GSMA

2026 Edition

MOBILE SPECTRUM REPORT



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GSMA Intelligence

Networks data is taken from the GSMA Spectrum Navigator, provided by GSMA Intelligence.

GSMA Intelligence is the definitive source of global mobile operator data, analysis and forecasts, and publisher of authoritative industry reports and research. Our data covers every operator group, network and MVNO in every country worldwide — from Afghanistan to Zimbabwe. It is the most accurate and complete set of industry metrics available, comprising tens of millions of individual data points, updated daily. GSMA Intelligence is relied on by leading operators, vendors, regulators, financial institutions and third-party industry players, to support strategic decision-making and long-term investment planning. The data is used as an industry reference point and is frequently cited by the media and by the industry itself. Our team of analysts and experts produce regular thought-leading research reports across a range of industry topics.

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GSA

Device data is taken from the GAMBoD database, provided by the Global Mobile Suppliers Association (GSA).

GAMBoD is a single trusted source of information on 3GPP mobile technologies, devices. chipsets, public and private mobile networks and spectrum assignments/pricing globally. The databases are updated by the GSA focused research team, monthly or quarterly, and summary and member industry reports are published based on this data.

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INTRODUCTION



HARMONISING A CONNECTED WORLD

Harmonising spectrum can help connect more of the world. Aligning its use across markets creates the scale needed to reduce the costs and broaden the ecosystem of devices and networks, making mobile connectivity more accessible. That can bring more people online and extend the benefits of mobile into the lives of everyone, everywhere. Spectrum harmonisation is also part of the move towards a more sustainable future as connectivity helps reduce carbon emissions in other industries.

Beyond access, harmonisation encourages investment and innovation by giving technology developers and manufacturers confidence that they will have access to larger markets. Harmonising mobile bands has been a cornerstone of mobile development. Whether regionally or through their identification for IMT in the ITU's Radio Regulations, spectrum harmonisation has been used as the launchpad for mobile technologies from GSM to the upcoming delivery of 6G.

Spectrum assignment is a national issue that must consider the local objectives and needs of businesses and consumers. Building upon common foundations of harmonisation allows countries to participate in a global digital marketplace. Harmonisation does not mean every country must use exactly the same portfolio of spectrum, but does provide a shared framework that allows countries to benefit from global scale while meeting the needs of their local communities.

The GSMA's Mobile Spectrum Report combines ITU-agreed mobile spectrum plans with insights on their geographic harmonisation and extent of their real-world use. It has been developed to support governments and industries as they seek to ensure that the benefits of spectrum harmonisation can be felt across the world.



POWERED BY SPECTRUM

There are 4.7 billion mobile broadband subscribers worldwide. These connections have become integral to daily life, facilitating personal communication and supporting technological advancements that underpin global economies.

Effective spectrum management enables better mobile connectivity and powers economic growth and innovation, helping people across the world to work and learn as they stay connected.

MOBILE OVERVIEW

4.7 BILLION | **Unique mobile subscribers**

Contribution of **mobile technologies** and **services** to global GDP by **2030**:

$11.3 TRILLION

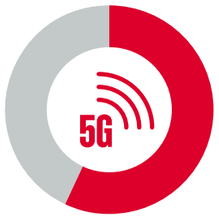
8.4% of global GDP

Global population:

59% Connected

38% Part of usage gap

3% In coverage gap



By **2030**:

57% of all **mobile connections** are forecast to be on **5G**

LOW, MID, AND HIGH BANDS

Future networks can deliver faster speeds, wider coverage, and enable a larger number of applications. However, the extent to which this can be achieved depends on timely investment-focussed assignment of the right spectrum assets.

Low bands expand rural coverage and capacity. An additional **50 MHz** of **sub-1 GHz spectrum** is linked to:

7PP Percentage Point Increase ⇧ **4G** coverage

11PP Percentage Point Increase ⇧ **5G** coverage

Urban areas rely on **mid-bands** to meet increasing traffic growth. **Cities** with over **50%** of the world's urban population will be capacity-constrained by **2030** if **mid-band spectrum** remains at today's levels.

Globally:

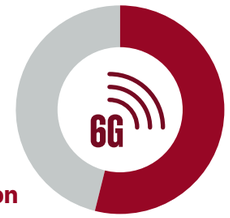
2-2.5 GHz mid-band spectrum

will be required in **2035–2040** to meet demand

By **2040**:

6G expected to reach **5 BILLION** connections

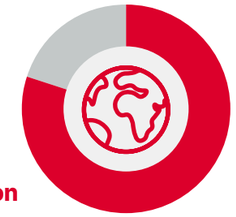
54% market penetration



POWERING MOBILE EVOLUTION

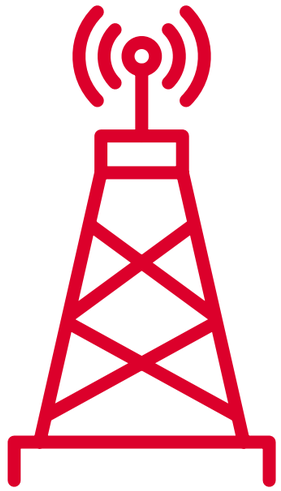
The World Radiocommunication Conference (WRC) is a cornerstone of global spectrum policy, with decisions that shape the future of mobile connectivity for decades. The next WRC in 2027 has the power to harmonise further spectrum for mobile, including low and mid-bands which can help countries address future demand.

Countries representing more than **80%** **world's population**



6 GHz now support the upper **band for mobile**

4.5 & 7-8 GHz bands are the next space for mobile to evolve in **mid-bands**



INDEX

Jump to a band:

Low bands	Mid-bands	High bands
Low bands have propagation characteristics which allow them to travel further and penetrate well into buildings, expanding coverage in thinly populated areas and providing indoor coverage in built-up areas.	Mid-bands offer city-wide capacity, enabling high-speed, reliable connectivity in densely populated areas.	High bands are used to provide very high-capacity hotspots in dense urban environments.
600 MHz	1500 MHz	26 GHz
700 MHz	1800 MHz	28 GHz
800 MHz	PCS (1900 MHz)	40 GHz
850 MHz	AWS (1700-2100 MHz)	50 GHz
900 MHz	2.1 GHz	66 GHz
	2.3 GHz	
	2.6 GHz	
	3.5 GHz	
	4.5 GHz	
	6 GHz	

SPECTRUM POLICY PRINCIPLES

A core role for every regulator is to ensure that spectrum is made available to those best placed to generate the greatest social and economic value from its use. Technology and service neutrality give operators the flexibility to use spectrum in response to changing market demand and consumer needs.

Technology Neutrality

Technology-neutral licences allow operators to introduce new generations of mobile technology in existing spectrum bands. This supports more efficient use of scarce spectrum resources. Service neutrality is equally important, allowing spectrum to be used for different mobile services as demand evolves, including mobile broadband and fixed wireless access. Together, they provide the flexibility to maximise the value of spectrum over the lifetime of a licence.

The Mobile Spectrum Report breaks down equipment ecosystems and network deployments to provide a guide to the most common uses of each spectrum band. These uses are operator-led choices rather than regulatory-enforced. The analysis is provided to give clear insight into the ecosystem supporting each band rather than suggest any particular technology choice.

Pillars of Spectrum Licensing

Technology neutrality is a vital principle of spectrum assignment and should be combined with three other essential pillars of spectrum licensing.

1

Long-tenure, predictable licence terms

- Licence terms should provide sufficient certainty for long-term investment in mobile networks, including long licence durations and a presumption of renewal where spectrum continues to be used efficiently.

2

Investment-oriented spectrum pricing

- Spectrum pricing should support investment in networks and services. Prices should reflect the objective of putting spectrum into productive use, with cautious reserve prices and renewal fees that avoid diverting funds from network investment. Increasingly, licence commitments on network coverage and quality are being used in place of upfront cash payments.

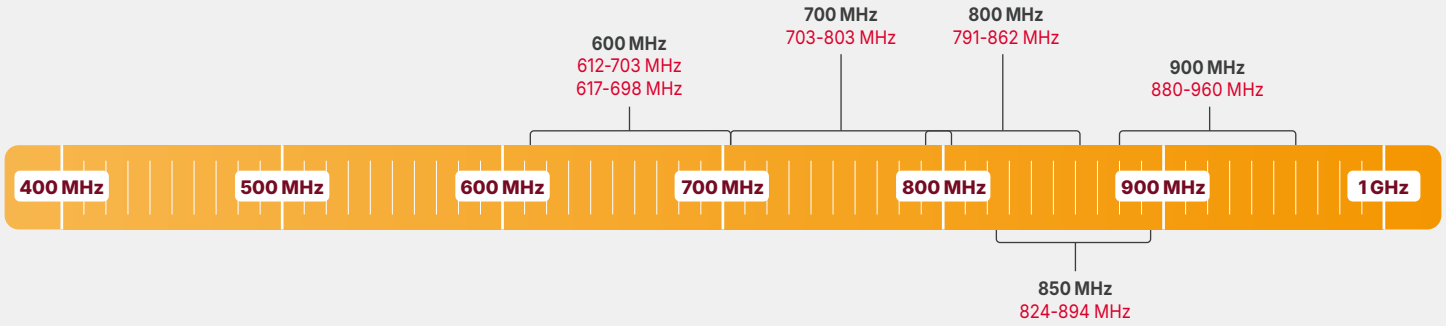
3

Proportionate use of licence obligations

- Licence conditions should be limited to those necessary to manage interference and achieve clearly defined public policy objectives. Where obligations are considered appropriate, their costs should be recognised in the overall price of spectrum so that they do not reduce funds available for network investment.

LOW BANDS

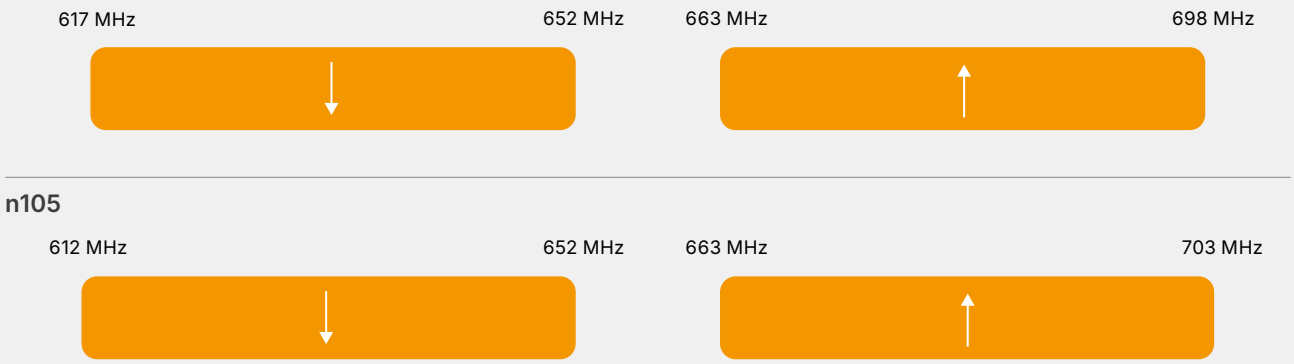
The propagation characteristics of lower frequencies (below 1 GHz) mean they can travel further and penetrate well into buildings. This makes low bands essential to build coverage in thinly populated areas and provide indoor coverage in built-up areas.





600 MHz

617-652 MHz / 663-698 MHz
612-652 MHz / 663-703 MHz
3GPP bands: n71, n105.



Overview

The 600 MHz band is being used to provide 5G and in the future will be developed for 6G. This spectrum can provide wide area coverage using fewer base stations to cover a designated area, delivering additional (+35-50%) capacity on top of existing low bands. The band is increasingly being used to support wide area 5G services and supports IoT applications.

3GPP n71: has been assigned and is used in regions including North America, the Caribbean and the Middle East.

3GPP n105: is being developed for use, particularly in APAC and offers 2 × 5 MHz of additional capacity.

Harmonisation

600 MHz has been harmonised regionally at different WRCs. This started with provisions for the band in parts of ITU Regions 2 and 3 at WRC-15, with additional countries joining the footnotes for these Regions subsequently. It continued up to WRC-23 with the expansion of footnotes governing its use in some countries in ITU Region 1. Further discussion on use of 600 MHz may occur at WRC-31.

Networks and ecosystem

As of 2026, there are approximately 10 live networks deployed in the 600 MHz band and over 1100 n71 ecosystem devices.

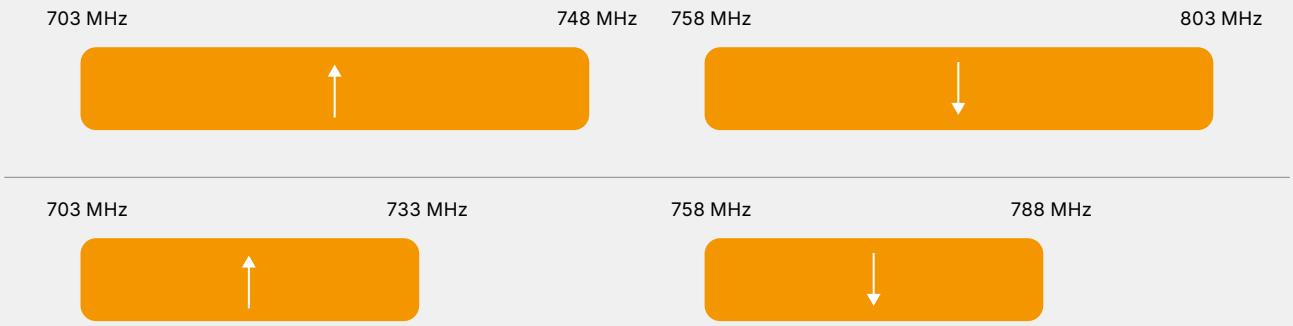
Future development

600 MHz is expected to expand globally as the next option to add capacity in areas that rely on low bands. Provisions already exist for its use in the Radio Regulations and countries may add their names to existing footnotes.

While the n71 ecosystem is already in use, the n105 band plan also has significant potential as it may be used in some of the world's most populous countries.

700 MHz

703-733 MHz / 758-788 MHz
703-733 MHz / 758-788 MHz (EMEA)
3GPP band: b28, n28.



Overview

The 700 MHz band provides wide coverage and is used for 4G and 5G services. Having been harmonised in all three ITU Regions across multiple WRCs it is heavily used all over the world to provide additional capacity for mobile broadband in rural areas.

Harmonisation

The 700 MHz band is widely used for both 4G and 5G coverage in Asia Pacific and in Latin America, where 2 × 45 MHz of spectrum is available. In Region 1, the band is used for both 4G and 5G technologies along a compatible 2×30 MHz FDD band plan. This has an additional 20 MHz of SDL spectrum (Band 67) in the duplex gap in Region 1 b103 is also within the 700 MHz band and used for certain NB IOT applications.

The n28 band, including the sub-section of it used in EMEA, is the widely harmonised 700 MHz band. However, other band plans exist. In the US and Canada, the band consists of a total of 80 MHz, including 10 MHz of supplemental downlink (SDL) spectrum. North America has its own band plan, consisting of n12, n13, and n14.

The 700 MHz band was harmonised across WRC-07, WRC-12 and WRC-15 in different parts of the world, with the final decisions being made in ITU Region 1 at WRC-15.

Networks and ecosystem

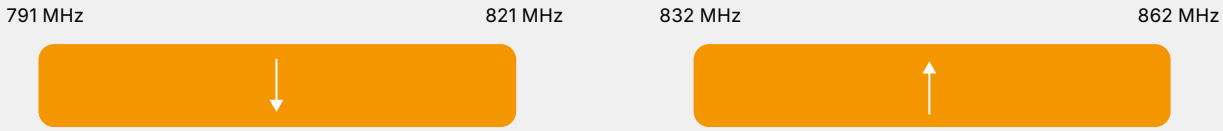
As of 2026, there are approximately 261 live networks deployed in the 700 MHz band and over 10000 ecosystem devices.

Future development

700 MHz is being used for 4G in some countries and 5G in others today while in the future it is expected to be refarmed for 6G. Today, of the 261 networks, around 170 are 4G and around 90 are 5G. Countries that have not yet assigned the band to mobile operators are able to include it in their spectrum roadmaps for future mobile evolution.

800 MHz

791-821 MHz / 832-862 MHz
3GPP band: n/b20.



Overview

The 800 MHz band is the original “digital dividend” band in Region 1. It has been used for multiple technologies up to and including 5G and is widely assigned throughout EMEA.

Harmonisation

The band’s identification stems from WRC-07, when 790-862 MHz was first allocated to the mobile service and identified for IMT in Region 1. Its use rapidly spread across EMEA for 4G launches.

Networks and ecosystem

As of 2026, there are approximately 227 live networks deployed in the 800 MHz band and around 15000 ecosystem devices.

Future development

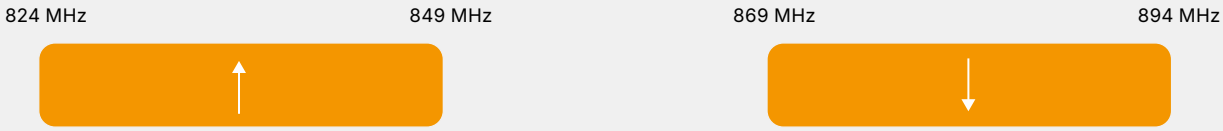
800 MHz has saturated use in the EMEA markets that are able to use the band plan and today this is almost entirely for 4G. However, 5G networks exist and the band will be refarmed for new technologies in the future.



850 MHz

824-849 MHz / 869-894 MHz

3GPP bands: b5, b18, b19, b26, n5, n18, n26, n89.



Overview

The 850 MHz band was the first cellular band throughout the Americas as well as in parts of APAC. It has been used for multiple technologies up to and including 5G.

Harmonisation

The 806-960 MHz range, which includes today's 850 MHz band was identified globally for IMT at WRC-2000. This established the basis for international harmonisation of the band for 3G mobile systems.

Networks and ecosystem

As of 2026, there are approximately 157 live networks deployed in the 850 MHz band and over 18000 ecosystem devices.

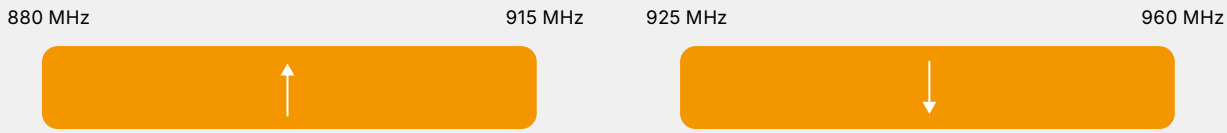
Future development

Today 850 MHz is used for a wide range of technologies from 2G to 5G. It is not yet widely used as a 5G band, although some networks do exist.



900 MHz

880-915 MHz / 925-960 MHz
3GPP bands: b8, n8.



Overview

The 900 MHz band was the original GSM band deployed in Regions 1, 2 (Latin America) and 3 where it has been used for multiple technologies up to and including 5G. In Regions 2 and 3, some countries mixed 900 MHz and 850 MHz assignments.

Harmonisation

The 900 MHz band was first harmonised in 1987 for GSM in some European countries, making it the earliest internationally harmonised mobile band. It was later harmonised for IMT (3G and beyond) at WRC-2000.

Networks and ecosystem

As of 2026, there are approximately 647 live networks deployed in the 900 MHz band and over 17000 ecosystem devices.

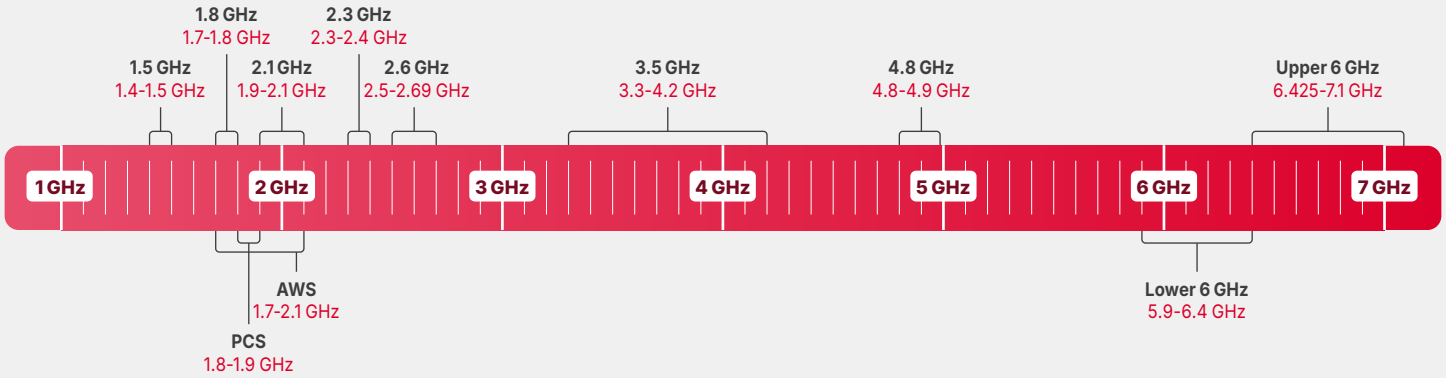
Future development

900 MHz is still the most widely used mobile band today and is used for all technologies. However, it is often still anchored to older generations. It is used for 5G in some cases but is more widely used as a coverage layer for 2G and 3G. A significant number of operators also use it for 4G.



MID-BANDS

Mid-band spectrum offers city-wide capacity, enabling high-speed, reliable connectivity in densely populated urban areas. They provide capacity for consumer and enterprise use cases, such as enhanced mobile broadband, IoT, and emerging applications such as smart cities and Industry 4.0.





1500 MHz

1427-1518 MHz

3GPP bands: b32, b50/51, b74, b75/76, n50/51, n74, n75/76, n91/92, n93/94.



Overview

1500 MHz has three different band plans (FDD, SDL and TDD). This spectrum can provide wide-area coverage and, although situated above 1 GHz, provides the best propagation of any mid-band spectrum identified for mobile.

Harmonisation

1500 MHz was harmonised at the WRC in 2015, having already been used as a mobile band in Japan using FDD. The band is harmonised in Regions 2 and 3. Parts of the band, at 1427-1452 and 1492-1518 MHz, is harmonised in Region 1 in the Radio Regulations although where it is used in Europe, the centre section at 1452-1492 is often assigned.

Technical and regulatory conditions were defined over two WRC cycles and finalised ahead of WRC-23. There has been regional harmonisation beyond the WRC process. For example, the Arab Spectrum Management Group has harmonised the band for use by TDD and Europe has harmonised use for SDL.

Networks and ecosystem

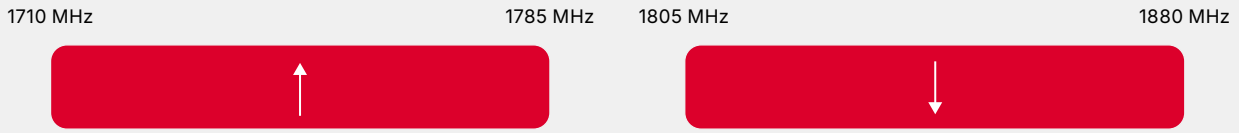
As of 2026, there are approximately 11 live networks deployed in the 1500 MHz band and over 1700 ecosystem devices.

Future development

The band is used today for FDD LTE in Japan and SDL LTE in Europe. Its future development lies in 5G, with SDL networks beginning to make use of 5G products today and TDD development expected in the next year, both in the Arab world that has led work on TDD 1500 MHz and in other countries (e.g. Indonesia auctioned the band for TDD). 1500 MHz is also now on the roadmap for major markets including India and Brazil.

1800 MHz

1710-1785 / 1805-1880 MHz
3GPP bands: b3, n3.



Overview

The 1800 MHz band is used extensively as a mobile band throughout the world. Today, it is used by 5G networks as well as previous technologies such as 4G. Deployment is extensive and the harmonised band benefits from a large ecosystem of compatible devices.

Harmonisation

The 1800 MHz band was identified for IMT at WRC-2000. While the spectrum falls into the 1710-2025 MHz and 2110-2200 MHz range, which is identified globally, different band plans exist. They fall into two groups (1800 MHz / 2.1 GHz and AWS / PCS), both of which have regional harmonisation. This has enabled economies of scale for devices and infrastructure, reducing costs and accelerating network rollouts. 1800 MHz provides a large contiguous block of spectrum which improves capacity compared to the original 900 MHz GSM band, supporting growth of mobile services.

1800 MHz was then refarmed to 4G and now 5G, giving operators a large device ecosystem across generations.

Networks and ecosystem

As of 2026, there are approximately 773 live networks deployed in the 1800 MHz band and over 23000 ecosystem devices.

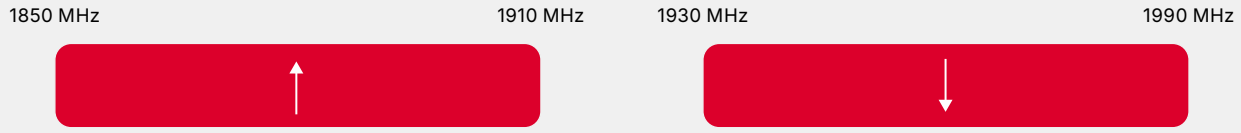
Future development

The 1800 MHz band continues to be important for mobile networks as operators refarm it from legacy GSM to LTE and 5G NR. Its wide availability and global harmonisation deliver economies of scale, while its propagation characteristics make it ideal for providing coverage and capacity.

PCS (1900 MHz)

1850-1910 / 1930-1990 MHz

3GPP bands: b2, n2 (extended PCS is n25).



Overview

The Personal Communications Service (PCS) band operates within 1900 MHz. It continues to be a core part of mobile services in mostly the Americas and the Caribbean and is being reused for multiple technology generations from 2G to 5G.

Harmonisation

The PCS band was identified for IMT through decisions at WARC-1992 and WRC-2000. While the PCS spectrum falls into the 1710-2025 MHz and 2110-2200 MHz range, which is identified globally, different band plans exist. They fall into two groups (1800 MHz / 2.1 GHz and AWS / PCS), both of which have regional harmonisation. This has enabled economies of scale for devices and infrastructure, reducing costs and accelerating network rollouts.

Over time, technology-neutral policies have allowed the band to evolve from 2G to 4G and now 5G, maintaining its role as an important mid-band coverage and capacity layer.

Networks and ecosystem

As of 2026, there are approximately 167 live networks deployed in the PCS band predominately in the Americas and the Caribbean and around 11000 ecosystem devices.

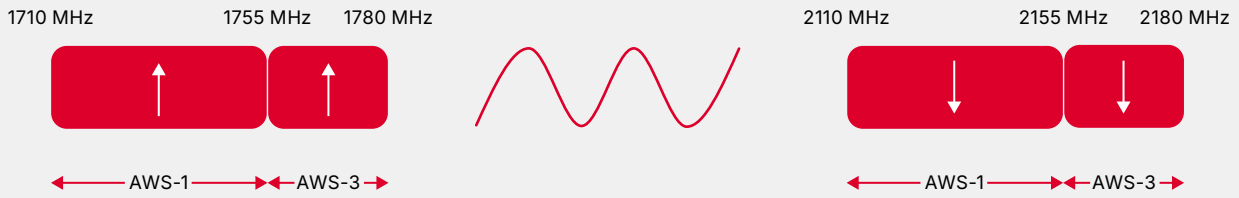
Future development

PCS provides broad coverage and strong device support, making it a cost-effective anchor for 5G and for future technology deployments.



AWS (1700/2100 MHz)

1710-1780 / 2110-2180 MHz
3GPP bands: b4, n66.



Overview

The Advanced Wireless Services (AWS) band refers to spectrum primarily in the 1.7-2.1 GHz ranges, originally introduced in the US and parts of the Americas to expand mobile broadband capacity beyond PCS and cellular bands. The most common configuration is AWS-1, which pairs 1710-1755 / 2110-2155 MHz.

Harmonisation

The AWS band was identified for IMT through decisions at WARC-1992 and WRC-2000. While the AWS spectrum falls into the 1710-2025 MHz and 2110-2200 MHz range, which is identified globally, different band plans exist. They fall into two groups (1800 MHz / 2.1 GHz and AWS / PCS), both of which have regional harmonisation. This has enabled economies of scale for devices and infrastructure, reducing costs and accelerating network rollouts.

The AWS band is harmonised primarily across the Americas, rather than globally. It was introduced in the early 2000s and subsequent extensions such as AWS-3 added adjacent blocks to increase bandwidth. Regional harmonisation through the CITEL framework, and alignment with 3GPP standards (Band 4 for LTE and n66 for 5G NR), created a strong ecosystem of devices and infrastructure.

Networks and ecosystem

As of 2026, there are approximately 69 live networks deployed in the PCS band predominately in the Americas and the Caribbean and over 11,000 ecosystem devices.

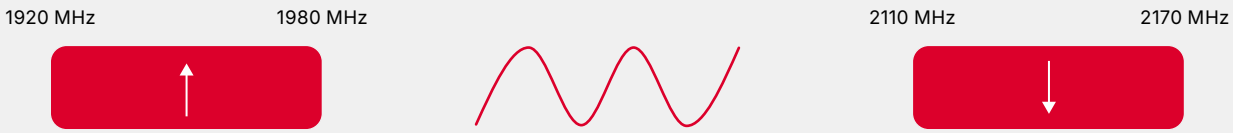
Future development

The AWS band will remain an important mid-band resource for 5G in the Americas for the foreseeable future. Operators are refarming AWS spectrum from LTE to 5G NR, often using carrier aggregation with other mid-bands like 2.5 GHz and 3.5 GHz to boost capacity. Technology-neutral licences and the large base of AWS-capable devices make this transition cost-effective. While AWS will continue to provide coverage and capacity for 5G well into the 2030s, future growth in ultra-high capacity will come from upper mid-bands (e.g. 6 GHz) and mmWave, leaving AWS as a strong anchor layer.

2.1 GHz

1920-1980 / 2110-2170 MHz

3GPP bands: n1, b1.



Overview

2.1 GHz is widely used for mobile services around the world. The band was originally used for 3G (UMTS/WCDMA) in the early 2000s which made it the primary band for 3G deployments in Europe, Asia and other regions.

Many countries with technology-neutral policies refarmed 2.1 GHz for LTE and now the band is often being reused for 5G services. 2.1 GHz provides a balance between wide-area coverage and reasonable capacity, making it ideal for urban and suburban deployments.

Harmonisation

The 2.1 GHz band was identified globally at WARC-92. While the 2.1 GHz spectrum falls into the 1710-2025 MHz and 2110-2200 MHz range, which is identified globally, different band plans exist. They fall into two groups (1800 MHz / 2.1 GHz and AWS / PCS), both of which have regional harmonisation. This has enabled economies of scale for devices and infrastructure, reducing costs and accelerating network rollouts.

The wide harmonisation has ensured a large device ecosystem across multiple technology generations and a smooth evolution from 3G to LTE and now 5G.

Networks and ecosystem

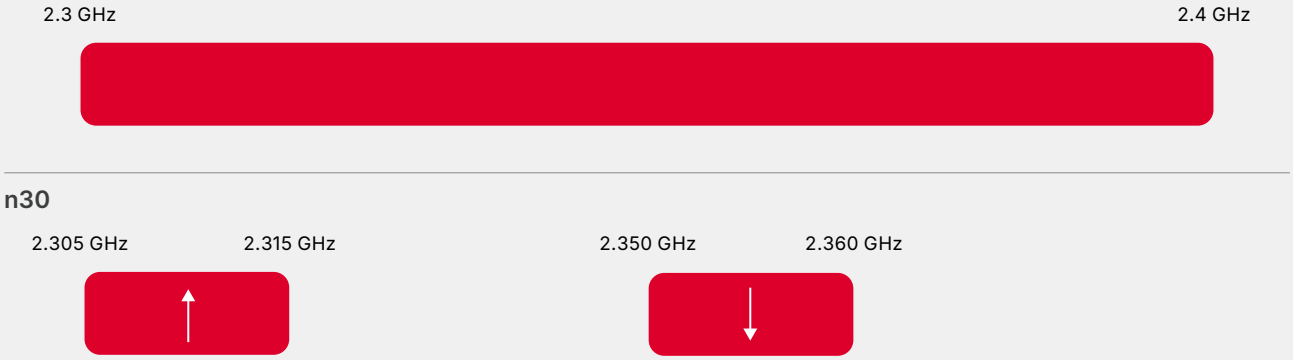
As of 2026, there are approximately 545 live networks deployed in the 2.1 GHz band and over 21000 devices.

Future development

2.1 GHz has been actively refarmed for 5G in many markets. Ensuring mobile services do not receive harmful interference from other services, including any new mobile satellite allocations at WRC-27, is now a priority to help support continued mobile growth in this globally used frequency.

2.3 GHz

2.3-2.4 GHz
3GPP bands: b40, n30, n40.



Overview

2.3 GHz is one of the lowest frequency TDD bands and offers a balance of capacity and good propagation characteristics. The band is widely used for both 4G and 5G and its carrier aggregation compatibility is expanding.

Harmonisation

2.3 GHz was first identified for IMT at WRC-07. Its global harmonisation allows operators in many countries to deploy LTE and 5G using the same band plan, supporting economies of scale and simplifying roaming.

Networks and ecosystem

As of 2026, there are approximately 67 live networks deployed in the 2.3 GHz band and over 14000 ecosystem devices.

Future development

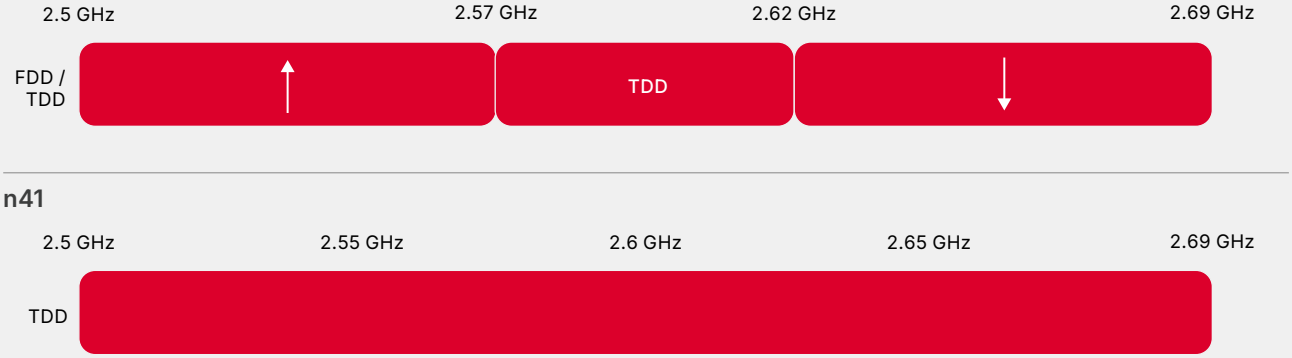
The 2.3 GHz band will continue to be important for TDD-based 4G and 5G deployments. It provides an additional 100 MHz channel at lower frequencies than many TDD mid-bands. As such, it can form part of the development of 5G and its future evolution when used in conjunction with other bands.



2.6 GHz

2.5-2.69 GHz

3GPP bands: n7, n38, n41, n90.



Overview

2.6 GHz is used in two common variants. Its earliest deployments used a split FDD/TDD band plan (n7/n38), while later deployments have been made using the TDD n41 band plan. It has been widely used for 4G expansion and for 5G.

Harmonisation

2.6 GHz was harmonised globally for IMT at WRC-2000. Today, the band is widely deployed for LTE and 5G in many markets. However, regional decisions on whether to use the band for FDD or TDD will support roaming and assist cross-border coordination.

Networks and ecosystem

As of 2026, there are approximately 330 live networks deployed in the 2.6 GHz band and over 20000 ecosystem devices.

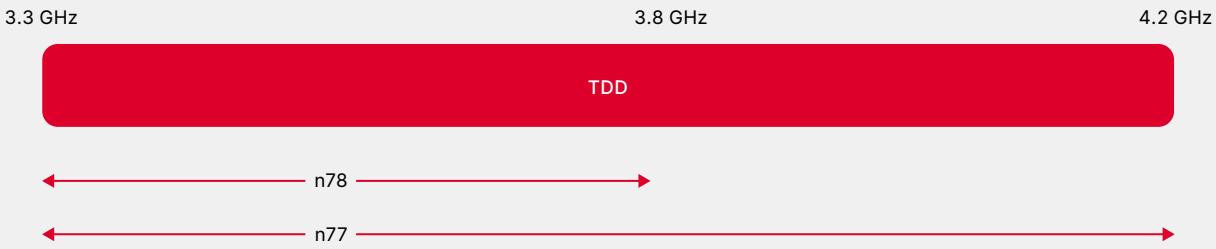
Future development

2.6 GHz will remain important for dense urban 5G deployments and as a bridge between legacy LTE and future 6G because of its wide bandwidth and global device support.



3.5 GHz

3.3-4.2 GHz
3GPP bands: n77, n78.



Overview

The 3.5 GHz band (3.3-4.2 GHz) has been broadly used as the launch range for 5G, enabling city-wide capacity. This makes it critical for enhanced mobile broadband, fixed wireless access, and emerging industrial applications. Its harmonisation across regions has also driven a strong device ecosystem while reducing costs and accelerating adoption.

Deployment is now extensive: over 90 countries have live 5G networks using 3.3-4.2 GHz, and more than 60% of global 5G launches rely on this band. By early 2025, around 260 networks were operational, with further auctions planned. Most networks use 3.3-3.8 GHz, while some extend into 3.8-4.1 GHz. 3.3-3.8 is used globally, while 3.8-4.2 is being developed in leading markets.

Harmonisation

Planning of these frequencies has taken place over multiple WRC cycles between 2007 and 2023. Regions 1 and 2 and a part of 3 have allocated 3.4-3.5 GHz for mobile, while all 3 regions have allocated 3.5-3.8 GHz. Regions 2 and 3 have an additional primary mobile allocation in the band 3.8-4.2 GHz.

The 3.5 GHz range is the principal 5G launch band and this has driven a wider ecosystem, created economies of scale, and increased device diversity. The optimal assignment of the 3.5 GHz range will allow wide contiguous channels of around 100 MHz per operator to be used which will maximise network performance while minimising consumer costs.

Ongoing efforts are exploring expanding the range for 5G up to 4.2 GHz, which will require further clearing and coordination with existing users as well as neighbouring users.

Networks and ecosystem

As of 2026, there are approximately 302 networks in 3.5 GHz. The ecosystem has also grown significantly over the past several years from just over 1300 in 2022 to over 3500 in 2026.

Future development

3.5 GHz is continuing to be deployed today for 5G and is the primary band for 5G launches. It will also be used for future evolution of mobile services. Where it can be expanded from the initial 3.3-3.8 GHz to the upper part of the band (3.8-4.2 GHz) it will enable the 200-400 MHz channels that will be required for 6G.

4.5 GHz

4.4-5 GHz
3GPP band: n79.



Overview

The 4.5 GHz range (typically 4.4-4.99 GHz) supports high-capacity mobile broadband. It sits above the widely used 3.5 GHz band and offers larger contiguous blocks for advanced 5G and future 6G services. The band combines higher capacity with reasonable propagation characteristics, making it suitable for dense urban deployments.

Harmonisation

4.8-4.99 was first identified for IMT at WRC-15 and this was later expanded by a significant number of countries at WRC-19 to enable 5G evolution and beyond. 4.4-4.8 GHz is slated for discussion at WRC-27. It is standardised in 3GPP for 5G NR which has already gained strong device ecosystem support in markets including China, Japan and Korea. Several countries have licensed parts of the band for 5G and more are expected to follow as spectrum demand grows.

Networks and ecosystem

As of 2026, there are four live networks deployed in the 4.5 GHz band. The ecosystem has also grown over the past several years, from about 700 in 2022 to over 1500 in 2026.

Future development

The band will remain central to 5G-Advanced and early 6G deployments. Current utilisation of this band is greatest in Asia-Pacific but interest in the US and parts of RCC is also increasing. WRC-27 discussions will focus on expanding mid-band capacity, including the 4.5 GHz band to meet projected 6G spectrum needs.



6 GHz

6.425-7.125 GHz
3GPP bands: n104.



Overview

6 GHz is considered by the mobile industry to be the next expansion band that will be brought into development in the late 2020s or 2030s depending on the market.

3GPP is developing 6G with channel sizes between 200 MHz and 400 MHz and upper 6 GHz will be able to deliver these channels in many markets. The upper 6 GHz band is covered by 3GPP n104.

Mobile interest in the 6 GHz band comes from its high capacity and ability to re-use 3.5 GHz network grids.

Harmonisation

WRC-23 defined the harmonisation of 6 GHz spectrum with an identification throughout EMEA and some countries in APAC and the Americas. Technical conditions were agreed for all regions. Support for the band continues to increase, with countries representing over 80% of the world's population now showing support for upper 6 GHz licensed mobile.

Networks and ecosystem

There are two networks deployed in the upper 6 GHz band. The first commercial connections are expected to be made using CPEs in 2026, with broad ecosystem deployment the following year where the capacity is needed. Some countries, including in the GCC and APAC regions, have already licensed the band and are soon expected to launch networks. Many other countries have added the band to their spectrum roadmaps are planning first assignments over the next couple of years.

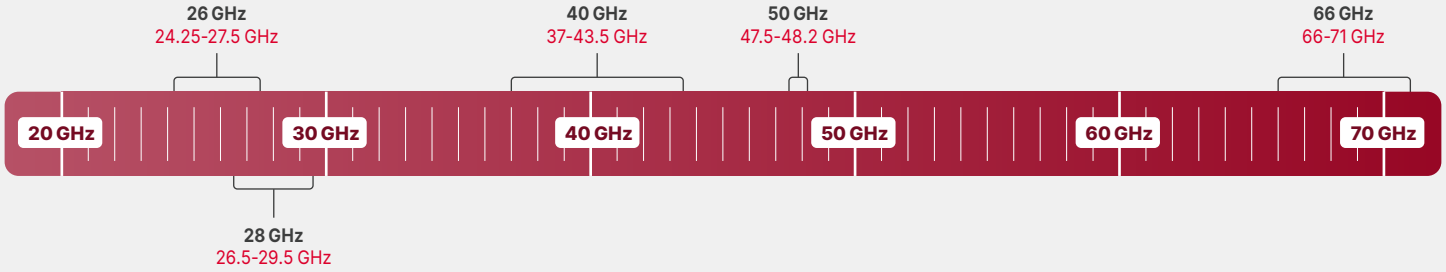
Future development

Governments should consult with industry to develop clear roadmaps, setting out when the band will come into use in their market. Some markets will need the band later in the 2020s to support 5G-Advanced, while others will use it as the launch band for 6G.



HIGH BANDS

High-band spectrum, often referred to as millimetre wave (mmWave), is used to provide very high-capacity hotspots in dense urban environments. These include sports stadia, logistics hubs, busy city centres, and for dense urban FWA.





26 GHz

24.25-27.5 GHz
3GPP bands: n258.



Overview

The 26 GHz band is broadly harmonised for IMT and offers large amounts of contiguous spectrum that deliver high-capacity in densely populated areas. Assignments are starting to be made in 26 GHz to provide capacity for high-density hotspots such as sports stadia and transport hubs.

Harmonisation

The 26 GHz band was identified for IMT globally at WRC-19.

Networks and ecosystem

As of 2026, there are approximately 27 live networks deployed in the 26 GHz band and nearly 100 ecosystem devices.

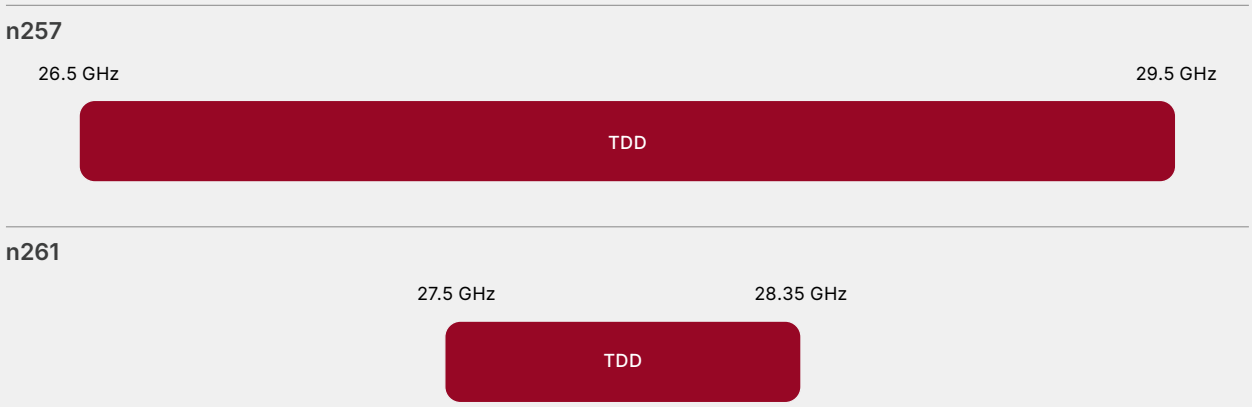
Future development

To date, MNOs have been cautious over mmWave deployments but are starting to consider their use more widely to provide coverage in very high-capacity areas.



28 GHz

26.5-29.5 GHz
3GPP bands: n257, n261.



Overview

The 28 GHz band is the original mmWave band used in North America and South Korea. It offers large amounts of contiguous spectrum that allow for high capacity in densely populated areas. The band has low propagation characteristics so it is not used for wide-area coverage.

Harmonisation

The lower part of the 28 GHz band falls under the harmonised 26 GHz range while the upper part has been used for the first mmWave launches in the US and is standardised by 3GPP.

Networks and ecosystem

As of 2026, the globally harmonised range n257 (26.5-29.5 GHz) has over 100 devices. The n261 subset of this range that is used in the US (27.5-28.35 GHz) has over 170 devices.

Future development

28 GHz was the first deployed mmWave band and has been widely deployed in the US. It is deployed as a specialised capacity layer in areas of very high demand.



40 GHz

37-43.5 GHz
3GPP bands: n259, n260.



Overview

The 40 GHz band is not widely used but may have potential future uses in high-density hotspots.

Harmonisation

40 GHz was harmonised globally at WRC-19.

Networks and ecosystem

As of 2026, there are approximately 3 live networks deployed in the 40 GHz band and 150 ecosystem devices.

Future development

To date, MNOs have been cautious over mmWave deployments but are starting to consider their use more widely to provide coverage in very high-capacity areas.



50 GHz

47.5-48.2 GHz
3GPP bands: n262.



Overview

The 50 GHz band is not currently used but may have potential future uses in high-density hotspots.

Harmonisation

The 50 GHz band was harmonised in some countries at WRC-19.

Networks and ecosystem

As of 2026, there are no live networks deployed in the 50 GHz band.

Future development

The future use of 50 GHz is uncertain, pending development of other mmWave bands.



66 GHz

66-71 GHz
3GPP bands: n263.



Overview

The 66 GHz band is broadly harmonised for IMT. It is not currently used but may have potential future uses in high-density hotspots.

Harmonisation

The band was identified globally at WRC-19.

Networks and ecosystem

As of 2026, there are no live networks deployed in the 66 GHz band.

Future development

Any future use of 66 GHz is likely to come after the further development of lower frequency mmWave bands such as 26/28 GHz.



LIST OF ACRONYMS

3GPP	3rd Generation Partnership Project
5G NR	5G New Radio
AWS	Advanced Wireless Services
CITEL	Comisión Interamericana de Telecomunicaciones
FDD	Frequency Division Duplexing
FWA	Fixed Wireless Access
GHz	Gigahertz
GSM	Global System for Mobile Communications
IMT	International Mobile Telecommunications
IoT	Internet of Things
ITU	International Telecommunications Union
LTE	Long Term Evolution
MHz	Megahertz
mmWave	Millimetre Wave
MNO	Mobile Network Operator
PCS	Personal Communications Service
RCC	Regional Commonwealth in the Field of Communications
SDL	Supplemental Down Link
TDD	Time Division Duplexing
UMTS	Universal Mobile Telecommunications System
WARC	World Administrative Radio Conference
WCDMA	Wideband Code Vision Multiple Access
WRC	World Radiocommunication Conference

