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Latest global developments in microwave spectrum

E-band has now become a truly global solution with deployments in all regions. W-band will be a great complement – when the time is right.

The global microwave backhaul market is continuing on a steady growth trajectory, with the installed base of transceivers increasing from 10 million, as described in the 2022 edition of the Microwave Outlook report, to approximately 10.5 million today. This uptick reflects the ongoing build-out of mobile networks and capacity upgrades to meet rapidly increasing data demands driven by 5G rollout, as well as the proliferation of high-bandwidth services.

The rapid rise of E-band

One of the most notable developments has been the rapid rise of E-band (70/80 GHz) technology as seen in Figure 6. In 2022, E-band accounted for about 6 percent of the global installed base; today that share has grown to

8 percent, allowing it to surpass the long-established 38 GHz band. The growth has been especially pronounced thanks to the start of deployments in India, triggered by the introduction of 5G New Radio (NR), as well as sustained demand in multiple other regions. In India, E-band currently holds a 3.5 percent share of the installed base – still relatively small, but indicative of strong growth potential. Regionally, E-band's share ranges from just a couple of percent to around 25 percent, while some selected countries have already exceeded that level.

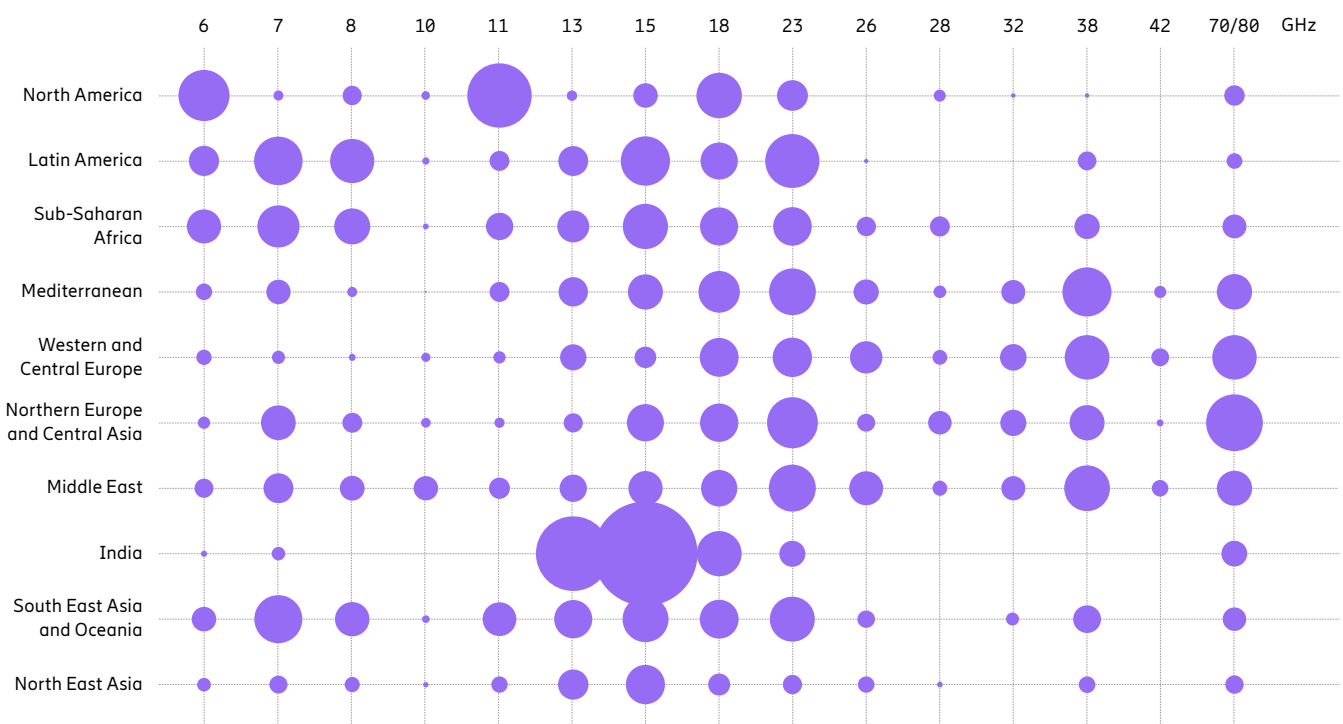
E-band has now become a truly global solution, with deployments in all regions – a significant step forward from 2022 when some areas had not yet embraced it.

Its importance lies in its ability to provide exceptionally wide channels and multi-Gbps backhaul capacity, delivering fiber-like speeds over short distances. This is critical for meeting the ultra-high capacity requirements of 5G, as well as 6G – both for single- and multi-band deployments.

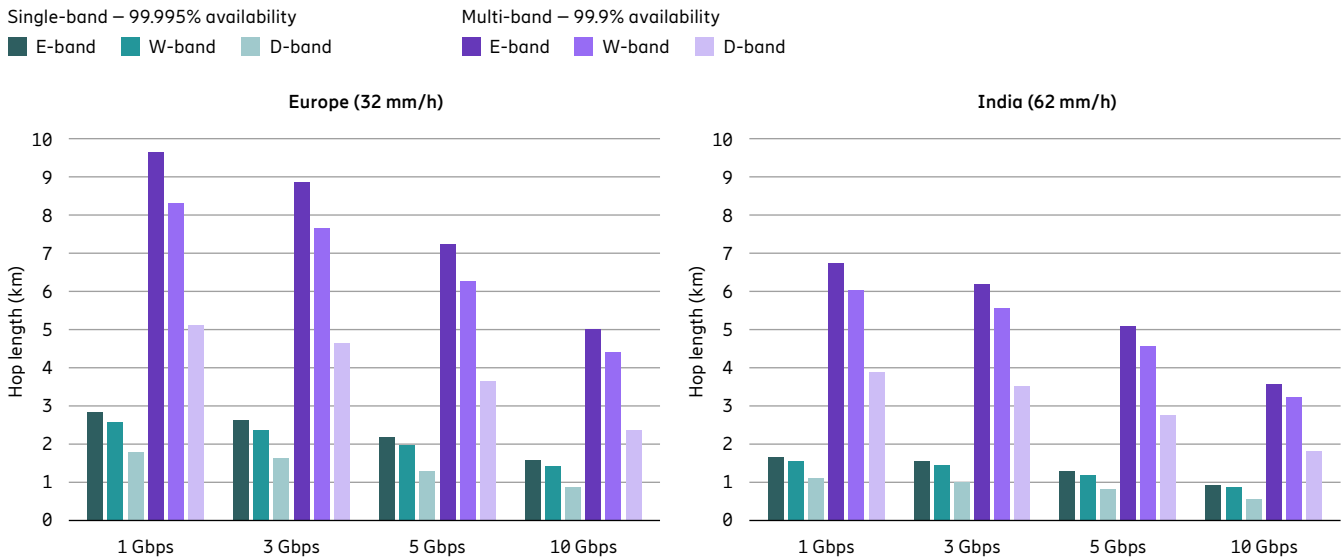
E-band transceivers make up approximately 8 percent of the global installed base.

~ 8%

Figure 6: Global and regional view of microwave spectrum use in backhaul spectrum



Source: Ericsson (2025).

Figure 7: mmWave hop length for single- and multi-band configurations, in medium and high rain zones

Note: Channel spacing 2,000 MHz, fixed 0.3 m antenna
Source: Ericsson (2025).

Regional spectrum use

The 32 GHz band is also expanding and now represents more than 2 percent of the global installed base. Adoption varies greatly, ranging from close to zero in some areas to about 7 percent in others. Meanwhile, lower-frequency bands between 6 and 11 GHz hold a strong position, with around 25 percent global market share and significant regional differences – from a few percent to nearly 65 percent. These bands, especially the 6–8 GHz subset (which stands near 18 percent globally), are valued for their long-range capabilities and high availability. This makes them vital in rural and long-haul links, where service providers need to connect distant cell sites to the core network reliably and cost effectively. Their propagation characteristics allow for fewer relay points over challenging terrains, making them indispensable in national backbone networks and for extending broadband reach to underserved areas.

Looking more into some regional findings, in the Middle East, for example, E-band continues to grow steadily, yet the 38 GHz band still holds a larger share in this region compared to Europe and Central Asia, where we can see E-band surpassing 38 GHz. Another finding is that 6–11 GHz bands are increasing their importance in North America, since more than 60 percent of the links are in these bands.

Another emerging focus is the lower 6 GHz range, where some countries have reassigned the 5,925–6,425 MHz portion for unlicensed uses, such as Wi-Fi and NR Unlicensed. While this opens the door for expanded broadband connectivity

and supports innovative use cases for homes and businesses, it introduces complications for fixed-service microwave links that rely on interference-free operation when unlicensed use occurs in a licensed backhaul band. The introduction of unlicensed devices into this spectrum raises the possibility of performance degradation over time due to interference and traffic contention. Because unlicensed spectrum lacks centralized control, resolving interference issues can be challenging. By contrast, coexistence with other licensed services – such as licensed 5G NR – is generally more manageable, as coordination frameworks can be put in place to mitigate potential conflicts.

The upcoming World Radiocommunication Conference (WRC) in 2027 will cover studies on sharing and compatibility and developing technical conditions for the use of International Mobile Telecommunications (IMT), which includes the bands 7.125–8.4 GHz (or parts thereof), and 14.8–15.35 GHz. These bands have a large overlap with the 7, 8 and 15 GHz wireless backhaul bands. The intention of identifying frequency bands for IMT is to provide equipment manufacturers with guidance on which spectrum may be made available for mobile services, while leaving the final decision on implementation up to each nation.

Future spectrum additions

The increasing deployment of E-band that has taken place in recent years has resulted in indications of spectrum congestion in regions with very high E-band use, such as dense urban areas in Eastern Europe. Thanks to its proximity to

mmWave hop lengths

- W-band achieves 90% of E-band hop lengths
- D-band achieves 60% of E-band hop lengths

the E-band, the W-band is a good choice to complement the E-band for Gbps transport over km hop lengths. The W-band begins only 6 GHz above the highest part of the E-band, and it therefore allows for a reuse of technologies already developed and deployed in high volumes for the E-band. The sub-THz D-band still has some unresolved practical challenges, mainly in terms of reaching sufficient output powers enabling km hop lengths.

Figure 7 shows calculated hop lengths up to 10 Gbps for the E-band, W-band and the D-band with 99.995 percent and 99.9 percent availability using 0.3 m antennas for European (more than 32 mm/h at 0.01 percent of the time) and Indian (more than 62 mm/h at 0.01 percent of the time) rain zones. The higher availability is typically needed for single-band deployments, while the lower availability is acceptable for multi-band deployments with a lower frequency band securing an overall high availability. We have assumed realistic transmitted output power levels for the different bands. As shown in Figure 7, we may expect only marginal differences in reach and availability for the W-band compared to the E-band, while the D-band is mainly fit for urban applications.

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