

Mobile Bands (frequencies) By Provider. As of EOFY 2017

Information	Telstra	Optus	Vodafone	Nbn								
Generation *	Spectrum	Band	ACT	NSW	VIC	QLD	SA	WA	TAS	NT	Sites %	Site Total
2G	900MHz		<u>28</u>	<u>888</u>	<u>841</u>	<u>699</u>	<u>324</u>	<u>342</u>	<u>98</u>	<u>41</u>	42.76%	<u>3261</u>
2G	1800MHz		<u>1</u>	<u>14</u>	<u>15</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>0</u>	0.50%	<u>38</u>
3G	850MHz	Band 5	<u>68</u>	<u>2074</u>	<u>1751</u>	<u>1606</u>	<u>596</u>	<u>926</u>	<u>216</u>	<u>129</u>	96.60%	<u>7367</u>
3G	2100MHz	Band 1	<u>26</u>	<u>424</u>	<u>435</u>	<u>412</u>	<u>135</u>	<u>275</u>	<u>38</u>	<u>24</u>	23.20%	<u>1769</u>
4G	700MHz	Band 28	<u>39</u>	<u>968</u>	<u>847</u>	<u>892</u>	<u>393</u>	<u>508</u>	<u>68</u>	<u>52</u>	49.41%	<u>3768</u>
4G	900MHz	Band 8	<u>0</u>	<u>4</u>	<u>5</u>	<u>68</u>	<u>1</u>	<u>2</u>	<u>0</u>	<u>2</u>	1.08%	<u>82</u>
4G	1800MHz	Band 3	<u>57</u>	<u>1162</u>	<u>1027</u>	<u>952</u>	<u>345</u>	<u>408</u>	<u>89</u>	<u>47</u>	53.59%	<u>4087</u>
4G	2100MHz	Band 1	<u>0</u>	<u>4</u>	<u>8</u>	<u>59</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	0.93%	<u>71</u>
4G	2300MHz	Band 40	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>0</u>	<u>1</u>	0.04%	<u>3</u>
4G	2600MHz	Band 7	<u>2</u>	<u>58</u>	<u>73</u>	<u>50</u>	<u>17</u>	<u>42</u>	<u>1</u>	<u>15</u>	3.38%	<u>258</u>

* 2G Services switched off. Telstra Dec 1st 2016, Optus NT + WA April 3rd 2017

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2G	900MHz		<u>68</u>	<u>1453</u>	<u>1282</u>	<u>939</u>	<u>388</u>	<u>432</u>	<u>45</u>	<u>49</u>	73.75%	<u>4657</u>
2G	1800MHz		<u>0</u>	<u>42</u>	<u>21</u>	<u>6</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	1.11%	<u>70</u>
3G	900MHz	Band 8	<u>87</u>	<u>1833</u>	<u>1486</u>	<u>1193</u>	<u>511</u>	<u>566</u>	<u>108</u>	<u>56</u>	92.49%	<u>5841</u>
3G	2100MHz	Band 1	<u>92</u>	<u>1600</u>	<u>1269</u>	<u>1016</u>	<u>388</u>	<u>450</u>	<u>43</u>	<u>42</u>	77.59%	<u>4900</u>
4G	700MHz	Band 28	<u>76</u>	<u>1443</u>	<u>1266</u>	<u>980</u>	<u>461</u>	<u>481</u>	<u>103</u>	<u>50</u>	76.98%	<u>4861</u>
4G	900MHz	Band 8	<u>0</u>	<u>10</u>	<u>8</u>	<u>13</u>	<u>0</u>	<u>2</u>	<u>0</u>	<u>0</u>	0.52%	<u>33</u>
4G	1800MHz	Band 3	<u>2</u>	<u>1190</u>	<u>1019</u>	<u>649</u>	<u>327</u>	<u>366</u>	<u>0</u>	<u>2</u>	56.31%	<u>3556</u>
4G	2100MHz	Band 1	<u>29</u>	<u>54</u>	<u>23</u>	<u>35</u>	<u>16</u>	<u>7</u>	<u>34</u>	<u>35</u>	3.69%	<u>233</u>
4G	2300MHz	Band 40	<u>76</u>	<u>843</u>	<u>802</u>	<u>376</u>	<u>258</u>	<u>293</u>	<u>0</u>	<u>2</u>	41.96%	<u>2650</u>
4G	2600MHz	Band 7	<u>41</u>	<u>681</u>	<u>749</u>	<u>497</u>	<u>291</u>	<u>264</u>	<u>71</u>	<u>34</u>	41.62%	<u>2628</u>
4G	3500MHz	Band 42	<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	0.02%	<u>1</u>

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Generation	Spectrum	Band	ACT	NSW	VIC	QLD	SA	WA	TAS	NT	Sites %	Site Total
2G	900MHz		<u>38</u>	<u>921</u>	<u>659</u>	<u>506</u>	<u>225</u>	<u>271</u>	<u>47</u>	<u>25</u>	51.83%	<u>2692</u>
2G	1800MHz		<u>0</u>	<u>25</u>	<u>3</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>0</u>	<u>0</u>	0.60%	<u>31</u>
3G	850MHz	Band 5	<u>0</u>	<u>179</u>	<u>111</u>	<u>109</u>	<u>69</u>	<u>56</u>	<u>0</u>	<u>2</u>	10.13%	<u>526</u>
3G	900MHz	Band 8	<u>85</u>	<u>1364</u>	<u>1091</u>	<u>859</u>	<u>392</u>	<u>429</u>	<u>59</u>	<u>42</u>	83.19%	<u>4321</u>
3G	2100MHz	Band 1	<u>95</u>	<u>1372</u>	<u>1176</u>	<u>832</u>	<u>346</u>	<u>406</u>	<u>32</u>	<u>37</u>	82.71%	<u>4296</u>
4G	850MHz	Band 5	<u>84</u>	<u>1301</u>	<u>1059</u>	<u>818</u>	<u>361</u>	<u>420</u>	<u>56</u>	<u>41</u>	79.71%	<u>4140</u>
4G	900MHz	Band 8	<u>0</u>	<u>0</u>	<u>9</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	0.17%	<u>9</u>
4G	1800MHz	Band 3	<u>72</u>	<u>1047</u>	<u>845</u>	<u>598</u>	<u>289</u>	<u>337</u>	<u>46</u>	<u>28</u>	62.80%	<u>3262</u>
4G	2100MHz	Band 1	<u>66</u>	<u>406</u>	<u>256</u>	<u>293</u>	<u>130</u>	<u>171</u>	<u>31</u>	<u>24</u>	26.51%	<u>1377</u>

Information	Telstra	Optus	Vodafone	Nbn								
Generation	Spectrum	Band	ACT	NSW	VIC	QLD	SA	WA	TAS	NT	Sites %	Site Total
4G	<u>2300MHz</u>	Band 40	<u>0</u>	<u>416</u>	<u>379</u>	<u>347</u>	<u>117</u>	<u>94</u>	<u>127</u>	<u>13</u>	94.02%	<u>1493</u>
4G	3500MHz	Band 42	<u>0</u>	<u>84</u>	<u>119</u>	<u>46</u>	<u>32</u>	<u>12</u>	<u>2</u>	<u>0</u>	18.58%	<u>295</u>

Mobile Bands used in Australia

Each country has a different set of Frequencies or Bands that are used for Mobile services. Purchasing a phone overseas can be fraught with difficulties even switching providers within Australia can mean the difference between a perfectly functioning phone and one that's totally unusable.

Here you can see which bands (or frequencies) each provider is using and what percentage of their network has coverage.

What do I need to look for when purchasing a phone?

Generally speaking the more expensive the phone, the more chance is going to support more bands, the latest Iphone 6 and Samsung S6 support all bands in Australia provided you purchase the model designed for the Australian market.

If you purchase the phone in Australia then generally it will be for the Australian market. If you decide to purchase from overseas then you need to be sure the model your purchasing and double check the specifications for that model. Once you find the bands supported, use this page to determine if its going to work for the provider you are targeting (see tabs above).

My phone supports some bands but not all of them, will it still work?

Mobile bands are generally split into 2 categories, Low Band and high band. For the best experience and coverage your going to need to support band from both categories.

Low Band is generally 700Mhz to 900Mhz, High Band is 1800Mhz to 2600Mhz.

My phone only has a supported Low band, what does that mean? If you only have a supported low band then you will have great coverage but your speed may not be the fastest available. But you will have a fully functioning phone.

My phone only has a supported High band, what does that mean? If you only have a supported high band then your coverage will be severally limited to Metropolitan areas and large towns. Rural coverage will be non existent. When you do have coverage it will generally be quite fast.

I'm traveling to Australia, will my phone work?

Australia no longer has a CDMA compatible network, If you have a CDMA phone then unless it supports GSM (2G or better) then its not going to function at all. If it supports GSM then you will have coverage in metropolitan and semi rural areas generally speaking, but in remote places your going to need a 3G compatible phone. 2G is currently being phased out so a 3G or better phone is strongly advised.

If you are looking for data usage, your going to need a 3G or better phone with bands that are available in Australia.

How many mobile networks do you have in Australia, what's the difference?

In Australia we have 3 networks.



The largest and generally most expensive network in Australia. Covering more than 2.4 million square kilometers of Australia's 7.7 million sq km total land mass, or 99.3% of the population. Ensure your phone supports 3G 850Mhz for full coverage. Telstra is currently expanding 4G coverage from 96% of the Australian population today to 99% of the Australian population by June 2017.

There are Telstra resellers which offer cheaper deals, however only [Boost](#) offer the full 99.3% coverage area. All other resellers using the telstra network only offer 1.3 million million square kilometers or 98.5% of the population (generally slightly better than Optus coverage).

2G services have been discontinued by Telstra as of December 1st 2016.



[Optus](#)

The second largest network in Australia. Covering more than 1 million square kilometers or 98.5% of the population and with a 4G footprint of 95.9%. Optus does not support any 850Mhz band and uses 900Mhz instead, Optus also has 2300Mhz TD LTE band 40 which the other providers do not support.

There are Optus resellers which offer cheaper deals, and the full optus coverage such as [Virgin Mobile](#).

2G services will be discontinued by Optus from April 1st 2017.



Offers the least amount of coverage and is generally limited to large cities, major tourist destinations and major highways. Covering 96% of the population or about 800 thousand sq km. Vodafone also offers 850Mhz LTE in metropolitan and rural areas, great for older handsets like the Iphone 5. There are Vodafone resellers which offer cheaper deals, and the full Vodafone coverage. 2G services will be discontinued by Vodafone from September 30th 2017.

I'm traveling in really remote places, what provider and band is best?

If your traveling is places like across the Nullabore Plain or into the outback then your going to need a [Telstra](#) or [Boost](#) service and a phone that supports 3G Band 5 (850Mhz). 4G Band 28 (700Mhz) is currently not widespread but will become more so in the future. Telstra services are generally more expensive than the other providers, but Boost is a great alternative with exactly the same coverage footprint.

I'm traveling only to major tourist destinations, what are the cheapest providers?

Your generally better off with Optus or Vodafone or one of their resellers.

Does NBN provide mobile coverage?

No, NBN provides fixed wireless only to rural and remote areas.

What do the bands mean? which is best?

Each band has its own different properties, let's start with the lower bands and work our way up to higher ones.

700Mhz

This has been widely touted as the "Water front" of all bands as it is the lowest band available to the mobile industry in Australia. This frequency was once use by Terrestrial TV services, but with the introduction of Digital TV which uses bandwidth much more efficiently due in part to digital compression, as a result this band was freed and released to the mobile industry. It has 1.2x the range of the previous best band which was 850Mhz, and has great building penetration. The downside to 700Mhz is there just isn't enough of it, so although you will get great coverage in many more places don't expect gigabit speeds on this band alone. Allocation of this band has been setup to be nationwide, Telstra owns the most with a 2x20Mhz block and Optus owns 2x10Mhz. Both Telstra and Optus both have fairly wide coverage of this band, however Optus is much further along in their rollout as of the beginning of 2017 claiming 95% population coverage. Vodafone has shown interest in purchasing this band but their offer was recently rejected, TPG is also showing interest. The final remaining 2x15Mhz of this band is set to be auctioned off Early 2017, and will be auctioned in 2 blocks, one 2x10Mhz and one 2x5Mhz block. A limit of 2x20Mhz has been set for this band to encourage competition, and will be enforced for the upcoming auction preventing Telstra from participating.

850Mhz

Originally this band was used for Telstra's Analogue (AMPS 1G) network, once shut down it was then used for Telstra's CDMA network. Once CDMA was shut down it then made way for Telstra's Next G network offering 3G services on this band. This band has great building penetration as well as great coverage and long range, although the range is not quite as good as 700Mhz. Telstra and Vodafone use this band with Telstra using it for 3G and Vodafone historically using is for 3G but is currently reframing it to 4G.

900Mhz

This band was originally used for 2G GSM services in Australia and licenced to all 3 Major providers. This band offers a similar range to 850Mhz, however its building penetration abilities are not quite as good. Best demonstrated by Optus 3G customers often reporting non-existent indoor coverage, this has been Optus' main band prior to their purchase of 700Mhz. 2G services have been discontinued by Telsrta with Optus and Vodafone soon to follow.

1800Mhz

This band was originally used for 2G GSM services in high density areas to provide additional capacity. Having only around 0.5x the range of 850Mhz and no building penetration unless you're standing by a window. This band is now used to provide 4G with additional capacity in high density areas as well as locations closer to towers allowing better utilisation of the lower bands further away. As there is much more of this band available than the lower bands, significantly higher speeds are widely attainable. This band was released in rural areas recently and rollout of this band in rural areas will commence in 2017. Telstra and Optus picked up the lion's share of this band in rural areas with TPG and Vodafone picking up the leftovers.

2100Mhz

This band was first used for 3G services notably by the now defunct provider '3'. Because of its limited range of around 0.4x the range of 850Mhz, in order to provide the same level of coverage significantly more towers are needed, so it was only economical to do so in high density areas. The flip side of that however is the greater amount of bandwidth available to such a network. This band has been available in both rural and metro areas since its first use and is widely deployed by both Optus and Vodafone (which merged with 3), less so by Telstra.

2300Mhz TDD

Originally this spectrum was sold to Vividwireless to run their Fixed wireless WiMaX network, Vividwireless was later purchased by Optus. Much of the Spectrum has been reframed to 4G and has since become part of Optus' 4G network. The Brand Vividwireless still exists and now offers similar products but on the newer and more extensive Optus 4G network. Optus is the only mobile provider to use this band, however this band is also used by NBN to provide Fixed wireless services in rural areas. This band is perfect for providing fixed wireless services but can also be quite handy for mobile with similar properties to 1800/2100Mhz bands but with huge amounts of bandwidth, up to 98Mhz of continuous spectrum. TDD or Time Division Duplex is described below.

2600Mhz

Coming Soon.

3500Mhz TDD

Coming Soon.

FDD Vs TDD Vs 5G

When providing communication to and from a device, you need to provide both Uplink and Downlink service. This has traditionally been done using a FDD or Frequency Division Duplex which simply means that some of the spectrum is reserved for Uplink while the remainder is reserved for Downlink. Spectrum today is sold in sets of 2, an upper and a lower band which is ideal for FDD deployments. This offers low latency as both Uplink and Downlink are available simultaneously however it comes at a cost with only half the available bandwidth available to downlink with much of the uplink band sitting idle as generally speaking users download more than they upload. TDD or Time Division Duplex attempts to solve this problem with both uplink and downlink using the same frequencies but both upload and download are separated by time. For example 10% of the time can be allocated as upload and the remaining 90% of the time allocated download, those percentages can be dynamically adjusted to meet the current demand of users. This advantage comes at a cost however as the users device must wait for the next uplink window in order to send off a request, and again then wait for the download window to receive the response, this adds to latency which is not insignificant.

5G on the other hand attempts to solve both the latency issue of TDD and the bandwidth allocation issue of FDD in one fell swoop by allowing both Uplink and Downlink simultaneously on the same frequencies. This is also called full-duplex [FD] communication, It does this through the use of a techniques called interference cancellation. It works much like your noise cancelling headphones however, as the tower knows what its transmitting in real time, it can subtract that signal from what's received. Whatever is left over must be what was transmitted by nearby mobile devices. Mobile devices must also do this in reverse, subtracting its own signal from everything else. This allows both Uplink and Downlink to be on the same frequencies simultaneously. What this all means is that this will almost double the available bandwidth to mobile users once 5G becomes widespread without any further spectrum acquisitions.

All of the bands above are FDD or Frequency Division Duplex with the exception of 2300Mhz and 3500Mhz.

<https://oztowers.com.au/Bands>