Australian Mobile Network Frequencies

There are many different mobile phone frequencies in operation in Australia and around the world. This entry aims to clear up any misunderstandings you may have as to the frequencies your phone requires to work correctly on your carrier.

See [ACMA Emission Designators – Mobile Services](http://www.acma.gov.au)

To check your mobile phone band's or technologies capabilities by IMEI or made/model number you may use the internet IMEI database services like that [CheckPhone](http://www.checkphone.com)

2G

2G, otherwise known as GSM, is standard on almost all phones (except CDMA phones in the USA). Most new phones come with quad band GSM support. A quad band GSM phone supports 850, 900, 1800, and 1900MHz.

2G is old technology and provides a fall back position when 3G coverage is unavailable.

Australian 2G bands:

- 900Mhz (Telstra, Optus & Vodafone)
- 1800Mhz (Telstra, Optus & Vodafone)

3G

There are several 3G networks operating in Australia. 3G frequencies are usually specified as UMTS/HSDPA or WCDMA frequencies on the mobile phone specifications.

Australian 3G bands:

- 850MHz (Telstra, Vodafone) – Exclusive 3G band
- 900MHz (Optus, Vodafone) – available in most metro areas on Optus, with both Optus and Vodafone re-farming the 2G 900 spectrum in regional and rural areas
- 2100MHz (Telstra, Optus, Vodafone) – Exclusive 3G band
4G

Australia is currently using these LTE bands (LTE bandmask in brackets):

- 2100Mhz (B1) FDD (00000000000000000000) – Telstra (3G spectrum)
- 1800Mhz (B3) FDD (00000000000000000004) – Telstra, Optus, Vodafone
- 900Mhz (B8) FDD (00000000000000000008) – Telstra, Vodafone?, Optus (utilises spectrum previously used by 2G)
- 2300Mhz (B40) TDD (00000080000000000000) – Optus (Vivid wireless spectrum)

To follow late 2014:

- 2600Mhz (B7) FDD (00000000000000000040) – Telstra, Optus, TPG?
- 700Mhz (B28) FDD (00000000008000000000) – Telstra, Optus

**LTE (Long Term Evolution)/ 4G** – [more information](#)

Telstra, Optus and Vodafone sell dual mode LTE/ HSPA+ mobile broadband devices that operate seamlessly across 2100Mhz, 1800MHz, 900Mhz and 850MHz spectrum bands, providing customers with 4G(LTE) data where it is available and then seamless switchover to the 3G HSPA technology in other areas. Voice is currently 3G only

In April(2011) Vodafone announced it will replace 8000 2G and 3G base stations with equipment which can be switched to LTE "at the flick of a switch".

In September 2012, [Optus announced](#) the activation of its 1800 MHz 4G LTE service in Sydney, Melbourne, Perth and Newcastle. 1800 4G was first trialled in Newcastle (mid 2012). Brisbane and the GoldCoast 4G was activated on [31st October 2012](#) and [Adelaide](#), just in time for Christmas.
4G Band Plans

Note: During 2013, Telstra Vodafone and Optus by arrangement, swapped 1800Mhz spectrum allocations to provide each with 2 x 20Mhz of contiguous spectrum.

**Telstra 1800MHz, 2100Mhz and 900MHz FDD-LTE (see below)**

The 1800 service is currently rolled out with 10, 15 and 20MHz carriers. Operating frequencies are as follows:

Most areas in Australia including regional Victoria 4G have carriers with up to 15MHz bandwidth:

- Tower Tx: 1805-1820MHz
- Tower Rx: 1710-1725MHz

New South Wales and Metro Melbourne & Geelong have carriers with up to 10MHz bandwidth:

- Tower Tx: 1805-1815MHz
- Tower Rx: 1710-1720MHz

Telstra indicates it will roll-out out 900MHz LTE in mid 2013 to increase coverage depth. This will be a re-farm of 2G 900 spectrum. A 5Mhz bandwidth LTE carrier is the most likely solution. [Ref](#). It will deploy 900/1800 carrier aggregation.

**Optus 1800 (FDD-LTE) + 2300 MHz (TDD-LTE)**

The 2300 MHz [Band 40](#) Optus spectrum was obtained courtesy of the Vivid Wireless acquisition. It provides up to 98MHz bandwidth in Perth, Brisbane, Sydney, Melbourne, Canberra and Adelaide. [Canberra](#) may be one of the first 2300 4G locales with a 3 x 20Mhz channel roll-out, sometime in 2013. It is called 4G Plus by Optus.

[ref1](#), [ref2](#), [ref3](#). Excellent Optus 4G band allocation and explanation [here](#)

The Optus 1800MHz FDD-LTE service currently supports up to 20MHz of duplex bandwidth.

10Mhz carrier
Transmission Downlink: 1840MHz – 1850MHz
Transmission Uplink: 1745MHz – 1755MHz

The Optus 2300 TDD-LTE service provides up to 98MHz of continuous spectrum:

Optus have plans to convert the 2300MHz band into a TDD-LTE service. TDD differs from normal FDD-LTE services by using only one frequency band to serve as both an upload and download channel. This means that 98MHz of spectrum must be shared between both upload and download, and while this may offer some benefits in dynamically scaling back upload bandwidth to support higher downloads (or vice versa), this means that we shouldn’t be quite as excited about the 98MHz of bandwidth as we might have initially been.

Vodafone 4G

The Vodafone 1800MHz FDD-LTE service currently supports up to 20MHz of duplex bandwidth.

Telstra 3G (NextG)

NextG is Telstra’s 3G offering. It operates on the 850 Mhz frequency in all areas (with some busy areas more recently using 2100Mhz for extra capacity). For full NextG support throughout Australia, you should get a phone that supports UMTS 850.

Previously, if you did not use a phone with 850 Mhz 3G support, the Telstra/Three joint network known as 3GIS was available on 2100 Mhz 3G within Metro areas. As of September 2012, the 3GIS network has been shut down, however some 3GIS base stations have been repurposed to the NextG network.

Telstras Network is made up of DC-HSPA+ (42Mbps), HSPA+ (21Mbps) and HSPA (7.2Mbps) towers depending on location. Note: requires confirmation

- Tower Rx / Tower Tx
The Telstra 850MHz NextG services operates on one of 2 paired 5 or 10 MHz channels.

ie 830 – 845 MHz (Tower Rx) and 875 – 890 MHz (Tower Tx)

- 830 – 835 / 875 – 880 MHz – 1 x paired 5Mhz channel
  ACMA Centre Frequencies: 832.5Mhz (Tower Rx)/ 877.5Mhz (Tower Tx)
- 835 – 845 / 880 – 890 MHz – 1 x paired 10Mhz channel
  ACMA Centre Frequencies: 840Mhz (Tower Rx)/ 885Mhz (Tower Tx)
- 2100MHz NextG services ... *** to be completed ***.

**Optus 3G** – [more information](#)

Note: Optus is now licensed for 2100 MHz in a number of rural locations.

The **Optus 3g** operates on dual frequencies; 900 and 2100 MHz.

**Optus 900 Mhz 3G** is provided by 're-farming' their national 900 2G band for both 2g and 3G services; predominantly in regional and rural areas, now also available in most metro areas for 3G use. Optus pioneered 3g 're-farming' of 900 2G bandwidth. The Optus WCDMA carrier is centered in the middle of their 8.4 Mhz 900 allocation; providing a single 3G 3.84 Mhz bandwidth WCDMA carrier and 10 x GMSK 200kHz wide GSM channels, on either side of the WCDMA channel. It is a delicate Optus balancing act using scarce 900 bandwidth. [ref ACMA pdf](#) [ref ACMA pdf](#) [More information about 900mhz Optus – Posts by davmel](#)

- **Optus – Tower Rx /Tower Tx**
  - 898.4 – 906.8 / 943.4 – 951.8 MHz, 1 x paired 8.3MHz channel

The **Optus 2100 MHz 3G band** is predominantly deployed in cities and major regional areas. The ACMA has recently granted Optus, an additional 972 x 2100 MHz licences for regional and rural capacity expansion – [ref ACMA ref Optus Media Release](#)

- **Optus – Tower Rx /Tower Tx**
  - tba
Vodafone 3G

Operates on dual frequencies; 900 and 2100 MHz.

Vodafone are also rolling out a 3G 850 range with aim to have it completed by 2012. See More

- **Tower Rx /Tower Tx**
  - 906.8 – 915 / 951.8 – 960 MHz, 1 x paired 8.3MHz channel

3G Hi-band 1900-2100Mhz

The 3G Hi-band 1900-2100Mhz is used by Optus, Telstra and VHA.

- **Tower Rx /Tower Tx**
  - 1920 – 1980Mhz (tower Rx), 2110 – 2170Mhz (tower Tx) using multiple paired 5Mhz and 10Mhz channels

** to be completed **

Optus and Vodafone resellers (Virgin, TPG, Exetel, etc)

These companies provide 3G services on the 2100 Mhz band in Metro areas and some Regional areas and on 900 Mhz. Virgin is also providing 4G services on the Optus 1800 Mhz LTE Network

For full 3G support throughout Australia, you should get a phone that supports UMTS 900/2100.

Importing Phones from Overseas

Importing phones from the UK/Europe will likely mean receiving a UMTS 900/2100 phone. Make sure this is suitable for you!

Importing phones from the US will result in either a 850/1900 or 850/1900/2100 or 1700/2100 or 900/1700/2100 UMTS phone (make sure you don't import a CDMA phone). AT&T usually supply
850/1900 models sometimes with the addition of 2100 Mhz. T-Mobile usually supply 1700/2100 models sometimes with the addition of 900. Double check the frequency specifications before importing!

Carriers in Canada also support UMTS 850/1900 along with 1700 Mhz, therefore NextG compatible phones may be sourced there also.

**Terminology**

Do WCDMA 850, UMTS 850 and 3G 850 refer to the same type of 850 frequency?

Each term conveys different pieces of information but all leading to the same point.

For example 3G networks are build on the UMTS standard, use WCDMA as the air interface and have HSDPA or HSPA to support data connections.