

Last year, Britain sweltered in the second hottest summer since records began in 1914. It's too early to be sure but the Met Office is already predicting that summer 2007 will be another scorcher.

In these furnace-like conditions, thousands of us plumped for an electrical solution. Sales of air conditioners soared last year, with Currys shifting two every minute at the height of the heatwave. We've tested eight portable air conditioners – and a couple of alternative options – to help you beat the heat.

What to buy

There are several types of cooling appliance, from desk fans to industrial coolers. We've concentrated on portable single air-conditioning units as these are widely sold in shops, the most versatile (for the home) and easy to install.

They work in a similar way to a fridge. When switched on, the unit compresses a refrigerant and passes it through an expansion valve to create cool airflow. This process also creates hot air, which

Playing it cool

Two air conditioners were sold every minute last summer. Here's our insider guide to keeping cool the electric way

you need to expel from the room, through a hose passing either through an outside wall or an open window. It's worth pointing out that this aspect can limit their portability. If you choose to route the hose through a wall, you need to be sure you're happy to have a permanent hole. Opting to use windows as the hot-air outlet means you can use the device in more rooms but, in reality, hose length means the cooler can never be more than 1.5 metres from a window.

Ups and downs

Thankfully, we found that air conditioners do a good job of cooling you down. All the

models we tested can lower the room temperature by several degrees and are generally pretty easy to set up and use.

They all have a choice of settings, too, to adapt to different conditions. On a cooler day, for example, you can use a fan-only setting to freshen your room, or you might want to take some moisture out of a sticky day by using the dehumidifier option. Obviously, some are better than others, and the Olimpia Splendid Issimo (1) is head and shoulders above the competition.

However, on the downside, the portable air conditioners we tested are by no means perfect and can be noisy, cumbersome and not very green (see 'Size and noise', p61).

Our top Best Buy, the Olimpia Splendid Issimo, is head and shoulders above the competition

Good for the family

In certain circumstances, air conditioners can prove vital, as one couple discovered. Keith Ryan, 36, and his wife Lucy Parissi, 34, from London hired theirs from HSS last summer. They wanted to buy but found everywhere was sold out (for more, see 'The rental option', opposite).

They'd just had a baby daughter, Anya, and wanted to keep her room cool. 'Overheating is a real concern for a newborn, so in that sense, having an air conditioner was invaluable,' said Keith. 'The model we rented was functional but because I kept renewing the rental, in the end it was almost as much as a new one.'

In all, they spent somewhere in the region of £250. They found that the air conditioner kept the room cool enough, but, said Keith: 'I don't think it was designed to be used in a room while people were sleeping, though the noise disturbed us more than Anya.'

The other issue they found was dryness. 'Air conditioners can dry out the air, so we had to be careful not to overuse it,' said Keith. But the noise and dryness didn't put them off, as they recently bought a new unit from John Lewis in anticipation of another hot summer.

Contacts

Amcor 020 8560 4141; www.amcorgroup.com
Convaire Millenia 01702 294843
DeLonghi 0845 600 6845
www.delonghi.co.uk
Enviraicare 01344 393033; www.kaz.com

Olimpia Splendid (Rapid Heatbusters)
 0800 804 6161; www.rapidheatbusters.co.uk
Omas and Prem-I-Air 0870 7444 0161
www.ehs-intl.co.uk

How we test

The facts behind our tests – and no hot air

Pining for the heat

To create the right environment, we use special climate-controlled test rooms so we can set temperature and humidity levels to the same as those on a hot summer's day. Our test room is made of thick pine and looks like a sauna. Our false summer is created by a heater and humidifier, which maintain the room's controlled yet very muggy conditions (see photo, above). We then take measurements which tell us the machines' cooling capacity and energy they use.

Even temperature

We also investigate how evenly the air conditioners can cool. We rig up a special test



room mapped out with thermocouples, which are common temperature sensors, to measure temperature at different positions.

Starting with a room temperature of 35°C, we take readings every 15 minutes to check which are the coolest parts of the room. This reveals that the airflow direction has a huge influence. Some machines disperse the cool air, while others give an intense cooling blast in one position whereas the rest of the room is cooled only slightly.

Our lab testers also rate noise levels and the strength of the airflow.

81% Olimpia Splendid Issimo £636



This was the clear winner in our test. It's one of the best at cooling but also it's by far the most energy efficient. This means it

will be cheaper to run than the others and also kinder to the environment.

The creamy beige Issimo is pleasingly compact. It's only 49cm high, about two thirds the height of other models on test, so it can fit neatly under a table.

The air flows out of a grill, at the top of the unit, and you can direct it either up or down. Although you're still limited by needing to be near a window and power socket, its hose can extend up to 1.5 metre and it has a 2-metre power cable, so this machine is commendably easy to move around. It has a handy pull cord at the front and helpful big rear wheels. It's easy to operate, too, with clear instructions. You can buy it from Rapid Heatbusters.

WORTH KNOWING We tested the 8HE model but a more powerful 9HE and less powerful 7HE are available.

Available Online (Rapid Heatbusters) Modes Cooling, fan, dehumidifier **Temperature range** 18-30°C **Night option** Yes **Display** Light indicators **Remote control** No **Window gap accessory** Yes

73% DeLonghi PAC C110 £300

The PAC C110 is from DeLonghi's Pinguino range, which is one of the bestselling brands. This unit has a high cooling capacity and offers good energy efficiency (see 'Insider information, p60).

Compared with the Issimo Best Buy, the silvery-grey DeLonghi has a more traditional look and feel. It's very easy to operate, using either the remote control or the machine's control panel. There are four speeds: high, medium, low and an auto option which selects the most suitable speed based on the current room temperature. Both the remote control and the control panel have easy-to-follow screens.

The air direction is fixed in a slightly up-facing position. We found that the coolest parts of the room were at the edge in front of the machine. You can buy this machine from Argos at present and it's expected in other stores shortly.

WE LIKE This machine has a timer function so you can automatically switch the appliance on or off.

Cheapest store Argos **Modes** Cooling, fan, dehumidifier **Temperature range** 18-32°C **Night option** No **Display** LED window and light indicators **Remote control** Yes **Window gap accessory** Yes



WHICH? **BEST BUY**

Renting is a good option if you want to try before you buy

The rental option

If you don't want a bulky machine all year round, why not hire one?

The air conditioners we tested start at about £200 to buy. But if you don't have much storage space or don't want to commit to buying one, you could rent. The problem is that rental prices aren't cheap. For units similar to those we've tested, you can expect to pay at least £40 to £80 a week from specialist online companies.

Shop around if you do want to hire. If you rent from general hire shops, such as HSS or Jewson, the cost, as we went to press, shoots up to £142 and £152 a week respectively.

This could mean that renting, even for a fraction of the summer, could cost as much as buying an air conditioner outright. Nevertheless, renting is a good option if you want to try before you buy. You can decide for yourself whether they're effective and you're happy with the noise levels.



What you should look for

AIRFLOW DIRECTION

It's helpful to have options for up, down and forward blasts so you can vary the strength of the airflow and which parts of the room feel coolest

LARGE CASTORS

The large rear castors on the Best Buy Olimpia Splendid (!) make it easier to manoeuvre than most other models on test

WINDOW GAP ACCESSORY

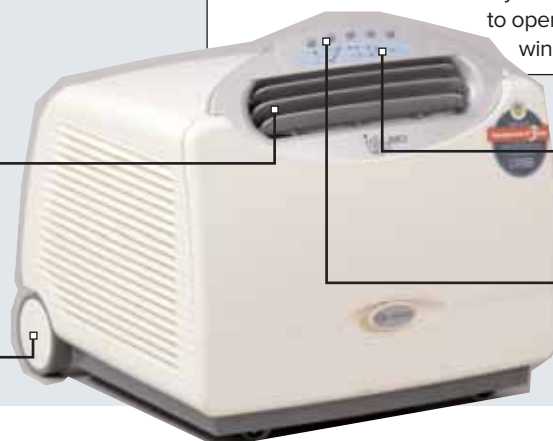
Most units come with a plastic accessory which fits on the window-end of the hot air exhaust hose to limit how far you need to open your window

EXTRA MODES

Some have sleep and timer options, which let you set the machine to switch off and on as you like. Night modes run slowly to reduce noise

SETTINGS

Most machines have separate settings for cooling, fan and dehumidifier, plus two or three speed options



Cooler alternatives

A couple of models which offer something a little different

If you're not convinced a portable air conditioner is right for you, we've also tested two different types.

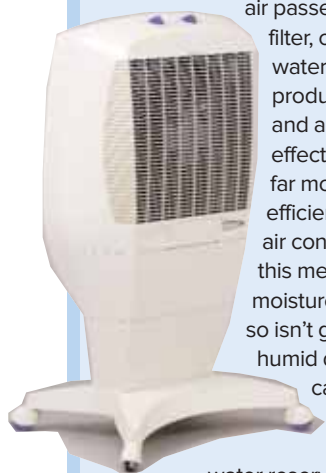
The Omas Vision (4) is a large wall-mounted unit which also has a heat option, so it can double up as a heater in winter months. As with the portable units, you need to expel hot air, but this unit has a shorter extraction hose of just 49cm, which is designed for channelling through an external wall rather than a window. We found this machine slightly quieter than others, and we liked its 'swing' airflow. But it operates only by remote control and, being fixed, you can only use it in only one room. It costs £800 and is a good option if you want a heater as well as a cooler.

The Convair Millenia M1 (pictured below) is an air cooler (not on the table). Instead of using a pipes-and-refrigerant system, you fill it with cold water. When you switch it on, warm

air passes over a wet filter, causing the water to evaporate, producing cool air and a 'sea breeze' effect. While it's far more energy efficient than the air conditioners, this method adds moisture to the air so isn't great for humid days. And it can be a bit of a job keeping the

water reservoir topped up. It costs £249.

You can also buy split air conditioners, where the section expelling the hot air is fixed outside your home. This type offers a permanent, built-in solution and can be more expensive than a portable single unit. We didn't test any for this report.



Insider information

Air conditioners' cooling can come at a cost. Our expert Alison Eastwood explains why

If you accept that excessive energy use is contributing to global warming, it's quite ironic that the solution to our own heat problems uses a large amount of energy itself.

The air conditioners we've tested use as much energy per hour as a typical fridge-freezer does in one day. In their defence, you'll probably use them for only a few hours each day. But if the sales explosion experienced last year continues, the impact suddenly seems a lot more significant. Using one could also prove quite pricey.

We calculate you could pay about £15 if you used one every day for three hours over an eight-week period. What's more, our tests

show you should take energy-labelling claims with a large pinch of salt.

While most units claim to be class A, the most energy-efficient standard, only the Olimpia Splendid Issimo (1) matched up in our tests. Our other Best Buy, DeLonghi's Pinguino PAC C110 (2), only just missed its claimed class B, rating as class C in our tests. At worst, the Enviracaire HCL-68TE (8) rated as level F. The problem is that the classification system is quite flexible, allowing a 12 to 15 per cent margin of accuracy. Our tests show that few air conditioners are as energy efficient as they state, so you're best off ignoring

these claims when buying. The other environmental banana skin is the use of refrigerants. Most of the machines we tested use either

R410A or R407C which are hydrofluorocarbons (HFCs), the most commonly used type, which can contribute to global warming.

The one exception is the DeLonghi Pinguino PAC T105 Eco (7) which uses R290, a hydrocarbon, propane-based refrigerant. This is the best option as it's ozone friendly and causes virtually no global warming.



USING THE TABLE

We tested a selection of portable air conditioners plus a wall-mounted option and an air cooler, the Convair Millenia M1, which is not in the table as it works differently from the other models tested (see 'Cooler alternatives', left). We plan to test more portable air conditioners as they come into the shops this summer – watch out for more results online. The more stars the better.

Specification

Price For Best Buys we give the cheapest widely-available high-street price as we went to press. Prices for other models are a guide. Prices for models that are available only online are in *italics*. **Stated BTU/hr** The makers'

claimed cooling power, often used as a guide to help you choose the right size of unit.

Size Dimensions in centimetres, not including clearance space. **Hose**

length Hoses are extendible to distances between the minimum and maximum length shown. **Weight** The unit's weight when ready for use.

Facts & scores

Some cool info about two air-con units

Planet saver

The DeLonghi Pinguino PAC T105 Eco is the only unit on test to use an anti-global warming refrigerant.

Luddite controls

The Amcor AMC 10KM-410 eschews new-fangled electronic displays, using control dials instead.

MODEL

- 1 OLIMPIA SPLENDID** Issimo 8HE
- 2 DELONGHI** Pinguino PAC C110
- 3 AMCOR** PLM12KE-410
- 4 OMAS** Vision^a
- 5 OLIMPIA SPLENDID** Frrido 00603
- 6 PREM-I-AIR** TC9000R
- 7 DELONGHI** Pinguino PAC T105 Eco
- 8 ENVIRACAIRE** HCL-68TE
- 9 AMCOR** AMC 10KM-410

^a This unit is wall mounted, not portable

Checklist Tips on how to stay cool the traditional way

- Turn off all non-essential electrical equipment.
- Try to stay downstairs. Hot air rises, so the temperature upstairs is usually less comfortable than on the ground floor.
- Keep windows, doors and curtains closed during the day. Once the temperature has cooled down in the evening, open them to allow airflow.
- Take inspiration from our Mediterranean neighbours by fitting external shutters, and using tiling and pale colours.
- Wear loose clothing to allow air to move around your body.
- It's tempting to open windows and doors, but doing so risks allowing warm air to enter. As with cold air, it's important to insulate your house, to guard against heat entering the room.



Test performance

Energy use (kWh)

We measured energy consumption over one hour in kilowatt hours (kWh); the lower the better.

Cost per day Indicative cost if using each air conditioner for three hours a day, on a tariff of 8.153p per kWh.

Airflow strength Our testers' subjective rating of how strong the airflow feels when sitting 1m and 2m

directly in front of the appliance.

Cooling The more stars the greater volume of air that can be cooled.

Dehumidification All air conditioners dehumidify automatically when in cooling mode but our rating indicates how much moisture is removed from the air when in dehumidification mode only. **Noise** Our testers' subjective verdict based on low/night and high-

speed settings. Even those machines with four stars are noticeably audible. **Controls** Our testers' verdict on how easy it is to operate and program each of the air-conditioning units.

Score

This ignores price and is based on:

Cooling capacity	40%
Energy efficiency	20%
Ease of use	20%
Noise	10%
Dehumidification	10%

SIZE AND NOISE

While these machines will undoubtedly keep you cool this summer, there are some factors that will leave you less than chilled out

Size is definitely a consideration, particularly if you have a small place. Portable units come in various sizes and are often described in terms of their BTU/hr (British thermal units per hour). In theory, the higher the BTU/hr claimed, the more efficiently the unit can cool. As a general rule, 5,000 to 8,000 BTU/hr is adequate for most rooms. In our test, few air conditioners met the BTU/hr claimed on the packaging, so we don't think you can rely on these claims to make your purchase. Choose a machine you're happy to accommodate in your room. If it has a higher cooling capacity, it should cool more quickly, so don't worry about using a large appliance.

The main annoyance is the noise. These machines let you know they're doing their job. And their electricity consumption is gluttonous compared with other appliances (see 'Insider information', **Even Best Buys can be noisy** opposite). Only one machine, the Olimpia Splendid Issimo (1), meets its claimed A rating for energy efficiency.



Even Best Buys can be noisy

SPECIFICATION						WHICH? TEST PERFORMANCE							SCORE %
PRICE (£)	STATED BTU/hr	SIZE (cm) (wxdxh)	HOSE LENGTH (cm)	WEIGHT (kg)	REMOTE CONTROL	ENERGY USE (kWh)	COST PER DAY (p)	AIRFLOW STRENGTH	COOLING	DEHUMIDIFICATION	NOISE	CONTROLS	
636	8,000	52 x 55 x 49	47-150	35		0.84	20.5	medium	★★★★★	★★★★★	★★★★★	★★★★★	81
300	9,000	46 x 37 x 77	36-109	30	✓	1.20	29.3	medium	★★★★★	★★★★★	★★★★★	★★★★★	73
400	9,400	50 x 42 x 84	50-150	34	✓	1.22	29.8	high	★★★★★	★★★★★	★★★★★	★★★★★	70
800	10,000	93 x 24 x 55	49	45	✓	1.24	30.4	high	★★★★★	★★★★★	★★★★★	★★★★	70
480	8,530	49 x 44 x 80	35-100	39		0.92	22.4	low	★★★★★	★★★★	★★★	★★★★	63
250	8,500	40 x 38 x 75	30-150	30	✓	1.09	26.6	high	★★★★★	★★★★	★★★★	★★★★★	59
600	8,000	50 x 41 x 94	40-121	34	✓	0.91	22.1	low	★★★★★	★★★	★★★★	★★★★★	56
550	11,000	45 x 37 x 86	45-216	45		1.22	29.9	medium	★★★★★	★★★★	★★★★	★★★★	53
199	8,300	40 x 38 x 75	30-150	30		1.01	24.8	high	★★★★★	★★★★	★★★	★★★★★	52