



## GSMA Public Policy position on change of use of spectrum

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## Position

The GSMA position on change of use of technologies within mobile bands:

- The GSMA support a more technology neutral approach to the use of all the existing mobile bands. Governments should allow deployment of mobile technologies that can technically co-exist within the international regionally harmonised mobile bands.
- Governments should lift technology restrictions imposed in existing mobile band spectrum usage rights.
- When issuing new mobile band spectrum usage rights, governments should accommodate deployments of mobile technologies that can technically co-exist.
- Using open and transparent procedures, governments should develop practical solutions to handle the commercial and technical implications of the change of technologies within a mobile band. The optimal solution will depend upon local circumstances in a market. Governments should always consult all interested parties, and harness the mobile industry expertise when identifying economically and technically optimized solutions.

The GSMA position on changing the distribution of spectrum between industry sectors:

- Society should ensure the radio frequency resources are put into production for its most valuable use measured both in terms of impact on social welfare and in terms of impact on economic growth.

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## Background

The change of use of technologies in frequency bands that attracts the interest of the mobile industry typically occurs in one of two ways:

- A change of technology deployed within an existing mobile band; upgrading from one mobile technology to another, or
- A change in the distribution of spectrum between industry sectors.

### Change of technology within a mobile band

All governments should allow deployment of mobile technologies that can technically co-exist in the mobile bands. The mobile bands in use today are 700 MHz, 800 MHz, 850 MHz, 900 MHz, 1800 MHz, 1900 MHz, 2100 MHz, AWS and 2600 MHz bands. Which bands are relevant bands differ from region to region. The annex gives an overview of mobile bands and the status on regional harmonisations.

A more technology neutral approach means governments can allow the deployment of various mobile technologies that can technically co-exist within any mobile band. The IMT technologies GSM/ GPRS/ EDGE, UMTS/HSPA, and LTE are standardised based on criteria for technical co-existence and are intended to be backwards compatible. If mobile band spectrum usage rights are designed as more technology neutral, different IMT technologies can be deployed within the same mobile band.

A change of technology deployed within a mobile band typically means an upgrade to a newer technology, e.g. using mobile broadband technologies, such as HSPA and LTE, in frequency bands currently used for GSM.

Technological evolution is of benefit to society. Newer mobile technologies are technically more effective than older technologies. Simplified, more effective technology means increased network capacity per unit of bandwidth. This means an operator can serve more subscribers and/or provide each subscriber with better and innovative services per unit of bandwidth used.

Technological development and service innovation significantly contribute to society both in terms of fuelling economic growth and in terms of improving social welfare of citizens through new services, such as mEducation, mHealth, mMoney and mAgriculture.

The GSMA recognises that the starting point when changing technology within a mobile band will vary significantly from country to country. Therefore, the practical solutions to handling the commercial and technical implications of a change of technologies within a mobile band will need to be developed according to market specific circumstances. Furthermore, the GSMA recognises that both the reshuffling of spectrum between operators to restructure a band for the wider carrier deployments of newer technologies and the redistribution of spectrum between operators for competitive playing level may or may not be relevant based on market specific circumstances. Regardless of the market specific circumstances that need to be addressed, governments should always use open and transparent procedures for allowing a change of technologies within a mobile

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band. Before making any decisions, governments should always consult all interested parties and harness the expertise of the mobile industry in identifying the lowest cost solutions.

### **Changing the distribution of spectrum between industry sectors**

Changing the distribution of spectrum between sectors basically means moving a frequency resource from one sector of society to another sector with the goal of ensuring resources are used in the most economically efficient way to maximize consumers' welfare.

About thirty years ago, personal mobile communication as we know it today barely existed. Consequently, society's frequency resources were used for other purposes. Today, mobile communications services are playing a vital role both in the economy and in consumers' overall wellbeing. As a result, governments are now considering how to change and adjust the existing distribution of spectrum resources between industry sectors to support the further development of mobile services.

Digital technologies are more technologically effective than analogue technologies. Across sectors using wireless communication technologies analogue services are replaced by digital services which leads to freeing up spectrum for new highest value purpose use. Several independent analyses have found that mobile services have a significant impact on consumers' welfare and social wellbeing and the mobile sector are also strong contributors to economic growth. Consequently, using freed up spectrum for mobile often means using it for highest value purpose.

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## Annex

### Mobile band overview

Internationally the 700 MHz, 800 MHz, 850 MHz, 900 MHz, 1800 MHz, 1900 MHz, 2100 MHz, and 2600 MHz bands are existing mobile bands. Existing harmonisations of mobile bands means there are regional differences in which bands are used where. There is spectral overlap between some of the mobile bands that basically means all of them cannot be used at the same time in one country. There are also other bands identified for mobile services, like e.g. the 2300 MHz and the 3500 MHz bands, which could be candidates for change of use in the future.

The annex provides a rough summary of band usage; readers should be aware of the need to seek more detailed and accurate information for specific markets.

#### 700 MHz band

The 698-806 MHz band. A band used for mobile in the USA and about to be made available for mobile in Americas and Asia Pacific countries.

The GSMA support two technical harmonisation arrangements for this band:

- The APT band plan arrangement; 703-748 / 758-803 MHz band with conventional duplex which gives 2X45 MHz of bandwidth available for deploying mobile technologies.
- The US band plan arrangement; a 2X18 MHz with conventional duplex plus a 2X22 MHz with reverse duplex arrangement which gives 2X18 MHz plus 2X22 MHz of bandwidth available for deploying mobile technologies.

#### 800 MHz band

The 790-862 MHz band. A band about to be used for mobile in a number of European markets and awards are continuing in European countries which have not yet issued usage rights while making it available for mobile is discussed in many countries in Africa and the Middle East.

The GSMA support one technical harmonisation arrangement for this band:

- The CEPT band plan arrangement; 791-821 / 832-862 MHz with reverse duplex which gives 2X30 MHz of bandwidth available for deploying mobile technologies.

#### 850 MHz band

The 824-894 MHz band. A band used for mobile in Americas and in a number of markets in Asia Pacific and Africa.

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The GSMA support one technical harmonisation arrangement for this band:

- The 824-849 / 869-894 MHz band plan with conventional duplex which gives 2X25 MHz of bandwidth available for deploying mobile technologies.

### **900 MHz band**

The 880-960 MHz band. A band used for mobile in Europe, Africa, Middle East, Asia Pacific and in some Latin American markets.

The GSMA support one technical harmonisation arrangement for this band:

- The 880-915 / 925-960 MHz band plan with conventional duplex which gives 2X35 MHz of bandwidth available for deploying mobile technologies.

### **1800 MHz band**

The 1710-1880 MHz band. A band used for mobile in Europe, Africa, Middle East, Asia Pacific and some Latin America markets.

The GSMA support one technical harmonisation arrangement for this band:

- The 1710-1785 / 1805-1880 MHz band plan with conventional duplex which gives 2X75 MHz of bandwidth available for deploying mobile technologies.

### **1900 MHz band**

The 1850-1990 MHz band. A band used for mobile in the Americas.

The GSMA support one technical harmonisation arrangement for this band:

- The 1850-1910 / 1930-1990 MHz band plan with conventional duplex which gives 2X60 MHz of bandwidth available for deploying mobile technologies.

### **2100 MHz band**

The 1920-2170 MHz band. A band used for mobile in Asia Pacific, Europe, Africa and Middle East.

The GSMA support one technical harmonisation arrangement for this band:

- The 1920-1980 / 2110-2170 MHz band plan with conventional duplex which gives 2X60 MHz of bandwidth available for deploying mobile technologies.

The 1900-1920 MHz band and the 2010-2025 MHz band. A total of 35 MHz unpaired bandwidth made available for mobile in Europe, Asia Pacific, Africa and Middle East.

### **AWS band**

The 1710-2170 MHz band, the Advanced Wireless System – AWS – band. A band used for mobile in the Americas. The GSMA support one technical harmonisation arrangement for this band:

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- The 1710-1770 / 2110-2170 MHz band plan with conventional duplex which gives 2X60 MHz bandwidth available for deploying mobile technologies.

### **2600 MHz band**

The 2500-2690 MHz band. A band used for mobile in some European markets and in an Asian market and about to become available for mobile in Asia Pacific, Europe, Africa, Middle East and Latin America.

The GSMA support one technical harmonisation arrangement for this band:

- The 2500-2570 / 2620-2690 MHz band plan which gives 2X70 MHz of paired bandwidth with conventional duplex plus 50 MHz of unpaired bandwidth available for deploying mobile technologies.

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### **2300 MHz band**

The 2300-2400 MHz band. A band made available for mobile in some markets and about to be made available for mobile in Asia Pacific countries and a number of European countries.

This is a Time Division Duplex (TDD) mobile band and technical harmonisation instrument are about to be developed by the APT for Asia Pacific.

### **3500 MHz band**

The 3400-3600 MHz band. A band that some markets have made partially or fully available for mobile use and other markets are considering to make partially or fully available for mobile use. In some markets expanding the band to cover the 3400-3800 MHz band is an option.