

MOBILE PHONES

We recommend our first Best Buy 3G mobile phone, plus ordinary phones on test

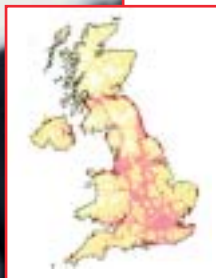
MOBILE INTERNET

You can browse Wap pages (internet pages for mobiles) with a 3G or GPRS connection and compatible mobile. The text and pictures on screen are measured in megabytes (MB). 1MB is about 100 Wap pages. Browsing on Vodafone and 3 is free, while O2 charges £2.35 per MB. Orange charges £3 per MB for up to 3MB, and then less per MB the more you browse. Orange and O2 also have 'bundles' – you pay a set monthly amount for a certain number of MB – this can be better value if you use the mobile internet a lot.



3G COVERAGE

The area of 3G coverage (pink on map) is much smaller than that of traditional (GSM) coverage. When there's no 3G reception, a 3G phone will try to connect to a GSM network and you won't be able to use video calling or a 3G connection to the mobile internet. With Vodafone, O2 and Orange, if you suddenly lose 3G reception, a voice call will continue as you're transferred smoothly to their GSM networks. 3 'borrows' O2's GSM network. This transfer means you're more likely to be disconnected.



Orange and O2 recently joined the 3 and Vodafone networks in offering a 3G mobile phone service. If you have 3G reception, 3G phones give you a much faster connection to the mobile internet (Wap) than ordinary (GSM) phones. This means that you can browse mobile internet pages faster, and access more video clips and music tracks.

For now, these clips and tracks are limited to the networks' own mobile websites but, in future, you should be able to watch videos from other sites too – the BBC is running trials. You can also video call with 3G so, if the person you are calling also has a 3G phone, you can see as well as hear them.

T-Mobile has a limited 3G service, with fewer video clips, for example, but video calling won't be available until the summer.

Overall, 3G hasn't yet taken off as quickly as some analysts had predicted. For instance, only around 200,000 of Vodafone's 15.2 million mobile UK customers use 3G, despite a multi-million pound advertising campaign.

3G ON TEST

The slow take-up hasn't been helped by the clunky and heavy 3G phones. But there's good news in our latest tests. We've named our first ever Best Buy 3G phone, the Samsung SGH-Z107.

However, your network's service is as important as the phone and, when we gave it and other 3G phones to ten readers to try out specific services, on the whole they weren't impressed with 3G.

Video calling was disappointing overall. Initially, video calling between certain numbers on the O2 network and 3 didn't work. But when we highlighted the problem to O2, it fixed it.

On all networks, image quality depended on where you were and what you were doing. It was best – although not perfect – when both caller and recipient were still. A moving image – for example, with someone walking – was often blocky and unclear. Iain from Birmingham had a Motorola E1000 on Vodafone. He said it was 'jumpy, similar to security videos'.

Sound quality was also quite poor. There is usually a delay between image and sound, so you see the lips move, then hear the voice. Background noise can hamper a video call, so use stereo earphones (often supplied) to make sound much clearer.

The view of Vicky from London, was typical. She used a Nokia 6630 on O2 and thought she wouldn't use video calling often: 'Maybe if I was in a foreign country and I wanted to gloat about being in the sunshine...'. With video calls from abroad costing up to around £2 per minute with 3, compared with up to 50p within the UK, you might not want to gloat for long. And your network might not offer video calling from some countries.

MOBILE INTERNET

Our triallists also tried using the mobile internet with their phones. Vodafone, O2, Orange and 3 have their own mobile internet sites that contain news, sport, entertainment and other information. You can use these with a GSM phone. But a 3G phone offers more,

VIDEO CALLING USING 3G

The downside of video calling isn't confined to worrying about what your hair looks like on screen. The service isn't perfect, with ropery image quality, especially when on the move. Many of the more expensive tariffs include a certain amount of video call time. After you've used your quota, you're charged per minute. Vodafone charges 35p for a video call to another Vodafone phone, or 55p to other networks. Orange charges 50p whatever the network.

If 3G reception disappears during a video call, you'll be cut off, whatever network you're on.

including extended video clips. For example, with Vodafone and 3 you can watch Premiership goals on your mobile shortly after a game. With Orange you can watch film trailers, and O2 has MTV music videos. All four networks also offer video news and other entertainment clips. Deborah from Preston, who tried a Motorola C975 on 3, said 3's menus were 'easy to browse – you can find what you want easily'.

Our triallists also tried downloading and streaming video clips. Downloading means that you save a clip from the internet to your phone, so that you can watch it as many times as you like. It takes a minute or two, depending on the clip's size. Streaming is quicker, but the clip isn't saved, so you can watch it only once (unless you pay again). Most of our triallists had at least one download or stream that failed partway through. If this happens with 3, you'll still be charged, but it advises customers to contact customer services for a refund.

As with the internet on a computer, a 3G connection is faster when the network is less busy. And it seems that 3G performance is sensitive. Vicky on O2 said: 'I got better reception when I turned the television off and moved from the top of my bed to the bottom.'

In general, the picture quality of video clips was good on Vodafone and 3 – noticeably better than on Orange and O2. With all four networks, however, it's usually better to download, not stream, if you have space on your phone, as streaming quality can suffer from occasional pauses in the video (called buffering) or lack of video/sound synchronisation.

WHERE AM I?

Vodafone Live! and 3 also allow you to use detailed location-based services. For example, with 3 you type in where you are, say, 'Baker Street, London', and for 25p a local map appears on your screen – handy if you're lost. You can also search for nearby facilities such as restaurants. This also costs 25p, and you get the restaurant's phone number if available. For another 25p you can see a map with the restaurant pinpointed, and there's an option to plot a walking route to it, again for 25p. You can search for other facilities such as pubs and cash machines, too. 3's service, although expensive, impressed us.

Chuks from Dagenham in Essex tried the Vodafone Live! Find & Seek service, with a Sony Ericsson V800. He was very impressed when he found his local cinema, with contact details and listings. But the service can be inconsistent – when he tried to find a cash machine, it showed one 2km away when there were others that were nearer. By default the phone estimates your location using the nearest phone mast. If the mast is far away, it might give inaccurate results. For best results, type in your postcode as a start point.

Most of our triallists thought that their 3G phone's battery life was quite short. Certainly, video calling, downloading and browsing the mobile internet and playing games are power hungry so try to avoid them if you're low on battery power.

BEST BUYS

We've made nine mobile phones Best Buys: eight are conventional GSM phones and one is a 3G model.

All our Best Buys are excellent phones, being easy to use for both calling and texting. They all have good reception quality, meaning that, when the signal is weak, your call is more likely to stay connected.

In addition to being good for ordinary use, most have extra features that make them more fun to use, such as a music player or a radio, and all have Java, which allows you to play a wide range of downloadable games.

None of our non-Best Buys is a bad phone, but each of these models is let down by one aspect or another. For example, some models are less easy to use or, in the case of the fashionable Motorola (26), durability is not brilliant. We put several samples of this particular model through our (admittedly tough) drop tests and one of them fell to bits, while another's screen was damaged. So, if you own one of these phones, remember to treat it gently.



1 Samsung
3G PHONE

1 Samsung SGH-Z107 67%

The first 3G Best Buy

£0 to £280 on contract, not available on prepaid

Although we're not yet sold on 3G services, the Z107 does most things well. Its basic functions are intuitive and it has a large, bright display. Like most 3G phones, though, it's a bit bulky.

The Z107 comes with stereo earphones which help to improve the sound on video calling. One unusual but welcome feature is that it also comes with two batteries (one with longer life than the other), and a separate charging station. This means you can use the phone with one battery while your spare battery is being charged. There's no Bluetooth, but it comes with a USB cable to allow you to transfer photos from phone to computer.



9 Samsung
GSM PHONE

9 Samsung SGH-D500 68%

Stylish 1.3-megapixel camera phone

£0 to £250 on contract, not available on prepaid

The D500 is one of a small but growing band of phones with a digital camera resolution greater than 1 megapixel. Picture quality isn't as good as you might expect, though, mainly because the camera doesn't cope so well when capturing movement – our tests showed a lot of blurring. However, as a phone it's great. It's easy to use and the sound quality of calls can't be faulted. It's light and stylish with a small, sliding display that moves to reveal the keypad. With video recording and playing, Bluetooth and a music player, this is one of our favourites.

BEST
ON
TEST7 Nokia
GSM PHONE**7 Nokia 7270 68%****Stylish, easy-to-use phone****£0 to £250 on contract, not available on prepaid**

The GSM Nokia 7270 is a stylish phone with changeable soft textile covers. With easy access to numbers in the memory, calling is simple – however, some of our users thought that the keypad was too flat with not enough space between the keys. The 7270 has a good range of features, including an FM radio, stereo earphones and video clip recording and playback. If your video clips are short enough, you can send them by multimedia messaging service (MMS) to another phone.

BEST
BUY8 Nokia
GSM PHONE**8 Nokia 6230 68%****Loaded with features****£0 to £200 on contract, £180 to £250 on prepaid**

This phone is easy to use, with a long battery life. It's small and light, but there's a question mark against durability. We put several through our very tough rain-damage and drop tests, and a few didn't survive, so be careful. It has an FM radio, stereo earphones and a music player. Connectivity is good, too. It has Bluetooth, and comes with a 32MB memory card so you can transfer files from phone to computer easily, if you have a memory card reader with your computer.

BEST
BUY10 Nokia
GSM PHONE**10 Nokia 6170 68%****Great reception****£0 to £170 on contract, not available on prepaid**

The angular-styled 6170 has excellent reception so, if you're in an area where reception normally isn't that brilliant, this is the phone to go for. Like all our Best Buys, it has good battery life. There's a 0.3-megapixel camera that gives acceptable results, and video clip recording/playing. Unlike some of the other Nokia Best Buys, however, there's no FM radio and, perhaps for that reason, only a mono earphone, which can be used for hands-free calling. All our users thought that the phone's basic functions were intuitive and easy to use. The 6170 is a heavy phone, weighing in at 123 grams compared with about 100 grams for an average phone.

BEST
BUY11 Samsung
GSM PHONE**11 Samsung SGH-E600 68%****The lightest camera clamshell phone****£0 to £150 on contract, £150 to £170 on prepaid**

The clamshell design E600 from Samsung is the lightest Best Buy on test with a camera, which offers a 0.3-megapixel image resolution. The phone weighs only 90 grams. It's worth pointing out that its display is small, so when you're texting, for example, you can see relatively few words on a single screen and you'll need to do more scrolling to read messages. Apart from that, it's easy to use for texting and calling. As with all our Best Buys, this Samsung has Java, which gives you access to a much wider range of downloadable games to play with.

NEED TO KNOW

You can make the most of 3G only if you're in an area with 3G coverage. Although growing, 3G coverage isn't as widespread as GSM, which is available in almost all of the UK. Areas of high-population density, such as big towns and cities, tend to have 3G, more rural areas tend not to. 3 is the network with most coverage at the moment, with a claimed 82 per cent of the population covered. 02 has the least – it hopes to offer 50 per cent coverage by June. Ask to see an up-to-date map if you're in a shop. Alternatively, all four networks have postcode checkers online.

MOBILE INTERNET

The mobile internet is similar to the internet on your computer, but there are fewer pages. These pages (often called Wap pages) are designed to be shown on small phone screens. Because a 3G mobile internet connection is fast, pages can contain additional information, such as video clips.

3G phones are normally heavier and bulkier than the smallest GSM phones and battery life is typically shorter.

Power-hungry 3G services eat into it further.





12 Sony
GSM PHONE

12 Sony Ericsson P910i 67%

A great 'smart phone'

£100 to £400 on contract, not available on prepay

The touchscreen Sony Ericsson P910i is an update of a previous Best Buy, the P900. It operates with a stylus and can be used as a personal digital assistant, as it has various office functions, such as contacts and task management and a small Qwerty keyboard on the inner side of its small cover. All these functions add to the weight – it's a hefty 159 grams – but, that aside, it performs well as a phone as it's easy to use with good sound quality. And it's great for texting. Bluetooth connectivity is good, and there's a 32MB memory card for storing extra information, such as music and photos. The camera takes good pictures for a mobile phone.



13 Nokia
GSM PHONE

13 Nokia 3100 67%

Basic, lightweight phone

Not available on contract, £45 to £60 on prepay

The 3100 has no video recording, music playing or Bluetooth features to shout about. It has the older, slower, non-GPRS-type mobile internet connection, and it doesn't even come with a built-in camera, which is pretty standard these days (although you can buy a camera attachment separately for around £25). As a phone, though, it's great. Calling and texting are easy, and sound quality and reception are good. It's also one of our lightest phones, at a featherweight 85 grams, so very portable. Battery life is also very good, but charging time is relatively long at around three and a half hours.

WHICH? EXTRA

We've got full details of our comprehensive tests on more than 60 mobile phones on our dedicated website, including those from this test and from previous tests, so that you can thoroughly research your chosen model before you part with your cash.

You'll also find many more ratings than we have space to publish here, such as results for call reception, whether the phones are suitable for use in the US, and whether they have additional useful features such as video recording, voice-activated dialling and mobile office functions, for example. Plus we've included details of which networks the mobiles are available on, for both contract and prepay use.

You'll find full details of our 3G phone test results,

and we give advice on whether 3G services are right for you.

Of course, in addition to details about the latest technology and services, we also have ordinary Best Buy mobile phone results, as well as details of the phones that aren't Best Buys.

It's worth noting that Best Buy camera phones are picked for their all-round quality, so they're good choices even if you don't think you'll use the camera. But, if you really don't want a camera, you'll find basic models without. Despite the increase in megapixels of phone cameras, image quality is still some way short of what you'll find on a half-decent digital camera.

www.which.co.uk/mobilephones

TABLE NOTES

We've tested the best-selling 3G and GSM mobile phones.

Price

Contract The typical price range for the phone if you sign up to a monthly contract. **Prepay** The typical price range for the phone if you buy it on a prepay deal.

Features

Camera (Mp) The resolution of the built-in camera in megapixels (Mp). **Wireless** Links the phone to other Bluetooth (B) or infrared (IR) devices. For example, a Bluetooth wireless connection lets you link the phone to a Bluetooth headset. **Music player** This allows you to play music files, such as MP3 files. **Memory card (MB)** These phones have a memory card slot in addition to the phone's internal memory. You

can buy bigger memory cards to expand memory space (measured in megabytes, or MB) for photos, games and music, for example.

Performance

Sound The sound quality of calls, including intelligibility and volume.

Battery Includes battery life, charging time and usefulness of low-battery warning.

Portability Based on dimensions, shape and weight.

Durability Resistance to dropping, rain and scratches. **Pictures** Camera quality, plus ease of taking pictures, sending pictures via MMS, and transferring them to a computer.

Ease of use

Calling How easy it is to make and receive phone calls. **Texting** How easy it is to send and receive text messages.

Mobile phones

Contract (£)

3G PHONES

1	Samsung SGH-Z107	0-280
2	LG U8120	0-200
3	Sharp 902	100-300
4	Sony Ericsson V800	0-230
5	Nokia 6630 ^a	0-250
6	Motorola E1000	0-180

GSM PHONES

7	Nokia 7270	0-250
8	Nokia 6230	0-200
9	Samsung SGH-D500	0-250
10	Nokia 6170	0-170
11	Samsung SGH-E600	0-150
12	Sony Ericsson P910i	100-400
13	Nokia 3100	
14	Nokia 7260	0-150
15	Nokia 3220	0-100
16	Sony Ericsson S700i	0-270
17	Motorola E398	0-30
18	Samsung SGH-E330	0-150
19	Siemens SL65	0-100
20	Motorola V620	0-150
21	LG C2200	0-70
22	Panasonic EB-X500	
23	Nokia 7280 ^b	0-260
24	Sendo SV663	
25	Philips 355	
26	Motorola V3	0-300
27	Primus PTL898 ^b	

^a Video calling on the 6630 works with

BEST
BUY**14 Nokia**
GSM PHONE**14 Nokia 7260 67%**

Stylish all-rounder

£0 to £150 on contract, £180 on prepay

The 7260 is part of Nokia's Fashion Collection, alongside the 7270 and 7280. It's nice to see some distinctiveness in mobile phone design. Sound

quality is OK and it's easy to use, although the soft keys near the display which are used to access the most popular functions feel a bit wobbly. It comes with an FM radio, stereo earphones, video clip recording/playback and infrared. There's no Bluetooth as standard, but you can buy a Nokia adaptor that will give it Bluetooth capability.

KEY

★	☆	○	◐	●
Best				Worst
■ Best Buy				

SCORE

This ignores price and is based on:

Use for calling	35%
Battery	17.5%
Ergonomics	17.5%
Texting	10%
Camera, display	10%
Games, extras	10%

Price	Features					Performance					Ease of use		Score
Prepay (£)	Camera (Mp)	Wireless	Music player	FM radio	Memory card (MB)	Sound	Battery	Portability	Durability	Pictures	Calling	Texting	(%)
	0.3	IR	✓			☆	☆	○	☆	○	☆	☆	67
150	0.3	IR	✓			☆	☆	○	○	○	★	☆	65
	2	B/IR	✓		32	☆	☆	◐	★	☆	☆	☆	65
400	1.3	B/IR	✓		32	○	☆	○	☆	☆	○	☆	65
300	1.2	B	✓		64	○	☆	◐	○	☆	○	☆	64
215-300	1.2	B	✓		32	○	○	◐	☆	○	☆	☆	63

	0.3	IR		✓		☆	☆	○	☆	○	★	☆	68
180-250	0.3	B/IR	✓	✓	32	○	☆	☆	○	○	☆	☆	68
	1.3	B/IR	✓			☆	☆	☆	☆	○	★	☆	68
	0.3	IR				☆	☆	○	☆	○	☆	☆	68
150-170	0.3	IR				○	☆	☆	☆	○	☆	☆	68
	0.3	B/IR	✓		32	☆	☆	◐	☆	☆	☆	★	67
45-60						☆	☆	☆	☆	n/a	☆	☆	67
180	0.3	IR		✓		○	☆	☆	☆	○	☆	☆	67
50-140	0.3					○	☆	☆	○	◐	☆	☆	65
	1.2	B/IR	✓	✓	32	○	☆	◐	☆	☆	○	☆	64
130	0.3	B	✓		64	○	☆	○	☆	☆	☆	○	63
130-150	0.3					☆	○	☆	☆	○	★	☆	63
	0.3	IR				☆	○	☆	☆	○	☆	☆	61
160-170	0.3	B				☆	☆	○	☆	○	☆	☆	61
90	0.3					☆	○	☆	☆	◐	★	☆	59
150 (no Sim)	0.3					☆	☆	☆	○	○	☆	○	58
	0.3	B/IR		✓		◐	○	☆	☆	○	○	○	57
50	0.3					○	○	☆	☆	◐	☆	○	57
50	0.1					○	○	☆	○	◐	☆	○	55
	0.3	B				○	○	☆	◐	○	☆	☆	50
150 (no Sim)	0.3					○	○	☆	○	◐	☆	◐	44

the Nokia PT-8 Video Call Stand, sold separately b The only two phones without Java, for downloading games