectrum identified for IMT for every WRC and the utilization of these IMT spectrum need to be addressed and assessed before asking for more IMT spectrum.

<https://www.itu.int/en/ITU-R/seminars/rrs/2017-Africa/Documents/Plenary/03_%20WRC-15%20Outcomes.pdf> |
| India | No changes planned yet but may consider in future based on co-existence studies and WRC developments/decisions in the frequency ranges of 7.125-24 GHz and 92-300 GHz. |
| Lao PDR | None at this moment. |
| Australia | No. Australia may consider changes to spectrum use within these bands depending on the outcome of WRC-23, however there are no current plans to do so. Details on current and future band planning in Australia is contained in the [Five-year spectrum outlook 2022-27 and 2022-23 work program](https://www.acma.gov.au/publications/2022-09/plan/five-year-spectrum-outlook-2022-27). |

Based on the responses to question# 3 of the questionnaire on current status and future plan usage in the frequency ranges 7.125 – 24 GHz and 92 – 300 GHz from some APT Members received as of AWG-31 meeting, below are their responses to question#3 in relation to the potential future applications in these bands:

|  |  |
| --- | --- |
| **Country** | **Potential Future Applications** |
| Thailand | We would like to maintain current applications in these mentioned bands until there are more specific demands or significant change in technology trends. |
| Myanmar | Not yet |
| Japan | The frequency band 252-275 GHz is allocated to the mobile service and the frequency band 275-296 GHz is able to be used for land mobile service applications. A wide range of contiguous bands could be used for future mobile service applications such as XR, D2D, CPMS, RLAN etc. which may require ultra-high data rates up to Tbit/s and might be supported by future IMT technologies.

|  |  |  |
| --- | --- | --- |
| **Frequency Portion** | **Future Applications** | **Timeline** |
| 252-300 GHz | VR/AR/MRDevice-to-Device communicationsClose proximity mobile systemLocal area networksFronthaul & backhaulImaging & sensing radar | 203020302030203020302030 |

 |
| New Zealand | No current plans although we continue to monitor developments. |
| Korea Republic Of | The Republic of Korea is planning studies on the frequency ranges 7.125-24 GHz (upper mid-band/centimetric wave band) and bands 92-275 GHz (sub-THz band) for IMT for 2030 and beyond. |
| Indonesia | No plan |
| Viet Nam | Viet Nam is planning studies on the frequency ranges 7.125-24 GHz (upper mid-band/centimetric wave band) and bands 92-300 GHz (sub-THz band) for IMT for 2030 and beyond.Based on the above analysis of current applications and future plans usage in the frequency ranges of 7.125-24 GHz, referring to previous co-existence and/or sharing studies, countries who wish to look for new IMT’s identification may consider the following bands as candidates:* Bands allocated to MOBILE SERVICE:
* ﻿7125 – 7250 MHz
* 7750 – 8500 MHz
* 12750 – 13250 MHz
* 14300 – 15350 MHz
* 21200 – 23600 MHz
* Bands for new allocation to MOBILE SERVICE:
* 8500 – 10000 MHz
* 13250 – 14300 MHz
* 15350 – 17700 MHz
 |
| Papua New Guinea | Proposal for the study on IMT identification for the band 7 – 24 GHz would not be feasible and reasonable as mentioned in our responses to Question#2. In addition to the above reasons, Papua New Guinea would like to share the other justifications why the proposal for future IMT identification for the band 7 – 24 GHz would not be reasonable:1. On average globally, only 50% of the available IMT identified spectrum below 5 GHz is licensed

<https://www.lstelcom.com/fileadmin/content/lst/marketing/media/2019_Study_LicensingUseofMobileSpectrum.pdf> 1. The work on IMT-2030/6G vision including 6G detailed standards @ WP 5D are expected to be completed by 2030 while the candidate radio-interface technology proposals are expected to be evaluated before then. Considering the timing, we believe a future IMT agenda item relating to 6G should be considered @ WRC-27 as a potential agenda item @ WRC-30.
2. As per OFCOM discussion paper released this year (i.e. <https://www.ofcom.org.uk/__data/assets/pdf_file/0017/232082/mobile-spectrum-demand-discussion-paper.pdf>), OFCOM is of the view that that IMT/mobile spectrum broadly sufficient to meet future demand to 2030 with the greater level of uncertainty beyond 2030.
 |
| India | No specific planned or potential future applications are in the bands in question. However,the following are initial plans and may change in future depending on consumer needs, future strategic requirements, technology development and global harmonization.

|  |  |  |
| --- | --- | --- |
| **Frequency Portion** | **Future Applications** | **Timeline** |
| 7.125 – 24 GHz | Possibility for considering mobile service to be explored based on coexistence studies. |  |
| 92-300 GHz |  |

 |
| Lao PDR | None at this moment. |
| Australia |

|  |  |  |
| --- | --- | --- |
| **Frequency Portion (GHz)** | **Future Applications** | **Timeline** |
| **8.5-10.7** | For Radiolocation, current use is expected to grow |  |
| **10.7-10.95** | Foreign-based operators providing services in Australia suggest potential for expanded FSS video and ESIM use under current ubiquitous licensing arrangements |  |
| **10.95-12.75** | Foreign-based operators providing services in Australia suggest potential for expanded FSS video, ESIM, VSAT and other data use under current ubiquitous licensing arrangements |  |
| **13.4-14** | For Radiolocation, current use is expected to grow |  |
| **14.0-14.5** | Foreign-based operators providing services in Australia suggest potential for increased use of mobile terminals under current ubiquitous licensing arrangements |  |
| **17.7-20.2** | Foreign-based operators providing services in Australia suggest potential for increased use of mobile terminals under current ubiquitous licensing arrangements |  |

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**5. Summary**

This Report addresses the current status and the future plan of usage in the frequency ranges of 7.125-24 GHz and 92-300 GHz in Asia Pacific Region. According to the answers provided by APT Members, the current usage status of these bands and the future plan vary from country to country. This report collected information for APT Members.

At this stage, most APT countries do not have specific plans to change the current allocation application in these frequency bands. Some APT countries indicated that they may consider to use mobile broadband while some other APT countries may consider to use satellite services for portions of those bands.