



National Information and Communications Technology Authority

BACKGROUND 60 GHz BAND



Document Ref. XXX.2023

The 60 GHz band refers to the radio frequency spectrum from 57 GHz to 71 GHz, and falls within the range of millimetre wave frequency band known as the V band. The characteristics of the band make it an ideal candidate band for short range communication with high bandwidth enabling wireless transmission of data for fixed wireless services (FWS) and also new and emerging technology that provides high-speed data transmission over short distances with minimal interference. It is ideal for short-range wireless links and offers a low-cost, secure, and reliable alternative to other high-capacity links.

Millimetre wave (MMW) radio has recently attracted a great deal of interest from scientific world, industry, and global standardisation bodies due to a number of attractive features of MMW to provide multi-gigabit transmission rate. Wireless broadband access is attractive to operators because of its low construction cost, quick deployment, and flexibility in providing access to different services. It is expected that the MMW radios can find numerous indoor and outdoor applications in residential areas, offices, conference rooms, corridors, and libraries. It is suitable for in-home applications such as audio/video transmission, desktop connection, and support of portable devices while for the outdoor PTP MMW systems, connecting cell-sites at one kilometre distance or closer, it will offer a huge backhaul capacity. The increasing demands for high-data rate communications have urged to develop MMW broadband wireless systems. Demands for high-speed multimedia data communications, such as a huge data file transmission and real-time high definition TV signal streaming, are markedly increasing, e.g., Gigabit Ethernet networks are now beginning to be widely used. Wireless transmission with 1Gbps and greater data rate is very attractive.

WRC 2019 identified 66-71 GHz band as part of the license-exempt 57-71 GHz band for IMT globally, which NICTA view as mostly useful for enabling licence-exempt 5G deployment (5G NR-U) that complements licenced deployment in other bands like 26 GHz.

NICTA recommends allocating the upper part of the 60 GHz band (66-71 GHz) for FWA deployment as a regulated band, while leaving the lower part (57-66 GHz) for unlicensed use. This is because the atmospheric absorption from rain is higher, resulting in higher signal attenuation as confirmed by studies carried out.

The 60 GHz band is a promising technology that has the potential to revolutionize the ICT sector in Papua New Guinea. By utilizing this band for Fixed Wireless Applications, it can benefit mobile and wireless applications, leading to greater adoption and usage of ICT in Papua New Guinea which will benefit the economy and improve the lives of the people.