

Mobile phones

NEED TO KNOW

There are two types of mobile phone system: 3G, or 'third generation', and GSM, or 'global system for mobile communications'. All the major GSM networks claim to cover 99 per cent of the population; 3G isn't quite as extensive.

3G
3G technology means more data can be transmitted at a much faster rate than with a standard mobile phone connection, so phones can offer high-speed connections to the mobile internet, location-based services to help you find the nearest amenities (for example) and quicker access to video and audio clip downloads.

Matters are improving but the extra functionality means 3G phones tend to be heavier and bulkier and use up their batteries more quickly than GSM phones.

GSM
Also known as 2G (second generation) phones, these are the most common types of handset. You can still access the mobile internet – it's just not as fast and doesn't offer as many services as 3G. However, O2 has launched the i-mode service, designed to improve web surfing on both GSM and 3G phones.

GSM network coverage is superior to 3G but, if 3G coverage is inadequate, 3G phones will switch to a GSM network. For more on both 3G and GSM tariffs, see our report on p18.

BEST BUYS

Competition to become a Best Buy is stiff. A mobile must have a strong combination of all-round quality and outstanding features. All of our Best Buys are great phones: they are easy to use for texting and have good reception – so if you're in a weak signal area, your call is more likely to stay connected. All offer features including polyphonic ringtones, a hands-free option and Java, which allows you to play a range of downloadable games. The camera phones all record and play back video clips. An added bonus is that they are all free with contracts on at least one network.

The versatile **Nokia (1)** is an excellent phone and the best 3G model we've tested to date. It's also a smart phone: a combination of a personal digital assistant and a mobile. All the software you'd expect to find at the office – Adobe PDF reader, Word, Excel and Powerpoint – is here at your fingertips and the USB port enables quick data transfer. There are two integrated cameras and the large, colourful display is one of the best. Admittedly, it is a bit of a pocketful, so if you're not interested in all the features, opt for something which is a little less bulky.

The **Orange (9)** is the best all-round GSM phone on test. It's a versatile and feature-rich smart phone with the best call reception of all our Best Buys but, above all else, it strives to be a music-playing handset. There are dedicated keys for this – pause/play and forward – plus a button to link you to

the Orange music download site. However, there's no radio and the removable memory card is awkwardly located beneath the battery.

The **Sony Ericsson (10)** is the first mobile phone from the iconic Walkman brand. This is actually very similar to the other GSM Sony (11) but with more memory, extra music software and a distinctive orange finish. Both the camera and music player are as good as we've seen on a mobile handset, and there's the added bonus of great battery life. The easy-to-use FM radio features auto presets and RDS, which displays station names. There's even some fun music and video-editing software included to

while away the hours. On the downside, it's not the best phone for texting and, like the other GSM Sony (11), the display could be a little larger.

The other **Sony Ericsson (11)** we tested is our first choice if you're after the best camera-handset hybrid. It's easy to transfer files to your computer and there's a 64MB memory card (expandable to 2GB) for storing snaps on the phone. An FM radio with RDS is complemented by a pretty decent music player. By downloading third-party software off the web you can increase its music-playing capabilities to a similar standard to the Walkman's – but you will violate your warranty. We do have a slight



**BEST
ON
TEST**



9 Orange
GSM CAMERA

If looks were everything

The phones that didn't make Best Buys are not bad phones but some clearly aim to seduce with their looks rather than with their features. Step forward the sublimely svelte, but not very robust, Motorola V3, now available in black and pink. If that doesn't cut it in

the luxury stakes, check out the urbane Nokia 8800, whose sliding stainless steel-finish cover is the last word in mobile opulence. At the other end of the scale is the Vodafone Simply, which forgoes features to offer big keys and simple menus. We like the idea but there are better basic phones available.



The opulent
Nokia 8800
can cost as
much as £465



The Vodafone
Simply takes
mobile phones
back to basics

STORAGE AND TRANSFER

The best camera and music phones have expandable memory card slots and can easily transfer data to your computer.

Music files are relatively big – ten songs use 40MB of memory. To handle this, this Sony Ericsson has the biggest capacity on test – 512MB, expandable to 2GB, in a removable memory stick. For about £15 a universal memory card reader plugged into your computer will allow direct file transfer.

Picture files don't take up as much space – about three per MB – but are better viewed on a computer. The fastest and most reliable transfer method is via a USB cable connection. Bluetooth is a short-range (up to around 10m) wireless option.

Mobiles with enough memory to store even more songs and camera phones with ever-higher resolution are just around the corner (see '65 more mobile phones on test', p59).

**BEST
BUY**



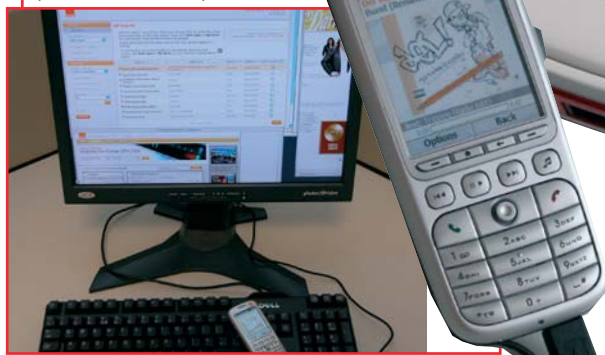
10 Sony Ericsson
GSM CAMERA

MUSIC PHONES

Music players have always been a bit of an after-thought on phones but with the arrival of brands like Walkman and iTunes (on the Motorola Rokr), the end could be in sight for the personal MP3 player. Memory capacity and battery life have increased and serious music phones now come with software to manage playlists and download tunes from the internet.

This Sony Ericsson is the best music-playing phone we've looked at. But the sound quality, though satisfactory, is not yet up to the standard of a Best Buy MP3 player. If you want to get the best out of it, upgrade the uncomfortable headphones: bass quality improves dramatically and external sounds are drowned out when a £30 pair of Best Buy Sennheiser PX100s are plugged in.

This is also the only music phone on test that has an adaptor to accept headphones other than those supplied. The easy-to-use software also offers more music file management options than the Rokr.





CAMERA PHONES

Camera phones are still a long way behind the standard of today's dedicated digital cameras (see p46) but more than half in our test are 1Mp or above and the best have broken the 2Mp barrier.

We subject camera phones to extensive tests under different light conditions, assessing picture blur, noise, sharpness and colour. This Sony Ericsson has the same camera as the other Sony Ericsson (10) in this report – and it's the best one we've tested. The 2Mp resolution (1,632x1,224 pixels) results in excellent pictures across the board, and the host of specifications – auto focus, 4x digital zoom and red-eye reduction – provides decent 6x4-inch print-quality shots. Picture quality does fade with the light but nowhere near as



badly as with other camera phones on test.

For best results, stick to taking snaps in daylight and download them to your computer for viewing. The handset's crisp display is too small to adequately show off the camera's full capabilities.

BEST BUY

11 Sony Ericsson
GSM CAMERA

concern with Sony Ericsson models – they haven't fared well in our brand reliability survey – but if you upgrade your phone annually and want to keep up with the latest technology, this may not bother you.

The **Nokia (12)** is an update of the old Nokia 6230 Best Buy. If you liked the 6230 but want to upgrade, you don't need to look any further. Like its predecessor, this phone is packed with features – music player, FM radio, stereo earphones and Bluetooth – but Nokia has toughened up this latest version and improved the display. The keypad is also a little easier to navigate and it's the Best Buy of choice for texting. But the biggest improvement is the new 1.2Mp camera: it's especially good at capturing movement. There are better-looking

phones around but the front panel can be replaced. The fashion-conscious can buy the desired panel colour from about a tenner.

The clamshell-design **Nokia (13)** is easy to use as a phone and the sturdiest of our Best Buys. It has two colour displays – so you can see who is calling without having to flip the handset open. It has an FM radio but it's a little light on features elsewhere, with no music player, memory card or Bluetooth. The battery isn't bad but, when making calls, it doesn't last as long as the other GSM Best Buys.

The compact and popular **Samsung (14)** is light and stylish with a small, sliding display that moves up to reveal the keypad. It's a great, easy-to-use phone and the sound quality of calls is among the best we've tested. However, the



BEST BUY

12 Nokia
GSM CAMERA

65 more mobile phones on test

The main table shows the latest Best Buy mobile phones. We have dozens more mobiles online: see www.which.co.uk/mobilephones for full details. You'll find many

more ratings online, including whether phones have extra features such as video recording and mobile office functions. We'll add test results for more of the latest

phones in the new year but, in the meantime, the table below gives a taste of what's to come, including a full test of the Motorola Rokr. Last report Sept 2005

Networks Key: 3=3 O²=O2 O=Orange T=T-Mobile Vi=Virgin Vo=Vodafone

Model	Camera (Mp)	Music player	Memory card (MB)	Networks
Motorola Rokr	0.3	✓	512	O T O ²
Nokia N90	2.0	✓	64	Vo O ²
Sharp 903	3.2	✓	64	Vo
Siemens CL75	0.3	✓		Vi
Sony Ericsson K608i	1.3	✓		3



BEST BUY

13 Nokia
GSM CAMERA



BEST BUY

14 Samsung
GSM CAMERA



1.3Mp camera may disappoint. It doesn't cope so well with movement – our tests show a lot of blurring. Camera quality aside, this is one of our favourites, so all bodes well for the newly-launched Samsung D600 model. This similarly-styled, updated version features a 2Mp camera, music player with expandable memory and a USB connection. We'll be bringing you our full test results in the new year.

If you're after a handset without a camera or any of the usual bells and whistles, the **Nokia (27)** is an excellent choice. Weighing in at 91g, it's the lightest Best Buy. It has an FM radio and, minus all the other power-sapping features, the battery life is better than most. It's intuitively easy to use and the front panel can be changed. But be sure you can live without voice dialling, video clips, a PC connection or a triband connection for use in the States: it's the only Best Buy without these features.



USING THE TABLE

We've tested the latest 3G and GSM mobile phones from leading brands.

Availability

Networks Which networks have the handset available on contract – see 'Key to networks', on the opposite page.

Price The cheapest pre-pay handset price at the time of going to press.

Mobile phones

3G CAMERA PHONES

- 1 **Nokia 6680**
- 2 **Sony Ericsson K600**
- 3 **LG U8138**
- 4 **Nokia 6630**
- 5 **Samsung Z500**
- 6 **Samsung ZM60**
- 7 **LG U8150**
- 8 **Motorola V975**

GSM CAMERA PHONES

- 9 **Orange SPV c550**
- 10 **Sony Ericsson W800i Walkman**
- 11 **Sony Ericsson K750i**
- 12 **Nokia 6230i**
- 13 **Nokia 6101**
- 14 **Samsung SGH-D500**

- 15 **Motorola V635**
- 16 **Nokia 6170**
- 17 **Nokia 6020**
- 18 **Samsung SGH-E530**
- 19 **Nokia 7710**
- 20 **Nokia 5140i**
- 21 **Samsung 720**
- 22 **Nokia 8800**
- 23 **LG F2400**
- 24 **Siemens SF65**
- 25 **Lobster 485**
- 26 **Motorola V3 Razr**

GSM BASIC PHONES

- 27 **Nokia 6030**
- 28 **Nokia 3120**
- 29 **Sony Ericsson J300i**
- 30 **LG B2050**
- 31 **Vodafone Simply**

a Price at The Link b Price at Phones 4U

3G networks

We haven't been very impressed with 3G services in the past and our latest group of users remains unenthusiastic. The main gripe is that 3G coverage often proves inadequate, especially in rural areas. But if you're an urbanite with a penchant for video calling, this is what the networks offer.



3 is the only dedicated 3G network. It has the best coverage (80 per cent of the population) and the most content available. Video calls cost 50p/min on pay as you go (PAYG) but are available on contract bundles from £25 a month. Where its network is unavailable, users are switched to O2's GSM network.



Orange 3G services cover 70 per cent of the UK population. They are available for both PAYG and contract customers, but don't offer specific 3G price plans. You either just add a video calling bundle to your tariff or pay the standard rate of 50p/min.



'Vodafone live!' covers more than 60 per cent of the UK population. Video calls are available within contract bundles from £40 a month. Outside this, they cost 35p/min to Vodafone and 55p/min to other networks. Vodafone is the latest network to offer live TV on your mobile.



'O2 Active' 3G services cover 50 per cent of the UK population. O2 offers its customers no specific 3G price plans but video calls are charged as equivalent voice calls. For PAYG packages, UK video calls are charged at 50p/min at all times.



T-Mobile is the latest network to offer 3G services, although its offerings are a bit limited. Its Web n Walk package, which was launched in the UK just a couple of months ago, offers improved internet access. Video calls are charged separately and cost 15p/min to T-Mobile phones and 50p/min to other networks.

Specification

Camera Resolution of the built-in camera in megapixels (Mp).

Music player Allows you to store and play back music files.

Memory card Where a figure is given, this is the size in megabytes (MB) of the memory card supplied with the phone, in addition to the phone's internal memory. A ✓ in this column indicates that the phone has a memory card slot but no card is supplied. **Data transfer** Methods of

transferring data from phone to

computer and vice versa:

B=Bluetooth

R=infrared

USB=computer cable connection.

Performance

Sound Quality when making and receiving calls. **Battery** Charging and using times. **Portability** Based on dimensions, shape and weight.

Pictures Quality of camera, display, data storage and transfer.

KEY TO NETWORKS

3	3
BT	BT
O ²	O ²
On	OneTel
O	Orange
T-	T-Mobile
Te	Tesco Mobile
Vi	Virgin
Vo	Vodafone

SCORE

Ignores price and is based on:

Use for calling	35%
Battery	17.5%
Ergonomics	17.5%
Texting	10%
Camera, display	10%
Music player, games & extras	10%

KEY

★	☆	○	◐	●
Best	→			Worst
Best Buy				

Availability		Specification				Performance					Ease of use		Score
Networks	Price (£)	Camera (Mp)	Music player	Memory card (MB)	Data transfer	Sound	Battery	Portability	Durability	Pictures	Calling	Texting	(%)
Vo O 3 O ²	270 O	1.2	✓	64	B, USB	☆	☆	◐	☆	☆	☆	☆	67
O	190 O	1.3	✓		B, IR, USB	○	☆	☆	☆	○	○	○	66
3		0.3	✓		IR, USB	☆	☆	○	☆	◐	☆	☆	65
Vo O 3 T-	150 O ^a	1.2	✓	64	B, USB	○	☆	◐	○	☆	○	☆	63
Vo O O ²	270 Vo	1.0	✓	✓	B, IR, USB	☆	○	☆	★	○	☆	☆	63
T-		1.0	✓	✓	B, IR, USB	☆	○	○	★	○	☆	☆	63
O	130 O	0.3	✓		IR, USB	☆	☆	○	○	◐	☆	☆	61
3	80 3	0.3	✓	32	USB	○	○	◐	☆	○	☆	☆	60
O	150 O	1.3	✓	128	B, IR, USB	○	☆	○	☆	☆	☆	☆	71
Vo O T- Vi O ²		2.0	✓	512	B, IR, USB	○	★	☆	☆	☆	○	☆	68
Vo O T- BT Vi O ²	250 O ²	2.0	✓	64	B, IR, USB	○	★	☆	☆	☆	○	☆	68
Vo O T- BT Vi O ²	150 O ^b	1.2	✓	32	B, IR	○	☆	☆	☆	○	☆	☆	67
Vo T- BT On O ²	90 T- ^a	0.3			IR	○	☆	☆	☆	○	★	☆	67
Vo O T- BT On O ²	150 O	1.3	✓		B, IR	☆	☆	☆	☆	○	★	☆	67
Vo O 3 BT On Vi O ²	130 O ^c	1.2	✓	16	B, USB	○	☆	○	☆	○	☆	☆	66
Vo O T- O ²	90 O	0.3			IR	☆	☆	○	☆	◐	☆	☆	66
Vo BT On O ²	70 T- ^a	0.3			IR	☆	☆	☆	☆	◐	☆	☆	66
Vo O BT T- O ²	150 O	1.0	✓		B	☆	☆	☆	★	○	★	○	66
Vo O ²		1.0	✓		B, USB	○	☆	◐	☆	☆	○	★	65
Vo O BT T- O ²	130 T-	0.3			IR	○	☆	☆	☆	○	☆	☆	65
Vo O T- BT On O ²	170 O	1.0	✓		B	☆	☆	☆	★	○	★	○	64
Vo O O ²		0.5			B	○	○	○	☆	○	☆	☆	63
O	60 O	0.3			B	☆	☆	☆	☆	◐	☆	○	62
Vo O ² Vi	90 Vi	1.2			IR	○	☆	☆	★	○	☆	○	60
Vi	63 Vi ^d	0.3				○	○	★	○	◐	☆	○	52
Vo O T- BT On Vi O ²	140 O	0.3			B, USB	○	○	☆	◐	○	☆	☆	50
O O ²	54 Te					○	★	☆	○		☆	☆	67
O T- O ²	35 T-					○	☆	☆	☆		☆	☆	65
O Te Vi	30 Vi ^b					○	☆	☆	☆		○	○	62
T-	30 T-					○	○	★	☆		☆	○	57
Vo	45 Vo				USB	○	☆	◐	☆		☆	○	56

^c Price at The Carphone Warehouse ^d Price at Tesco