

Same same, but different

While mobile phones are all starting to look similar, there are still significant differences, as **Denis Gallagher** discovers



Josh and Ben from *Farming Ahead* go in search of a phone signal

When we carried out our first CHOICE mobile reception test back in 2008 there were a range of different mobiles, from clamshell flip phones to QWERTY keyboard models, as well as the first Apple iPhone 3G. Since then, the iPhone has completely changed the mobile phone industry, and it seems that the only significant difference between smartphones is the logo and screen size. But reception performance, both for voice calls and now for data as well, remains a critical aspect in finding the best phone for your lifestyle.

4G performance

Before the arrival of fast 4G networks, phone reception for voice calls was the most important aspect to consider in any mobile, and still is for many users. However, many people are now making fewer voice calls and spending more time online. They want the best possible online experience, and that means using a 4G network.

Our 4G performance test was carried out close to a 4G tower, with multiple runs for each phone. Data throughput results were collected for both downloading (browsing the web and

Nutshell

- 15 mobile phones tested, priced from \$78 to \$995.
- 4G performance is great when you can get it, but it's not the only thing to consider.

watching video) and uploading (posting a video or carrying out collaborative work on documents).

3G still the key

If you mainly use your smartphone for online work, social media and collaborative work on documents, or if you watch lots of video, you could be forgiven for thinking the reception score in this test is not as important as the 4G performance score. Well, think again.

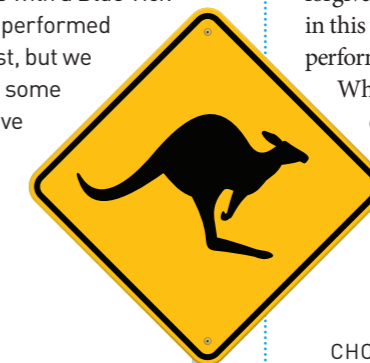
While 4G is great, it's not widespread enough to be your main network access option. So consider the 4G performance as a nice-to-have and the reception performance as the must-have. ▶

RECEPTION TESTING IN THE MIDDLE OF NOWHERE

Reception testing on the 850MHz 3G band was conducted in a remote NSW location, chosen for its flat topography surrounding a NextG phone tower and lack of interference from any other towers. No other network was available in this area.

The testers from *Farming Ahead* magazine travelled away from the tower at set distance increments (using GPS) and placing calls with the various handsets. At the limit of

reception, some back-tracking was necessary to pinpoint the exact point at which a particular handset fails. All the phones with a Blue Tick classification performed well in this test, but we also achieved some very impressive results from models without a Blue Tick.



WHAT TO BUY

RUGGED/TRADIE CHAMPION

84%
Aspera R5



82%
Telstra Dave (ZTE T83)



Both the **Telstra Dave** and **Aspera** are encased in a ruggedised cover, making them ideal for tradies and anyone else who treats their smartphone a bit carelessly. The IP67 water resistance rating means they can handle submersion in up to one metre of water for up to 30 minutes, with rubber O-ring seals around the various ports.

The Aspera is noticeably heavier and larger than the Dave, but both deliver similar user experiences on the Android platform for web browsing, SMS and emailing, with good sound quality for phone calls.

Aerial connections (also known as patch antennas) are extremely useful when driving in remote areas, and the Dave is the only phone in this test with support for an antenna. The Dave also offers 4G support, although we found its performance to be only OK compared to the other phones tested with 4G support.

The Aspera R5 is a dual SIM mobile, which means it can accommodate two mobile numbers and operate on two different networks. Each SIM can be turned on or off as required – see *CHOICE*, Jul 14 for more.

One limitation with both these phones is that their support for the 850MHz and 2100MHz bands only on a 3G network, so they won't operate on the 900MHz band used by Optus.

APPLE OPTION

83%
Apple iPhone 5S



The **Apple** is a very good smartphone, with excellent reception performance and good call sound quality for voice calls. It remains the best option if you want to choose from the widest range of apps, music and video, using its iTunes and App store environments.

The screen size of the iPhone 5S is relatively small by current standards, with most of the latest phones sporting a display larger than four inches. New iPhones with 4.7- and 5.5-inch displays are rumoured to be out later this year – it seems Apple can no longer ignore the call for bigger screens.

MULTIMEDIA BIG SCREEN OPTIONS

83%
HTC One M8



The big thing in smartphones at the moment – the screen – is getting bigger. The **Sony**, **HTC** and **Samsung Galaxy S5** smartphones are powerful, expensive and deliver a large display. All these phones use the latest Android Kit Kat OS, have five-inch displays and include the latest and greatest processors.

The Sony and Samsung models can capture 4K video, while the HTC produces full HD video. All three provide lots of camera controls and interesting image editing effects; the HTC may struggle when using the digital zoom or creating high resolution colour prints

81%
Samsung Galaxy S5



as it only has a 5MP main camera, compared to 16MP on the Samsung and a massive 20.7MP on the Sony.

Waterproofing has also been a big thing in 2014, with many manufacturers claiming you can now stop freaking out when your phone tumbles out of your pocket and into the loo. The Samsung claims an IP67 rating (like the Aspera and Telstra Dave), while the Sony scores an IP55/58 rating, which means it can be submerged in up to 1.5 metres of fresh water for up to 30 minutes.

While the NextG reception performance for the Sony is good, it doesn't perform as well as the HTC or

80%
Sony Xperia Z2



Samsung models. For 4G performance, however, the Sony is excellent – it achieved download speeds above 50Mbps on multiple occasions during our test, compared to the Samsung topping out at 43Mbps and the HTC struggling to get to 39Mbps. If phone reception is still a top priority for you, then the HTC or Samsung will serve you well. But if you're an internet junkie, live near a 4G tower and can forget its comparatively poorer phone reception, the Sony phone could well be the one for you. ▶

(What to Buy profiles continue overleaf)

ABOUT THE REST

The Windows Phone 8 offerings include the **Nokia Lumia 1020**, with its impressive 41MP digital camera and excellent reception performance, and the **Nokia Lumia 1320**, with the largest screen tested. While their 4G performance is not great, they still deliver very good performance for the price. If you want an entry-level Windows phone, you may want to consider the **Nokia**

Lumia 630, although you won't get 4G performance. The **Nokia 208** is a basic talk and text offering with very good reception for under \$80.

The **Nexus 5** is Google's flagship smartphone and offers very good value for money, as it showcases most of the potential features on offer in the latest Android OS. While it's let down slightly by poorer reception performance than the other phones

tested, it would still be a great option for those wanting to use an Android device as it was meant to be used.

The **Motorola Moto X** and **Moto G** mark a welcome return for a once-mighty mobile phone company, with the Moto X one of the better-value 4G offerings tested. However, the lack of storage expansion – with just 16GB of onboard memory – may be an issue for some. The Moto G is also

a great-value option if you don't need 4G, and the dual SIM feature should appeal to anyone wanting to keep their work and home lives separate.



IMAGES: THINKSTOCK



| | PERFORMANCE | | | | | | | | | | | | FEATURES | | | | | | | | | | |
|----------------------|-------------|-------------------|---------------|------------------------|---------|--------------------|----------------|---------------|---------|-----------|------------------|----------------------|------------------|---------------------|--------------------------------------|-------------------|----------------------------|----------------|----------------|------|--------------|----|----------------------------------|
| | Price (\$) | Overall score (%) | Reception (%) | Call sound quality (%) | Web (%) | 4G performance (%) | Ergonomics (%) | Daily use (%) | SMS (%) | Email (%) | Music player (%) | Internal memory (GB) | Memory card slot | USB connection type | Can be used as a mass storage device | Telstra Blue Tick | External antenna connector | Bluetooth A2DP | Bluetooth type | aGPS | Wi-Fi 802.11 | 4G | UMTS Bands 850/900/1900/2100 MHz |
| Aspera R5 | 399 | 84 | 92 | 73 | 83 | na | 82 | 80 | 85 | 90 | 70 | 1 | MicroSD | Micro | ✓ | | | ✓ | 4 | ✓ | ✓ | | ✓/-/-/✓ |
| Apple iPhone 5s | 995 | 83 | 90 | 73 | 83 | 78 | 74 | 77 | 90 | 90 | 80 | 64 | | Lightning | | | | ✓ | 4 | ✓ | ✓ | ✓ | ✓/✓/✓/✓ |
| HTC One M8 | 840 | 83 | 84 | 78 | 87 | 84 | 78 | 80 | 85 | 90 | 90 | 16 | MicroSD | Micro | ✓ | | | ✓ | 4 | ✓ | ✓ | ✓ | ✓/✓/✓/✓ |
| Motorola Moto X | 438 | 82 | 85 | 75 | 87 | 81 | 78 | 80 | 85 | 90 | 80 | 16 | | Micro | ✓ | | | ✓ | 4 | ✓ | ✓ | ✓ | ✓/✓/✓/✓ |
| Telstra Dave | 380 | 82 | 93 | 73 | 83 | 61 | 80 | 80 | 85 | 90 | 80 | 4 | MicroSD | Micro | ✓ | ✓ | | ✓ | 3 | ✓ | ✓ | ✓ | ✓/-/-/✓ |
| Samsung Galaxy S5 | 899 | 81 | 84 | 74 | 87 | 75 | 78 | 80 | 85 | 90 | 80 | 16 | MicroSD | Micro | ✓ | ✓ | | ✓ | 4 | ✓ | ✓ | ✓ | ✓/✓/✓/✓ |
| Samsung Galaxy Young | 99 | 81 | 84 | 75 | 80 | na | 78 | 80 | 85 | 90 | 80 | 4 | MicroSD | Micro | ✓ | ✓ | | ✓ | 3 | ✓ | ✓ | | ✓/-/-/✓ |
| Motorola Moto G | 238 | 80 | 82 | 69 | 87 | na | 78 | 80 | 85 | 90 | 80 | 8 | MicroSD | Micro | ✓ | | | ✓ | 4 | ✓ | ✓ | | ✓/✓/✓/✓ |
| Sony Xperia Z2 | 759 | 80 | 75 | 73 | 87 | 96 | 78 | 80 | 85 | 90 | 90 | 16 | MicroSD | Micro | ✓ | ✓ | | ✓ | 4 | ✓ | ✓ | ✓ | ✓/✓/✓/✓ |
| Telstra EasyCall 3 | 99 | 80 | 90 | 66 | na | na | 76 | 81 | 70 | na | na | 2.5 | | Micro | | ✓ | | | | | | | ✓/-/-/- |
| Nokia Lumia 1020 | 588 | 79 | 90 | 71 | 87 | 48 | 74 | 73 | 85 | 87 | 80 | 32 | | Micro | ✓ | | | ✓ | 4 | ✓ | ✓ | ✓ | ✓/✓/✓/✓ |
| Nokia Lumia 1320 | 397 | 79 | 84 | 73 | 90 | 65 | 74 | 73 | 85 | 87 | 80 | 8 | MicroSD | Micro | ✓ | | | ✓ | 4 | ✓ | ✓ | ✓ | ✓/✓/-/✓ |
| Google Nexus 5 | 420 | 78 | 74 | 72 | 87 | 85 | 78 | 80 | 85 | 90 | 80 | 32 | | Micro | ✓ | | | ✓ | 4 | ✓ | ✓ | ✓ | ✓/✓/✓/✓ |
| Nokia 208 | 78 | 77 | 82 | 73 | na | na | 64 | 79 | 80 | 87 | 60 | (A) | MicroSD | Micro | ✓ | ✓ | | ✓ | 3 | | | | ✓/-/-/✓ |
| Nokia Lumia 630 | 249 | 75 | 72 | 68 | 87 | na | 74 | 73 | 85 | 87 | 80 | 8 | MicroSD | Micro | ✓ | | | ✓ | 4 | ✓ | ✓ | | ✓/✓/✓/✓ |

USING THE TABLE Prices Recommended retail, as of Jul 14. Scores The overall score is made up of reception (35%), call sound quality (20%), web browser (10%), 4G performance (10%, where applicable), daily use (5%), ergonomic (5%), SMS (5%), email (5%) and music player (5%).

WHAT TO BUY (cont'd)

BEST-VALUE SMARTPHONE

81%
Samsung Galaxy Young

It doesn't support 4G networks, it doesn't have the fastest processor and it has the smallest display of the smartphones tested. But the Samsung Galaxy Young does run the latest version of Android, and its reception performance is very good. Its memory can be expanded with microSD cards, and it also includes Navigon car GPS navigation and a 3MP camera. But best of all, you should be able to find it for under \$100, making it a good entry-level smartphone option.



BEST 'NANNA PHONE'

80%
Telstra Easy Call 3

The Telstra Easy Call 3 is for anyone who's a bit less dextrous and/or tech-savvy than the average smartphone user. It has big buttons, there's a text-to-speech feature that can read out an SMS, and T-coil support helps those with a hearing aid. A switch at the back of the phone activates a programmed number, which also sends an alert SMS to up to four numbers, and the text size on the small-but-bright screen is huge. Selecting functions and menu items is simple, and there's even a real torch to help you find your keys in the dark. A camera of some sort would have been handy, and it can't be used as a music player, but it is rated as a Blue Tick phone and our testing confirms its excellent reception performance.



| | SPECIFICATIONS | | | | | | | | | | | | | | | | | | | |
|----------------------|----------------|---------------|-------------------------|-------------------------|----------------------------------|-----------------------------------|--------------------------------|--------------------------------------|-------------------------------|------------------------|-----------------------------|-------------------------|------------------------|------------------------------|----------------------------|----------------|------------|------------------|--|--|
| | Dual SIM | SIM card size | Max. HSDPA speed (Mb/s) | Screen size (mm, W x H) | Screen size (inches, diagonally) | Screen resolution (pixels, W x H) | Camera resolution (megapixels) | Maximum video resolution capture (p) | Video calling resolution (mp) | Battery capacity (mAh) | Standby time claimed (days) | Talk time claimed (hrs) | Country of manufacture | Operating system (as tested) | Dimensions (mm, H x W x D) | Weight (grams) | SAR W/Kg** | Contact | | |
| Aspera R5 | ✓ | Mini | 14.4 | 50 x 89 | 4.0 | 854 x 480 | 8 | 720 | 1.3 | 2800 | 25 | 9.5 | China | Android 4.2.1 | 142 x 77 x 20 | 242 | 0.31 | asperamobile.com | | |
| Apple iPhone 5s | | Nano | 42 | 50 x 88 | 4.0 | 1136 x 640 | 8 | 1080 | 1.2 | 1560 | 10 | 10 | China | iOS 7.1 | 125 x 60 x 8 | 113 | 1 | apple.com.au | | |
| HTC One M8 | | Nano | 42 | 62 x 110 | 5.0 | 1920 x 1080 | 5 | 1080 | ns | 2600 | 20.6 | 20 | China | Android 4.4.2 | 142 x 71 x 10 | 158 | 0.42 | htc.com | | |
| Motorola Moto X | | Nano | 42 | 57 x 103 | 4.6 | 1280 x 720 | 10 | 1080 | 2 | 2200 | 24 | 13 | China | Android 4.4.2 | 129 x 66 x 11 | 132 | 0.85 | motorola.com.au | | |
| Telstra Dave | | Mini | 42 | 52 x 87 | 4.0 | 800 x 400 | 5 | 720 | 0.3 | 2500 | 15.5 | 8 | China | Android 4.1.2 | 130 x 67 x 13 | 159 | 1.35 | telstra.com | | |
| Samsung Galaxy S5 | | Micro | 42 | 63 x 112 | 5.1 | 1920 x 1080 | 16 | 2160 | 2 | 2800 | 16.3 | 21 | Vietnam | Android 4.4.2 | 142 x 73 x 9 | 143 | 0.6 | samsung.com.au | | |
| Samsung Galaxy Young | | Mini | 7.2 | 47 x 70 | 3.3 | 480 x 320 | 3 | 320 | nf | 1350 | 12.5 | 6 | Vietnam | Android 4.1.2 | 110 x 60 x 14 | 118 | 1.12 | samsung.com.au | | |
| Motorola Moto G | ✓ | Micro | 21 | 56 x 99 | 4.4 | 1280 x 720 | 5 | 720 | 1.3 | 2070 | 14 | 14 | China | Android 4.4.2 | 130 x 67 x 12 | 144 | 0.79 | motorola.com.au | | |
| Sony Xperia Z2 | | Micro | 42 | 64 x 114 | 5.1 | 1920 x 1080 | 20.7 | 2160 | 2.2 | 3200 | 31 | 19 | China | Android 4.4.2 | 147 x 75 x 9 | 164 | 0.71 | sony.com.au | | |
| Telstra EasyCall 3 | | Mini | | 35 x 29 | 1.8 | 320 x 240 | na | 240 | na | 1100 | 12.5 | 4 | China | Proprietary | 113 x 52 x 15 | 89 | 1.54 | telstra.com | | |
| Nokia Lumia 1020 | | Micro | 42.2 | 58 x 97 | 4.4 | 1280 x 768 | 41 | 1080 | 0.9 | 2000 | 16 | 19 | China | Windows Phone 8.0 | 131 x 72 x 15 | 159 | 0.76 | nokia.com.au | | |
| Nokia Lumia 1320 | | Micro | 42.2 | 75 x 132 | 6.0 | 1280 x 720 | 5 | 1080 | 0.3 | 3400 | 28 | 21 | China | Windows Phone 8.0 | 165 x 87 x 10 | 221 | 0.46 | nokia.com.au | | |
| Google Nexus 5 | | Micro | 42 | 62 x 109 | 4.9 | 1925 x 1080 | 8 | 1080 | 1.3 | 2300 | 12.5 | 17 | S Korea | Android 4.4.2 | 138 x 70 x 9 | 129 | 0.49 | play.google.com | | |
| Nokia 208 | | Micro | 7.2 | 37 x 50 | 2.4 | 320 x 240 | 1.3 | 240 | nf | 1020 | 33 | 4.5 | China | Nokia Series 40 04.06 | 114 x 51 x 13 | 90 | 1.16 | telstra.com | | |
| Nokia Lumia 630 | | Micro | 21.1 | 55 x 99 | 4.4 | 854 x 480 | 5 | 720 | nf | 1830 | 25 | 16.4 | China | Windows Phone 8.1 | 130 x 67 x 10 | 133 | 1.52 | nokia.com.au | | |

TABLE NOTES (A) 64MB. na Not applicable. ns Not supplied. nf Not found. (5%), ergonomic (5%), SMS (5%), email (5%) and music player (5%).

What to look for

4G is a wireless broadband technology that delivers high-speed performance to mobile devices. Unlike the NextG, Vodafone 850MHz or Optus 900MHz Yes G network, it is not designed to improve the reception or provide wider coverage for phone calls. Its primary purpose is to deliver improved performance for online devices.
USB connections of any type let you transfer files to your computer. Most phones tested use a standard mini or micro USB connection and can have the phone appear on the PC as a removable drive. The Apple iPhone 5S uses a proprietary connection.
Memory card allows you to store photos, music and video and transfer them to a PC using a card reader. Most models use a microSD card that can be used as an SD card with an adapter.

Wi-Fi capability allows you to browse the internet using a wireless connection at home or hotspot when you're out.
Stereo Bluetooth (A2DP) allows you to listen to your music without cables via a pair of Bluetooth stereo headphones.
Headphone connection type A 3.5mm jack allows you to use a standard set of headphones to listen to music.
The specific absorption rate (SAR) of the phone indicates the energy absorbed per kilogram of body weight when using the phone as claimed by the manufacturer. Evidence on the effects of exposure to electromagnetic fields remains inconclusive, but you may want to choose a model with a lower SAR value if this is of concern to you.

HSDPA (High Speed Downlink Packet Access) is a 3G protocol allowing high data transfer speeds and capacity. Unfortunately, phones rarely, if ever, reach the claimed figures out in the field. So don't expect to get 42Mbps, as it's just not going to happen.
Camera resolution A five-megapixel (MP) resolution is generally the norm with the latest mobile phones, with some approaching dedicated digital camera status at 10 or even 41 megapixels. ■

