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Draft Report

v8

Possible Labelling of Portable Space Conditioners and Spot Coolers

**Market Research on Consumer
Attitudes and Behaviour**

Conducted for

**Department of the Environment,
Water, Heritage and the Arts**

7 December 2009

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Executive Summary

Background and Approach:

Winton Sustainable Research Strategies Pty Ltd recently conducted a research study for the Department of the Environment, Water, Heritage and the Arts to assist with the development of labels for single-duct portable space conditioners and spot coolers.

- Single duct portable space conditioners are unitary systems lying wholly within a conditioned space and drawing air from the conditioned space which then flows over the condenser and is exhausted via a single duct to the outside.
- Spot coolers are also unitary systems lying wholly within a conditioned space but they have no duct or air interconnection to the outside. These are generally limited to specific commercial or industrial applications and are rarely used in the residential sector.

These two products have been exempted from energy labelling and MEPS regulations to date, partly because there has been no international test method for the determination of efficiency. However, recent substantial increases, from a low base, in the market share of these products has prompted government to propose regulatory measures for these products with respect to energy efficiency, one aspect of which includes labels to inform consumers of certain product characteristics.

The study involved a series of four focus group discussions in Sydney, Brisbane and Adelaide with recent and prospective purchasers of 'portable air-conditioners' (restricted at recruitment to single-duct portable space conditioners and spot coolers), 15 mystery shopper exercises with retailers, and a working session with industry members who observed the focus groups.

The Study Findings:

A. Purchase Behaviour

Participants were carefully screened during the recruitment process to ensure that we had roughly equal numbers of recent and intending purchasers in each focus group. Several people in each group were both recent and intending purchasers. Almost all were recent purchasers of single ducted portable units, it being extremely difficult to find people who had bought or intended to buy portable spot coolers. Indeed, while most of the stores we visited for the mystery shopping exercises had their summer stock of single ducted portable units already on display, only a few of these stores normally sold portable spot coolers and only one or two had any stock yet. Some stores were not aware of the existence of spot coolers for domestic purposes, several asked if we might be confusing them with dehumidifiers which they did stock, but which they did not recommend for cooling.

The Purchasing Process

In a general sense, the purchase process for a portable air conditioner (the term all participants used early in the groups) seems to be very similar to that for other household appliances – the need is defined (e.g. heatwave coming, so need to cool the bedroom), the search process is undertaken (e.g. store flyers in mail, Google, ask friends, visit a few stores, etc), a short list is developed (e.g. models that look OK, will do the job, are affordable, are available, etc), then a model is chosen and purchased. Perhaps more often than with other appliances, it is an impulse or

urgent purchase, so the search process can often be short, sharp and decisive. Importantly, almost all our participants were considering only portable models – only two or three recent or intending purchasers across all four groups had also considered and/or were also considering a fixed model (ie, in window or on wall), almost all had already decided that they wanted a portable model for various reasons (see later).

Reasons for Purchase

There are (at least) nine reasons why participants choose to purchase a portable unit rather than a fixed unit, with many participants giving three (or more) reasons:

1. It can be used when an installed unit is not permitted (e.g. renting; against strata rules). [14 mentions among 31 participants]
2. It can be taken with you when you move. [12 mentions among 31 participants]
3. It can be used to augment a fixed unit (e.g. inadequate ducted unit). [9 mentions among 31 participants]
4. It can be used in various places around the home (e.g. rolled from room to room as you move about or go to bed). [8 mentions among 31 participants]
5. It can be used in different places as needed (e.g. taken on holidays; used occasionally in one's office or factory). [8 mentions among 31 participants]
6. It can be stored or hidden out of sight when not in use. [7 mentions among 31 participants]
7. It is operational immediately (e.g. no delivery delay, no fitting, open box and plug in). [7 mentions among 31 participants]
8. It is more affordable than other options (e.g. less expensive). [6 mentions among 31 participants]
9. It is neater than a fixed unit (e.g. neater; self-contained; smaller; at floor level). [5 mentions among 31 participants]

Purchase decision factors

The factors participants take into account when buying a portable air conditioner, with most participants mentioning three or four factors, include:

1. Effectiveness of cooling. (and heating if applicable). [17 mentions among 31 participants]
2. Ease and speed of getting it up and running. [11 mentions among 31 participants]
3. Appearance. [10 mentions among 31 participants]
4. Purchase price/value for money. [10 mentions among 31 participants]
5. Portability. [9 mentions among 31 participants]
6. Noise of operation. [8 mentions among 31 participants]
7. Ease and convenience of operation. [7 mentions among 31 participants]
8. Cost of running or energy consumption. [7 mentions among 31 participants]
9. Reliability = brand and/or retailer. [6 mentions among 31 participants]

However, energy efficiency is simply not on the radar – information failure abounds (see later).

Energy Efficiency is Simply Not on the Radar

Only seven out of thirty-one participants mentioned energy consumption or cost of running as a factor in their purchase decision, and not one mentioned energy efficiency. In general, people seem to assume that portable air conditioners as a category use significantly less energy than installed systems – however, many seem to under-estimate the energy consumption of portable air conditioners and over-estimate the energy consumption of installed systems. Owners and most intending purchasers of portable air conditioners also generally under-estimate the purchase cost of a portable air conditioner and seem to over-estimate the purchase and installation cost (and delivery time and inconvenience) of fixed units.

Information failure:

The situation regarding consumers' relative lack of knowledge or understanding of issues to do with energy consumption and energy efficiency concerning portable air conditioners is similar to that which existed with refrigerators (and all other household appliances) several decades ago before energy efficiency labelling was introduced. Furthermore, for many (often logical) reasons discussed above, people who own or are looking to purchase a portable air conditioner have generally already decided to buy a portable – some may also have initially thought about fixed air conditioners but have already ruled them out of consideration for various reasons (e.g. cost, practicality, appearance, convenience), many have not considered them at all. Therefore many are simply not aware that fixed air conditioners carry energy efficiency labels with star ratings and consumption and output information.

In recent research studies to do with televisions and pool pumps (to assist with their energy labelling), the provision of information that they may consume more power than people expected, and that some models consume considerably more power than others, was generally accepted as credible and led to many consumers in those studies calling for energy efficiency labelling of these products. Importantly, reactions in the current study to the likelihood of a similar situation existing with portable air conditioners were muted, with few expressing much interest and almost no calls for energy labelling. (See later for consumer reactions to other labelling reasons.)

B. Perceptions of the Product

How well do portable 'air conditioners' work?

Almost unanimously in our groups, purchasers maintain that their portable air conditioners work effectively. Some rave about them, almost none are dissatisfied (except with older models), only a few rate their performance no higher than "OK". An increasing number appear to be recommending them to their friends, especially those in similar circumstance to themselves. As can be seen from many of the quotes already offered in other contexts above, some people use quite specific examples to back up their positive views.

People constantly refer to the single ducted units as (portable) air conditioners. They view them as a different category of air conditioner from fixed units but (mostly) only because they are portable rather than fixed, not because they perform differently. In fact almost all view them as both performing the same way, as air conditioners.

On the other hand, although some are familiar with large industrial spot coolers (e.g. in shopping malls during renovations; in large temporary outdoor venues such as circus tents), very few have heard of small spot coolers being used in a residential setting. The two who have owned spot coolers for the home, and those few others who have heard of them, all see them as different from the ducted product, and mostly do not refer to them as, or confuse them with, air conditioners.

Reactions to Technical Descriptions

At different times in each focus group, participants were asked to read descriptions of the two products (single duct portable space conditioners, and portable spot coolers with no exhaust duct – see boxes below), and asked to comment.

Single Duct Portable Space Conditioner:

Single Duct Portable Space Conditioner:¹

This is a self-contained unitary unit with air from the condenser ducted to the outside via a flexible pipe. The flexible pipe must be installed and ducted through a door or window, otherwise the unit will act only as a spot cooler, which is less effective.

Because the unit draws air for the condenser discharge from the indoor room [ie, instead of from outside like in an installed air-conditioner], it acts as an exhaust fan moving what is effectively conditioned air from inside to outside. Unconditioned air must be drawn into the space from other indoor and outdoor sources to replace the discharge, so while it will cool the space in the short term, the space temperature may still rise as unconditioned air must be drawn into the space from other indoor and outdoor sources, so warmer air is [eventually] drawn into the room. The temperature rise depends on the design of the unit, the size of the building, where replacement air is drawn into the building and the difference between indoor and outdoor temperatures.

This product may provide some relief in the room in which it operates but may also eventually result in net heating of the whole building in hot weather. The main benefits with these units are that they can be moved from room to room, they can be taken with you when you move house, and they can be cheaper than installed models [and cost little or nothing to 'install'].

While most people appeared to understand the logic of the explanation concerning the single duct portable space conditioner, and realised it was intended to describe the product they own, many viewed it as incredulous, some even treated it with disdain, only a few people saw it as an issue of concern. In fact, only one participant (out of thirty-one) was able to relate the technical explanation to her own experience.

Personal Spot Cooler (with no exhaust duct):

Personal Spot Cooler (with no exhaust duct):²

This is a self-contained unitary unit but with no external condenser discharge. It is of very limited use and value in residential applications – larger versions are sometimes used in large commercial centres to assist if the main air-conditioning is not functioning properly as a temporary solution.

The unit takes air from the room for both cooling the occupant, and for cooling the condenser. The occupant feels a cool breeze from the discharge grill, but the room temperature actually rises because of the rejection of heat from the compressor and condenser into the conditioned space [ie, rather than to the outside]. If humidity exists in the room, it may be lowered in the cooling process, with any moisture removed being collected in a tank within the unit.

In stark contrast to their reactions to the description of the single duct portable space conditioners, almost all participants claimed to understand and accept the description of the personal spot cooler, many equating it with not using the exhaust pipe on the portable space conditioner. While most would not (now) consider buying a spot cooler, a few could see a role for it, particularly where there is no window or door to vent out the exhausted hot air.

The Meaning of 'Air-Conditioner' – Is a Portable Space Conditioner an Air Conditioner?

When asked where they would look or who they would ask if seeking the definition for an 'air conditioner', the immediate response from many people these days is simply "I'd Google it". The entry that appears first when 'definition of air conditioner' is typed into Google is <http://www.thefreedictionary.com/air+conditioner>, which defines an air conditioner as "an apparatus for controlling, especially lowering, the temperature and humidity of an enclosed space". Whether or not this matches the definition on which technical standards are based, it does tend to reflect many participants' views, although some leave out the reference to de-humidifying, and others add a reference to purifying. Importantly, as mentioned earlier, however they define the term, our participants believe that a single ducted portable space conditioner is an air

¹ Adapted from: Consultation Paper: Single Duct Portable Space Conditioners and Spot Coolers, September 2009, prepared for the Equipment Energy Efficiency Committee (E3) by Energy Efficient Strategies

² ibid

conditioner, and that a personal spot cooler falls short, the key point of difference being that one ducts the exhausted hot air out of the home whereas the other does not.

The Role of the Duct

The role of the duct (as technical experts describe it) or vent (as at least one industry member refers to it) or pipe or tube or hose (as many consumers refer to it) in removing the hot exhaust air to the outside (if fitted correctly in a door or window) is understood by most participants and retail staff, with only one or two regarding its use as optional. However, some stores (e.g. Bunnings, Aldi, K-Mart) do not have trained staff to advise customers, and indeed, customers can select and take the product through the checkout with talking to a staff member.

Most participants see the pipe as unattractive, many find it is inconvenient to position, some find it difficult to retain in the window or door, and few are able to seal it as well as they would like. However, almost all find that they can get it to operate “effectively enough” to do the job. Participants reported that some earlier models did not include a framework or bracket or guide with which to hold and seal the pipe in the window or door. For some models the pipe and/or its flange and/or the framework or bracket on those earlier models was an optional extra.

On the other hand, the models purchased more recently by participants and those the intending purchasers who had looked at so far, generally seemed to include the pipe, with most also having some sort of framework or bracket as standard. However, as confirmed in our mystery shopping exercises, some models do not supply a framework or bracket, and some only supply them as an optional extra. The sturdiness of the frames or brackets varies immensely, ranging from very sturdy metal extendable frames, to quite flimsy plastic versions.

Preferred Product Names

After the technical descriptions had been read and discussed in each group (and after looking at the labels as well in the Adelaide group), participants were asked to choose their preferred name from a list (or to suggest a new one) for each of the two products.

Single Duct Space Conditioners

Even after reading and discussing the technical description, around half the participants still wanted to call it an air conditioner, in fact a number were quite adamant about it. When they are asked to ‘vote’ again if ‘air conditioner’ cannot be used, most opt for ‘space conditioner’ or ‘room conditioner’. Overall, ‘space conditioners’ receives the highest number of ‘votes’ (but only twelve out of thirty-one) with ‘room conditioner’ coming in at eight ‘votes’. Twice as many people prefer ‘conditioner’ than prefer ‘cooler’ (twenty vs eleven).

Unducted Spot Coolers

In contrast to the space conditioners, no one in any of the four focus groups wanted to call the spot cooler an air conditioner. Of the names tested, ‘spot cooler’ came out on top with fourteen ‘votes’, but followed closely by ‘personal cooler’ with eleven ‘votes’.

C. Labelling Implications

The foregoing discussion raises a series of issues that need to be addressed in developing an appropriate label design.

Should these products carry a label at all?

As can be seen from the views presented and discussed throughout this report, in the absence of a label (or some other vehicle to effectively convey the information) consumers are likely to continue making decisions as they do now, and probably do so in increasing numbers. Almost all consumers (in our focus groups) can see the logic and value of having a warning label (but not necessarily called that) on portable spot coolers, because they can accept the argument that they do not work effectively (or at all) as an air conditioner. However almost all are far less enthusiastic about having such a label on portable space conditioners because they believe (and many eagerly provide anecdotal evidence and recount their own experiences to justify this belief) that they do work effectively, or at least sufficiently effectively to meet their needs. In many cases (e.g. rentals) they see them as the only option.

1. If the purpose of the label is primarily to inform consumers that portable space conditioners do not work effectively (and are therefore not air conditioners), then current technical arguments (as provided for this research) run counter to consumers' perceptions and experiences, and are therefore not credible to owners or intending purchasers (even if they accept the logic in theory). It is a matter of comparative effectiveness – if their performance in cooling the air is good enough to be acceptable to a portable space conditioner owner or intending purchaser for their purposes, then as far as they are concerned, they are effective air conditioners.
2. If the purpose of the label is primarily to inform consumers that portable space conditioners do not work as effectively as built-in split systems, most consumers already know this, but either cannot have a built-in split system (e.g. renting), or consider other factors are more important (e.g. affordability, portability, appearance, etc) with a portable product that they believe works effectively enough.
3. If the purpose of the label is primarily to inform consumers that portable space conditioners are not as (energy) efficient as built-in split systems, many owners or intending buyers already 'know' this and/or accept it as a less favourable feature of an otherwise preferred (or only possible) product. Some also suggest that as portables use less power than built-in systems (a belief that may not be correct), their assumed poorer energy efficiency (if correct) may have less relevance. Either way, unless the comparative energy efficiencies of the two product categories (single duct portable space conditioners and built-in split systems) can be effectively calculated and clearly communicated to consumers in a credible way (e.g. using the same or a directly comparable test), it is unlikely to work.
4. If the purpose of the label is primarily to inform consumers that portable space conditioners use more energy than built-in split systems, this runs counter to what most owners and intending purchasers currently believe. In this case, credible comparative hard data to the contrary may convince some people sufficiently to reconsider their choice, but to many others a portable will still be their only (possible) choice. If consumers refer to energy consumption at all, they generally talk in terms of watts (e.g. 1,100 watts) in the same way that they refer to electric room heaters. Mandating the inclusion of energy consumption in watts on the label would at least enable direct comparison between models on this measure, but does not address energy efficiency differences.
5. If the purpose of the label is primarily to inform consumers that portable space conditioners cannot be tested under the same standard as fixed air conditioners, then instead of using the bald statement "this is not an air conditioner", which is rejected by most participants as contrary to their experience, the label could assert that "This product cannot be tested as an air conditioner because it might not be able to (or cannot) maintain the comfort conditions required in AS/NZS 3823", then briefly explain why.

If these products are labelled, should it be based on the Energy Rating Label?

One principal value of the energy labelling scheme is its credibility among consumers.³ Research has shown that using a similar label to convey information backed up by fact does not affect the credibility of the labelling scheme and can work effectively (e.g. the old TESAW label, or the WELS warning label for showerheads that do not meet the standard but are available for sale where water pressure is low). However, the energy labelling scheme's credibility could be placed at risk if the scheme conveyed information that was controversial and not supported by established methods of calculation, or if it is thought by consumers to be wrong or to run counter to their experience, or conversely if the information had to be so general and qualified that it had no value for consumer decision making. The proposed spot cooler label is unlikely to cause concerns, but there is a need to tread very carefully with the space conditioner label in this regard.

What colour scheme should the label have?

The red, black and yellow colour scheme (and shape) of the energy rating label is instantly recognisable, well-liked and has authority. Although the cooling only air conditioner label uses a blue arch (the reverse cycle label uses blue for cooling and red for heating), this label is not so familiar to owners and intending purchasers of portables, most of whom are not considering fixed units so have not been looking at their labels. The red colour used behind the headlines ('Warning', 'Caution', 'Attention', etc) in the mock-ups in the current research tests well in that respect.

How should the label be headlined?

Given their current perceptions of and experiences with single duct portable space conditioners, most owners and intending purchasers are unlikely to respond positively to (many say they would reject) labels headed 'Warning' or 'Caution', and indeed such words tend more to hint at a safety issue (e.g. faulty wiring) than an effectiveness issue. However, there was a very positive response to the heading 'Attention' (16 out of 23), especially as it conveys the expectation that the label contains information that needs/deserves to be read, without giving it a negative (or positive) connotation.

Figure 1: Options for Proposed Single Duct Portable Space Conditioner Label



Even where owners and intending purchasers of space conditioners had quite negative perceptions of (but few experiences with) spot coolers, the heading 'Attention' (11 out of 23) gained the highest number of responses for the same reason, the expectation that the label contains information that needs/deserves to be read, without giving it a negative (or positive) connotation.

³ Artcraft (2006) *Appliance Performance Labelling in Australia and New Zealand*, Artcraft Research (now named Winton Sustainable Research Strategies) for the Australian Greenhouse Office, Department of the Environment and Heritage, August 2006

What name should the label carry?

The energy rating label used for air conditioners, fridges etc has 'Energy Rating' in the black section (see Figure 2 LHS). That does not work well for the labels tested for this study as they do not carry an energy rating. However, using the name of the product does work well see Figure 2 RHS), especially as it is a message common to all models of that product.

Figure 2: Energy Rating Label, and Mock-Up Portable Labels Using Product Name



What message and tone should the label convey?

During the four groups, the following messages were read and briefly discussed by participants, and 'votes' were taken as to the message people preferred most (or rejected least).

For space conditioners, message A emerged way ahead of the others (23 out of 31), for two key reasons:

1. It does not say it is not an air conditioner, and therefore did not directly contradict people's beliefs.
2. It uses a conditional statement (Over time this may result...), which allowed people to agree with (or at least not reject) its logic, even where their experience was different. However, most of the people who chose message A say they would still buy it, because their experience was different.

	<u>Space Conditioner:</u> <u>Preferred label message:</u>	'Vote'
A	This product has a cooling function when ducted to the outside, but during hot weather hot air is drawn into the building to replace the exhausted hot air. Over time this may result in an increase in indoor temperatures in other parts of the building. Please ask your retailer about alternatives.	23
B	This product is NOT an air conditioner. Its use during hot weather is likely to result in an increase in indoor temperatures in other parts of the building.	3
C	This product has a short-term cooling function if ducted to the outside, but is not an air conditioner. Please talk to your retailer for alternatives.	3
D	This product has cooling and heating functions but is not an air conditioner. Please talk to your retailer for alternatives.	1
E	This product is NOT an air conditioner. It may provide some cooling under certain conditions, but has limited effectiveness when the outdoor temperature is hot.	1
	Participants	31

With spot coolers either of messages F and G is likely to work well, receiving 26 out of 31 between them. Message F is preferred by more people because it alerts you more clearly than G to the fact (believable in the case of a spot cooler) that this is NOT an air conditioner.

	<u>Spot Cooler:</u> <u>Preferred label message:</u>	'Vote'
F	This product is NOT an air conditioner and is not suitable for general use in residential applications. While it may provide some cooling to part of a room, its use will add heat to the room.	15
G	This product cools one part of a room but emits heat into the rest of the room. It is not an air conditioner. Talk to a salesperson if you would like an air conditioner.	11
H	This product is not an air conditioner, although it may provide some temporary cooling to a part of a room. Talk to a salesperson if you would like an air conditioner.	3
I	This product is a spot cooler and does not function as an air conditioner. While it may provide some cooling to part of a room, its use will add heat to the room.	2

Should the label include any numbers or symbols?

Unlike the energy consumption information on labels for household appliances (fridges, freezers, dishwashers, clothes washers and clothes dryers) which are understood to some extent by most consumers, the figures provided on fixed air conditioners (currently 'capacity output' and 'power input' as on the fixed air conditioner label (see Figure 3 LHS) have never been well understood except by technically oriented consumers, with more people than with other appliances relying on the stars alone in their decisions⁴. Therefore, to include similar measures on portable space conditioners (see Figure 3 RHS) would be no more communicative to many people even if they were directly comparable, and a star rating is not appropriate according to technical experts. Fixed air conditioners are tested to AS/NZS 3823.2-2009, but single ducted portable space conditioners cannot be tested under this standard. It is understood they can be tested to EN14511⁵, but that the two are not directly comparable, and any explanation is only likely to (further) confuse and alienate consumers.

Figure 6: Fixed Air Conditioner Label, and Mock-Up of Possible Portable Label



⁴ Artcraft Research (2003) *A Major Research-Based Review and Scoping of Future Directions for Appliance Efficiency Labels in Australia and NZ*, Artcraft Research (now named Winton Sustainable Research Strategies) for the Australian Greenhouse Office (AGO), November 2003, page 65

⁵ Referred to in relevant label mock-ups as AS/NZS for consistency with Australian Standards nomenclature.

1 Introduction

This report documents a research study conducted by Winton Sustainable Research Strategies Pty Ltd for the Department of the Environment, Water, Heritage and the Arts to assist with the development of labels for single-duct portable space conditioners and spot coolers.

1.1 Background to the Study

Single duct portable space conditioners and spot coolers have been exempted from energy labelling and MEPS regulations to date, partly because there has been no international test method for the determination of efficiency. However, recent substantial increases, from a low base, in the market share of these products has prompted government to propose regulatory measures for these products with respect to energy efficiency, one aspect of which includes labels to inform consumers of certain product characteristics.

The two products differ somewhat:

- a. Single duct portable space conditioners are unitary systems lying wholly within a conditioned space and drawing air from the conditioned space which then flows over the condenser and is exhausted via a single duct to the outside.
- b. Spot coolers are also unitary systems lying wholly within a conditioned space but they have no duct or air interconnection to the outside. These are generally limited to specific commercial or industrial applications and are rarely used in the residential sector.

It was understood that the distinction between the two products may not be clear among consumers or retailers, with many units that can be ducted not being clearly identified or packaged or retailed to communicate this effectively.

1.2 Objective and Question Areas

The overall objective of the study was to generate findings and recommendations to assist with the development of labels for single-duct portable space conditioners and spot coolers.

Specific question areas addressed in the study included:

Among consumers:

- What does the term 'air-conditioner' mean to people, how do they define it?
- Why purchase a portable unit rather than an installable model?
 - Uncover and explore perceived positives and negatives of both.
- Is purchase of a portable unit:
 - A considered purchase?
 - If so, is it made before or after arriving in store?
 - If not, what influence does the retailer have in choice of a portable product?

- What are expectations of portables versus installed units?
 - Firstly unprompted.
 - Then prompt and probe regarding:
 - Ease and speed of getting it up and running (e.g. very hot day, need it for tonight)
 - Ease and convenience of operation
 - Effectiveness in cooling area/room
 - Appearance
 - Cost of running
 - Energy efficiency
 - Purchase cost (including installation)
- Gauging unprompted understanding of difference in outcomes between ducted and unducted portables.
 - Are consumers aware that ducted models need to be ducted outside to work 'effectively'?
 - What usage instructions do retailers give, eg:
 - Do they mention the discharge duct and how it is used?
 - Is any framework or device offered to assist with fixing the duct in a window?
- Gauging unprompted understanding of difference in outcomes between portables and 'real' air-conditioners.
- Test various label options (to be developed)
 - Identify best option for each product
 - Note any revisions/changes required
- Investigate reactions to prompted explanation of difference in outcomes between ducted and unducted portables.
 - Any implications for labelling
 - What lessons are there for broader communication
- Investigate reactions to prompted explanation of difference between portables and 'real' air-conditioners.
 - Any implications for labelling
 - What lessons are there for broader communication
- If suppliers can no longer call their portable products 'air-conditioners' what kinds of names would be acceptable to consumers?

2 The Research Approach

The research approach employed was wholly qualitative in nature, involving a series of four focus group discussions with recent and prospective purchasers of 'portable air-conditioners' (restricted at recruitment to single-duct portable space conditioners and spot coolers), 15 mystery shopper exercises with retailers, and a working session with industry members who observed the focus groups.

2.1 Four focus groups with consumers (recent and prospective purchasers):

Four focus group discussions were conducted with consumers (6 to 8 people in each group), split up as follows:

- one focus group (spread of suburbs) in Adelaide (older houses, low humidity).
- two focus groups (one northern, one older houses) in Brisbane (fastest growing market, older houses, high humidity)
- one focus group (spread of suburbs) in Sydney (largest market) – this focus group was conducted last and was followed by the industry working session.

Both recent and prospective purchasers were included in each of the groups. Recent purchasers (mainly from last summer) have already made their decision and it is useful to see how those decisions were made, and also what decision they might have made if the current information (e.g. proposed labels) had been available. With prospective purchasers it is interesting to investigate the extent to which the new information might guide their purchase decision.

The consumer focus group discussions covered all study objectives and question areas outlined above for consumers. They were held in the evening so that representative cross-sections of consumers could take part. A DEWHA officer, several industry representatives and several technical consultants observed the focus groups in Sydney and/or Adelaide.

For consistency, Les Winton moderated all four focus groups.

2.2 Fifteen mystery shopper exercises with retailers:

Fifteen mystery shopper exercises were undertaken with a range of different retailers in Sydney, Adelaide and Brisbane, including home appliance stores (e.g. Good Guys, Harvey Norman, etc), department stores (Myer, David Jones), super stores (e.g. Aldi, Bunnings) and others. The mystery shopper exercises investigated the knowledge and behaviour of retail staff when promoting and selling single-duct portable space conditioners and spot coolers to consumers.

A trained mystery shopper enquired about the product following a shopping scenario and question guidelines, exploring the retailer's response in terms of both products in a normal store setting. After leaving the store, the mystery shopper recorded his comments against the guideline checklist for consistency. Findings have been included in the report where relevant, and for privacy reasons no store or sales person will be separately identified.

2.3 A working session with industry representatives:

A brief working session was undertaken with industry representatives and DEWHA after the Sydney consumer focus group discussion, providing the industry representatives who observed that focus group with an opportunity to put forward

their views and observations, and discuss them with industry colleagues in a round table environment.

2.4 A note on the qualitative research approach:

Qualitative research is interested in how people make sense of the world and how they experience events. The roles of qualitative research are many, including: exploring, describing and possibly explaining participants' opinions, behaviours and experiences; uncovering prevalent trends in thought and opinion; gaining an understanding of underlying reasons and motivations; and providing insights into the setting of a problem, generating ideas and/or hypotheses for later quantification.

While some enumeration may be undertaken to establish the prevalence of various views and behaviours among the people taking part in the study, the extent to which this enumeration might coincide with the population is not known as the 'samples' for qualitative studies are typically purposively selected against specific criteria, rather than randomly selected from the relevant population. Having said that, if a particular view is prevalent (or absent) in each of a number of separate focus groups, it is reasonably likely that it is prevalent (or rare) in the relevant population.

3. The Study Findings

This section of the report provides details of the findings of the study, together with suggestions and recommendations where relevant. Verbatim quotations from the focus group discussions and some retailer comments are provided throughout to add flavour and texture to the findings and to indicate how real consumers think and act in their own words. Participants are identified by city at the end of each quote (A = Adelaide, S = Sydney, B1 and B2 = the two Brisbane groups).

3.1 Purchase Behaviour

Participants were carefully screened during the recruitment process to ensure that we had roughly equal numbers of recent and intending purchasers in each focus group. Several people in each group were both recent and intending purchasers. Almost all were recent purchasers of single ducted portable units, it being extremely difficult to find people who had bought or intended to buy portable spot coolers. Indeed, while most of the stores we visited for the mystery shopping exercises had their summer stock of single ducted portable units already on display, only a few of these stores normally sold portable spot coolers and only one or two had any stock yet. Some stores were not aware of the existence of spot coolers for domestic purposes, several asked if we might be confusing them with dehumidifiers which they did stock, but which they did not recommend for cooling.

3.1.1 The Purchasing Process

In a general sense, the purchase process for a portable air conditioner (the term all participants used early in the groups) seems to be very similar to that for other household appliances – the need is defined (e.g. heatwave coming, so need to cool the bedroom), the search process is undertaken (e.g. store flyers in mail, Google, ask friends, visit a few stores, etc), a short list is developed (e.g. models that look OK, will do the job, are affordable, are available, etc), then a model is chosen and purchased. Perhaps more often than with other appliances, it is an impulse or urgent purchase, so the search process can often be short, sharp and decisive.

To me it was just like buying the dishwasher, we went to the same store, looked around in the same way, compared features the same way, and talked price the same way – we even borrowed my son's ute so we could take it home the same way.[B1]

I went to Good Guys, they were great, they had them all set up in displays, they had brochures, they had a bloke dedicated just to selling them. He gave good and bad points on all of them for where we wanted to put one, and he said 'this would probably be best, it's on wheels, has a hose, stick it through the window or door, there are the extenders to fit the gap', it was all easy just like when you buy other appliances.[A]

BUT

It's a rush purchase when a heat wave starts, you need relief so you rush out and buy one – you've got to be able to put it in the car and take it home and use it immediately.[B2]

I know they say 'buy in haste, regret it at leisure', but if you need it quickly, sometimes you have to act fast.[B1]

I knew exactly what I wanted, I'd seen it in Aldi, so I went straight there and bought it, no fuss, no salesmen bothering you, really cheap price (\$180).[B1]

Importantly, almost all our participants were considering only portable models – only two or three recent or intending purchasers across all four groups had also considered and/or were also considering a fixed model (ie, in window or on wall), almost all had already decided that they wanted a portable model for various reasons (see later).

Retail staff generally agreed with this latter point, saying that while some enquirers could be “sold up” to a fixed model, many wanted to take a portable home with them “straight away” or commented that they were not able to install a fixed model.

There are far better solutions, but if that's what they really want, we'll sell it to them.[S-retailer]

The problem in this area is most people rent, and they move a lot, too, so a portable is the only option.[B-retailer]

3.1.2 Reasons for Purchase

There are (at least) nine reasons why participants choose to purchase a portable unit rather than a fixed unit, with many participants giving three (or more) reasons:

1. It can be used when an installed unit is not permitted (e.g. renting; against strata rules). [14 mentions among 31 participants]
 2. It can be taken with you when you move. [12 mentions among 31 participants]
 3. It can be used to augment a fixed unit (e.g. inadequate ducted unit). [9 mentions among 31 participants]
 4. It can be used in various places around the home (e.g. rolled from room to room as you move about or go to bed). [8 mentions among 31 participants]
 5. It can be used in different places as needed (e.g. taken on holidays; used occasionally in one's office or factory). [8 mentions among 31 participants]
 6. It can be stored or hidden out of sight when not in use. [7 mentions among 31 participants]
 7. It is operational immediately (e.g. no delivery delay, no fitting, open box and plug in). [7 mentions among 31 participants]
 8. It is more affordable than other options (e.g. less expensive). [6 mentions among 31 participants]
 9. It is neater than a fixed unit (e.g. neater; self-contained; smaller; at floor level). [5 mentions among 31 participants]
1. It can be used when an installed unit is not permitted (e.g. renting; against strata rules).

Because of my shift work, we have a window one in the lounge room, and I thought with the bedroom during the day it's going to be hot during the summer. I went to Good Guys they tried to steer me off it, said it was going to be rubbish and not work, but that was bullshit, because it works beautifully, better than the window one in the lounge room – I think they were just trying to sell be up to a more expensive model.[B2]

For me only a portable makes sense, living in rental property.[A]

I bought a portable because I'm renting and you can move it to a different room. I have found actually I didn't get a lot of help. People were thinking split systems and box systems, rather than actual portables. So I found it very difficult. I got more information from the internet than I did with customer service.[B2]

I didn't give them a choice, just walked in said 'I want a portable air conditioner' – at the time I was renting, and I wanted it for upstairs for my bedroom, and didn't want to fork out the cost of having to install an air conditioner in a place I didn't own. So I went in there and said what I wanted, and gave them no choice.[B2]

I don't have a choice, I'm renting.[B1]

I still live at home with my parents. We moved to a house that didn't have air conditioning and my parents didn't want to install one, so I bought the portable air conditioner for my bedroom so I can sleep in the summer.[B1]

I was going to get one of the wall mounted type of thing, but there were problems with the strata rules, I own the unit but I still can't have one installed, so now I have to get a portable one.[S]

I'm still living at home with Mum and Dad. I bought my own portable air conditioning system for my room. It seems to get the sun all day during the summer, and so it's incredibly hot and I really can't study appropriately.[S]

Our house doesn't have insulation and it's an absolute hotbox - with Queensland (public) Housing, we are not allowed to put insulation in, and we are not entitled to the rebate even if we did go ahead against their instructions. And we can't alter anything, so we can't get a window or wall mounted air conditioner. Our local servo has a portable and it keeps the servo cool so we bought one and it's fabulous.[B2]

Yes, I did the same as you, Good Guys, Harvey Norman, RT Edwards, ended up back at Good Guys and bought a portable on wheels – again to move around the house. They were more interested in insulation, and permanent attachment and I rang Queensland housing as well, so you are very limited as to what you can and can't do.[B2]

I'm expecting to buy an air conditioner – we have got a two storey house, the top gets very warm. We have ducted air conditioning, but it doesn't seem to work very well at times – so we are looking to buy an air conditioner before summer, specifically for three rooms upstairs – we'll keep moving it to whichever room needs cooling the most, that's why we are getting the portable one.[A]

2. It can be taken with you when you move.

I didn't want to have to rip screens down and get a mate to come and install it, so I thought it would be perfect, and it is, especially as I rent, I can also take it with me.[B2]

I have two installed in the windows, and I also have a portable one we purchased at K-Mart, which I find excellent. It's on wheels, and it has got a long tube type thing you can feed out a window, that you can pull in again to take it from room to room, or when it comes time to move.[B2]

I wouldn't want to spend the money on anything permanent that I can't take with me.[A]

I'm moving soon, so when I bought an air conditioner for my room, I bought a portable one with a duct out the window, so I can take it with me.[S]

If you are moving around or moving house, you can take it with you.[S]

I'm moving again soon and I need something I can take with me.[B1]

It's not my place, so I can't install one, and it's coming up to summer, and I know evaporative coolers don't lower the humidity and don't even cool well in muggy Brisbane, so I'm buying a portable air conditioner.[B1]

Mine is for my mother-in-law. She's in a rented property, so we just got one for her, so she can take it wherever she goes.[B1]

With me it was more last year my brother and I considered it. We don't know where we are going to be in the next few years, regarding relationships and so on and moving on. So didn't necessarily want to fix something in the unit – but it's more for extremes.[B2]

3. It can be used to augment a fixed unit (e.g. inadequate ducted unit).

I actually bought the portable because although we have split system ducted air conditioning, it didn't work in a corner of the main living area. That's why we bought the portable to put in that area, and it does the job.[B1]

I have an open plan house which is quite large. My ducted air conditioner had a bit of a heart attack. So I got the portable out to put in my lounge room, doors open everywhere, and I put that thing through the window and had it sitting there, and that cooled the lounge room, it did an excellent job for the time I needed it. Mind you if I went into the kitchen or family room, it was quite warm, but as soon as I walked back into the lounge room I felt it cool straight away.[A]

I have in my ceiling something called 'Breeze Power' which is a massive fan which draws air in – which works perfectly well on days when the humidity is really low, but on high humidity days it doesn't work. That's when the portable comes in handy.[S]

We are looking at building on above our garage, we have a two storey house at the moment, but it would have its own roofline, so we can't get ducted in there, so we are looking at getting a portable.[A]

We moved to a new house which has ducted air conditioning throughout, so we didn't need the portable in the house. So now we use it outside on the back deck – it does the job, too.[B1]

We'd already had one in our bedroom for about ten years. It works fine so when we needed another one for our new son's bedroom, we bought another one and it works even better.[B1]

When we moved down here (from Western Sydney) and built the house, we got evaporative ducted right through. But now that the climate is changing and Adelaide is getting more humid, it doesn't work as good sometimes, whereas my little portable refrigerated one, I can get that one in, and get more benefit from that than I do from the ducted evaporative, so I'll be getting a second portable soon.[A]

4. It can be used in various places around the home (e.g. rolled from room to room as you move about or go to bed).

The portable is much better for me in any room. My wife sits right on top of it because she has to be cool all the time, whereas I'm not a big fan of being that cold. My wife gets really hot and so we can point it directly at her so she's happy, and I benefit from it indirectly by the rest of the room being kept cool, but not cold.[A]

The thing about the portable air conditioner, unlike the one on the wall, is that you can move it from room to room, so you're not stuck solely with it in that one room. That will always be an advantage in favour of portables.[S]

We bought a portable because we needed to be able to move it from room to room, to cover the three bedrooms – it was great last summer plus we've been running it all winter as well, it's got reverse cycle and it's great – best thing we ever did.[A]

You can move it about, if you move from one room to another, you don't need one in each room then.[A]

You can put one on the wall, but you have to leave it, and it's good to be able to move the portable around. I wanted one for my bedroom. The sun comes up in the morning in the bedroom, so just to have it cool in the heat of summer.[B2]

5. It can be used in different places as needed (e.g. taken on holidays; used occasionally in one's office or factory).

We always take it in the car and bring it back, usually we go to West Beach, and it's good in the little caravan – keeps it down to 25 degrees even when it's been 43 degrees outside.[A]

We had a holiday and took it with us to the holiday house. It was one of those really hot summers. It was a brand new place but had no air conditioning. It was one of those horrible Januarys. It worked really well, we were able to sleep.[S]

We have got one of these things on the wall where my wife works, and it tends to blow all her papers about, so she usually ends up taking the portable in and adjusting it so it doesn't do that.[S]

We're buying one of those portable air conditioners, for when we go away. We go away quite often and the one we have works a treat, but it's a bit old now so we're replacing it.[A]

We've just bought a (holiday) shack, so we are looking at getting a portable air conditioner – it gets very hot in summer, so we are looking at something we can move from kitchen to bedroom, then bring home again so it doesn't get pinched.[A]

6. It can be stored or hidden out of sight when not in use.

I bought several portables because they look modern and you can store them away when you don't need them. They aren't an eyesore like those dreadful ones you fit permanently in the window or have to mount slap bang high up in the middle of the wall.[B2]

I need a portable air conditioner for my apartment. I have one on the wall in my daughter's room and I hate it, because of the look of it. In our room we have a small portable one which we can put away when we're not using it. So that's the option I am going for in her room, too.[S]

There were five different brands on display there, the one we got was the biggest one, we needed it to cool two very large rooms in our home, that is why we chose the portable one because we could place it to blow into both rooms – the alternative would be to have one installed in each room, but that was going to be five times as expensive. The portable does a very good job, and has the added bonus we can store it away out of sight when it's not needed.[A]

Like the breeze isn't too bad most times of the year, we are pretty lucky with the position we're in, but when it gets too extreme, as far as sleeping goes, we do have a fan there, but you wake up in the hot wind from it, so the portable air conditioner will suit our needs very well, because you can store it away later.[B2]

7. It is operational immediately (e.g. no delivery delay, no fitting, open box and plug in).

Also the fact that you don't have to get them installed. Like the wall one we've got in the kitchen took half a day to get installed, and that's when we could get someone to do it, whereas with the portables, you put it in and get it to work straight away. That's an advantage.[S]

We had a bad experience with the one on the wall, it took forever. I bought it, then I had to arrange for someone qualified to come out and install it. It wasn't like I want to be cool this afternoon, it's something you had to plan ahead, and then I had to wait around for somebody, and then they made a whole heap of mess, so this time I'm going for a portable, no fitting, no hassles, no delay, no mess.[S]

8. It is more affordable than other options (e.g. less expensive).

I didn't have much money and it was the cheapest option.[B1]

They are cheaper than split systems, and you don't have the extra expense and inconvenience and delay of having to have it installed.[A]

I think it's less of an issue if it's a secondary unit or you are using it just say in a bedroom and have something else that works more efficiently say in a living area, so extra flexibility without having to spend heaps of money and pull down walls is a big plus for portables.[S]

9. It is neater than a fixed unit (e.g. neater; self-contained; smaller; less obtrusive; at floor level).

I have an old bluestone house, I couldn't stick an air conditioner out in the front of our bedroom, it would look disgusting. I have one at the back where you can't see it, for the main rooms, but you can't have an air conditioner sticking out of the front window, the heritage people wouldn't allow it, especially in the front of the house where the bedrooms are, so it was a quick fix and easy, the portable.[A]

We have a big reverse cycle air conditioner that has been there for 15 years now and so basically it is on the way out. It's on the outside and looks horrible, so I can see that disappearing and getting something less intrusive, and with more flexibility. Things can be done a lot better now than 15 years ago, and I'm thinking of getting several portables that will do that very nicely.[S]

I really don't like it when I walk into someone's place and the main feature of their lounge room is a horrible air conditioner high on the wall, noisily belching cold air down on everyone. That's why I went for the portable, quieter, less obtrusive, down at our level, and nicer to look at.[B2]

3.1.3 Purchase decision factors

The factors participants take into account when buying a portable air conditioner, with most participants mentioning three or four factors, include:

1. Effectiveness of cooling. (and heating if applicable). [17 mentions among 31 participants]
2. Ease and speed of getting it up and running. [11 mentions among 31 participants]
3. Appearance. [10 mentions among 31 participants]
4. Purchase price/value for money. [10 mentions among 31 participants]
5. Portability. [9 mentions among 31 participants]
6. Noise of operation. [8 mentions among 31 participants]

7. Ease and convenience of operation. [7 mentions among 31 participants]
8. Cost of running or energy consumption. [7 mentions among 31 participants]
9. Reliability = brand and/or retailer. [6 mentions among 31 participants]

However, energy efficiency is simply not on the radar – information failure abounds (see later).

1. Effectiveness of cooling (and heating if applicable). [17 mentions among 31 participants]

I looked up Choice on the Internet, I found it's got a lot of information and so I got a bit of feedback as far as their power and what they can actually output – weighing up my choices I knew it wasn't going to be as strong as a fixed air conditioner, but it's perfectly adequate for my needs.[B2]

I would say mine's good, it's nowhere near as good as the reverse cycle on the wall in the lounge room, and it is quite big and heavy to wheel in and put out the window, but it does the job, it's only the bedroom, so it does cool it down after a while.[S]

It seems a bit sort of directional, you have to sit in front of it to get the full effect, rather than it doing the whole room, but then it's a really big games room.[S]

It works OK, but I wouldn't say it's very effective. I would say only average. I wouldn't even say good, but OK.[S]

My portable is good, it works well. I haven't had any problem with it, so I'd have to say excellent. It does what I need it to do very well, even on some of those very hot days we had last summer.[S]

Yes I have several different air conditioners. I have an evaporative one and don't find that very good, I'd say okay, but not excellent. The refrigerative one is a ripper, whichever room we wheel it into.[S]

Yes, I am in a townhouse with units either side, and it's quite leafy, trees and so on at the back, but stifling hot in the afternoon, so I went for one that blows out a lot of cold air. It's got a heating function as well, so it's good in winter too, where it's shaded and cold at the back.[B2]

2. Ease and speed of getting it up and running. [11 mentions among 31 participants]

I'm looking for one that's got a proper flange on the end of the pipe and a strong bracket to hold it and seal it in the open window, some of the cheaper ones have pretty crappy fittings.[B1]

3. Appearance. [10 mentions among 31 participants]

The first one I bought years ago was really clunky and poorly finished, but the ones I saw in the Good Guys last week all looked really modern and stylish.[B2]

They never show the plastic concertina duct in their brochure or on their websites, the unit looks terrific but the duct looks really daggy on some of them.[A]

Mine annoys the hell out of me. It's got one of those big tube things that goes out the window with a bit of foam to seal it, and it just shits me, it looks hideous. And it's so awkward and it falls out all the time, it really bugs me. I will be buying another one, but I'll make sure I get one with a better looking and better functioning ducting system than the old one.[S]

My window is quite tall and slides open on both sides, so if the pipe is jammed in it's fine, but there's a little gap at the top, so I tend to use cardboard or something then and duct tape down the thing, so it looks a bit weird, and I also can't get my blind down once it's in the window, so it's lopsided, but it works.[S]

We were tired of trying to keep the tube in the window so we had a permanent hole drilled through the wall that the tube goes into, so we have no problem of having to put it through the window and it looks much neater.[S]

I think visually they are not generally a good looking thing with that hose.[S]

4. Purchase price/value for money. [10 mentions among 31 participants]

Prices that participants say they paid (all within the past three years or so) varied markedly from \$188 (Bunnings) and \$190 (Aldi) up to nearly \$2,000 (David Jones and Harvey Norman). The prices intending purchasers expected to pay also varied considerably, from about \$300 to close to \$2,000. The general feeling is that portables are good value for money compared to fixed units, although it seems many of these people may be over-estimating both the purchase price and installation costs of fixed models.

I can afford a portable but there's no way I could afford a split system even if the landlord let me install one.[B1]

It cost the same as my new washing machine and they gave me an extra \$100 off for buying both together.[B2]

Being a new home, we had to buy lots of other appliances as well, so an economical price was very important.[S]

5. Portability. [9 mentions among 31 participants]

Some are a lot heavier and cumbersome than others.[S]

Mine has got a handle on top, and wheels on it, but the unit I was in was two storeyed, so it was a bugger getting it up and down stairs. Even my son had trouble, he's young and fit.[B2]

Ours rolls easily on big wheels, it's heavy but we don't need to lift it because all the bedrooms are on the one level.[A]

It's not too heavy, so my wife and I can lift it into the station wagon when we go away.[B1]

6. Noise of operation. [8 mentions among 31 participants]

A noisy air conditioner is good when your neighbours are banging around at 6 in the morning -- you don't hear them, it covers that noise.[B1]

We put it in the bedroom when it's really, really hot – You can put up with the noise, it becomes like white noise in the background, and it's worth it so you can cool down.[B1]

Noisy bloody things, especially on high, but then they do an excellent job so I'm prepared to put up with the noise.[S]

I've found if you aim it at an angle away from you the noise isn't nearly so annoying, especially if you put a thick towel over it – but you need to be careful not to cover where it sucks the air in.[A]

7. Ease and convenience of operation. [7 mentions among 31 participants]

You have to keep emptying the water, otherwise they cut out, so it's important to get one that's easy to empty and refill.[A]

8. Cost of running or energy consumption. [7 mentions among 31 participants]

I really pay attention these days to how much energy consumption my appliances use, it's important to me – if it uses less water and less power, that's what I want. I know my portable air conditioner is 1,100 watts, I compared it with the others when I bought it and it felt just as good as the ones using 1,200 and 1,300 watts so I chose it.[S]

I know they use a lot less power than a fixed one. Mine uses 1,300 watts though some use 1,100 or less, but even 1,300 watts is nothing compared to the fixed units – they use so much they rate them in horsepower, or so my neighbour tells me.[B1]

They're just like a bar fridge with a bigger fan so how much power can they use, it's just not an important consideration to me.[A]

The ones on the wall seem to be a lot more powerful, they give more of a burst of cold air, so they must use a lot more electricity than a portable.[A]

BUT

Portables would have to work harder I'd have thought, so would use more power to do a similar job, but they are much cheaper to buy and can be moved about easily.[A]

9. Reliability = brand and/or retailer. [6 mentions among 31 participants]

DéLonghi, Mistral, Sanyo, Panasonic, Mitsubishi. There are lots of brands out there, there could be hundreds of them, but any of those brands I just mentioned are OK I reckon, judging by the other good products they make.[A]

Mine is Dimplex, they are always a good reliable brand.[S]

Mine is a Stirling, I bought it at Aldi, I think it's their own brand, they're a German company so I expect they'd honour their warranty if anything goes wrong.[S]

There are brands I've never heard of, so I tend to buy from a reliable store like Good Guys or Harvey Norman where you know they'll stand behind it if anything goes wrong, even if it's not a brand you are used to.[B1]

The specialist retailers tend to mention most of these factors somewhere in their sales spiel, but in the stores that do not specialise in appliances (e.g. Aldi, Bunnings) sales staff are often not present or adopt a “take it or leave it approach”, some admitting to having little product knowledge.

I'm only here two days a week.[B-retailer]

I'm not usually in this section, there's nobody else handling them today.[S-retailer]

3.1.4 Energy Efficiency is Simply Not on the Radar

Only seven out of thirty-one participants mentioned energy consumption or cost of running as a factor in their purchase decision, and not one mentioned energy efficiency. In general, people seem to assume that portable air conditioners as a category use significantly less energy than installed systems – however, many seem to under-estimate the former and over-estimate the latter. Owners and most intending purchasers of portable air conditioners also generally under-estimate the purchase cost of a portable air conditioner and seem to over-estimate the purchase and installation cost (and delivery time and inconvenience) of fixed units.

Information failure:

The situation regarding consumers' relative lack of knowledge or understanding of issues to do with energy consumption and energy efficiency concerning portable air conditioners is similar to that which existed with refrigerators (and all other household appliances) several decades ago before energy efficiency labelling was introduced.

Furthermore, for many (often logical) reasons discussed above, people who own or are looking to purchase a portable air conditioner have generally already decided to buy a portable – some may also have initially thought about fixed air conditioners but have already ruled them out of consideration for various reasons (e.g. cost, practicality, appearance, convenience), many have not considered them at all. Therefore many are simply not aware that fixed air conditioners carry energy efficiency labels with star ratings and consumption and output information.

In recent research studies to do with televisions and pool pumps (to assist with their energy labelling), the provision of information that they may consume more power than people expected, and that some models consume considerably more power than others, was generally accepted as credible and lead to many consumers in those studies calling for energy efficiency labelling of these products. Importantly, reactions in the current study to the likelihood of a similar situation existing with portable air conditioners were muted, with few expressing much interest and almost no calls for energy labelling. (See later for consumer reactions to other labelling reasons.)

If it's the only alternative you have, and you know from others it's not going to break the bank, what's the point?[B2]

I only ever bring it out and use it when it gets hot in summer, and not only on the really hot days, so it's not as if it's going to use much power.[A]

As a group, surely portables use so much less power than those big air conditioners, that it's hardly worth comparing them.[B1]

3.2 Perceptions of the Product

3.2.1 How well do portable 'air conditioners' work?

Almost unanimously in our groups, purchasers maintain that their portable air conditioners work effectively. Some rave about them, almost none are dissatisfied (except with older models), only a few rate their performance no higher than “OK”. An increasing number appear to be recommending them to their friends, especially those in similar circumstance to themselves. As can be seen from many of the quotes already offered in other contexts above, some people use quite specific examples to back up their positive views – several more follow:

I went online and read the Choice report⁶ and they said they are much better than they used to be and it said one of them would suit my lounge room, so I

⁶ We recontacted this person and confirmed the website she had accessed was <http://www.choice.com.au/Reviews-and-Tests/Household/Heating-and-cooling/Home-cooling/Portable-air-conditioners-review-and-compare/Page/Introduction.aspx>, and the comment to which she referred was:

“If you're dreading the thought of sweltering in a rented home this summer, a portable air conditioner may look tempting. Though you're still better off with a built-in split system — they're more energy efficient and powerful and can cool down a room faster — if you're renting or looking for a portable air conditioner for the home office or holiday house, these six units may help you keep cool. To see whether they've improved since we last tested them, we bought six portable, single-unit air

went out and bought one, only a few weeks ago and it's everything they said it would be.[B1]

I got a portable because we go to the caravan park, and I book in every year and take the grandkids down there. The year before I got it, it was so hot, and in the caravan it was awful. So the next year I went to Big W and got a Mistral. It was under \$300 and it was ideal. I put it in there, and it kept the caravan so cool, it is excellent ... keeps it down to 25 degrees even when it's been 43 degrees outside.[A]

We were so happy with ours, we recommended that mum get one. Like us she's in a rented flat so she can have one of these without having to ask the Department of Housing. We're also bought one for our son and several of his mates got one too, I just wish we'd found out about them years ago.[B1]

Mind you, it cost all of \$1,300, but it is much better than the crappy little fixed window air conditioner I had in my flat.[A]

My portable uses only 1100 watts, so you are not going to get a huge amount of cooling air with it. It makes refrigerated air like the one on the wall, but it is probably not going to push it out as quick as it isn't as powerful, but it's fine in a small bedroom, in fact it's great.[A]

Well I knew somebody before me who had one, and how his was set up in the house, it was where the morning sun wasn't that side of the house, and he used it as an office, so it kept the place cool.[B2]

It always works extremely well, although you have to put up with the ugly tube.[B2]

In my experience it has always worked quite effectively, except when the duct isn't working properly, like if it gets a kink in it or falls out of the window.[B1]

Of course I didn't expect the portable would give me the same results as a wall mounted one, but I could afford the portable, and I can move it from room to room.[B2]

People constantly refer to the single ducted units as (portable) air conditioners. They view them as a different category of air conditioner from fixed units but (mostly) only because they are portable rather than fixed, not because they perform differently. In fact almost all view them as both performing the same way, as air conditioners.

When my wife bought ours, she had a brochure from the shop, and it said 'portable air conditioning unit' and she went 'you little ripper, let's go and get one now'. We did and it has been great. She still would have bought it if it had said 'space conditioner' instead of 'air conditioner' because she was suffering badly in that really bad heatwave, a fan wasn't doing it for her, so anything that cooled the air and we could take home straight away would have done her, she was desperate.[A]

We asked what was going to be the most effective, in the house we were in, it was quite a large room we wanted to cool, and a place with a flat roof, and no doubt no insulation in it. We wanted the most effective, so we bought the top of the range of the portables they had, with the most wattage and cooling output, and it has been terrific, and it's portable so we can move it anywhere.[A]

On the other hand, although some are familiar with large industrial spot coolers (e.g. in shopping malls during renovations; in large temporary outdoor venues such as circus tents), very few have heard of small spot coolers being used in a residential

conditioners with a claimed cooling capacity of around 3.5 kW, which is suitable to cool a large bedroom or medium-sized living area (emphasis added). And the good news is they've improved significantly compared with the lot we tested last year, which we found generally ugly, noisy, high-maintenance and less effective than their built-in counterparts."

setting. The two who have owned spot coolers for the home, and those few others who have heard of them, all see them as different from the ducted product, and mostly do not refer to them as, or confuse them with, air conditioners.

We had an old one years ago, a portable one, it was rubbish, it didn't have a pipe so it didn't do anything. So last summer we just got rid of it and bought one with a pipe and it's awesome, keeps a big family room cool all day even on the hottest days, and I mean days in the 40s. It's an air conditioner but not the old one we had.[A]

An air conditioner not only has to give you cold air, it's also got to get rid of the hot air. If it can't do that, it's not an air conditioner, in fact it's not even really a cooler.[B1]

Some retailers (all in specialist stores) did try to convince the mystery shopper that portable units were not as good as split systems, whereas several others praised them. All of the specialist retailers maintained, when asked, that provided the exhaust duct was installed correctly in a window or door, portables performed exactly like fixed units – only a few were aware of dual duct units and almost none appeared to know the reason for the second duct.

3.2.2 Reactions to Technical Descriptions

At different times in each focus group, participants were asked to read descriptions of the two products (single duct portable space conditioners, and portable spot coolers with no exhaust duct – see boxes below), and asked to comment.

Single Duct Portable Space Conditioner⁷:

This is a self-contained unitary unit with air from the condenser ducted to the outside via a flexible pipe. The flexible pipe must be installed and ducted through a door or window, otherwise the unit will act only as a spot cooler, which is less effective.

Because the unit draws air for the condenser discharge from the indoor room [ie, instead of from outside like in an installed air-conditioner], it acts as an exhaust fan moving what is effectively conditioned air from inside to outside. Unconditioned air must be drawn into the space from other indoor and outdoor sources to replace the discharge, so while it will cool the space in the short term, the space temperature may still rise as unconditioned air must be drawn into the space from other indoor and outdoor sources, so warmer air is [eventually] drawn into the room. The temperature rise depends on the design of the unit, the size of the building, where replacement air is drawn into the building and the difference between indoor and outdoor temperatures.

This product may provide some relief in the room in which it operates but may also eventually result in net heating of the whole building in hot weather. The main benefits with these units are that they can be moved from room to room, they can be taken with you when you move house, and they can be cheaper than installed models [and cost little or nothing to 'install'].

While most people appeared to understand the logic of the explanation concerning the single duct portable space conditioner, and realised it was intended to describe the product they own, many viewed it as incredulous, some even treated it with disdain, only a few people saw it as an issue of concern.

It sounds logical, but in my experience it is simply not true, mine works fine.[A]

That's not applicable to my place, because my place has lots of wide verandahs and shading trees so the air immediately outside the house is

⁷ Adapted from: Consultation Paper: Single Duct Portable Space Conditioners and Spot Coolers, September 2009, prepared for the Equipment Energy Efficiency Committee (E3) by Energy Efficient Strategies

probably cooler than inside the house, so having it being sucked in by the portable probably aids in cooling the rest of the house rather than heating it up as they say here, so this doesn't apply to me.[B1]

Where have these people been living and what have they been ingesting? All that stuff might be technically right in a theoretical world, but in the real world these things actually work, the bedroom is always as cool as we want it, the rest of the house doesn't heat up, the world doesn't end.[B2]

Oooh, now that's a bit alarmist, isn't it, telling us about a problem that doesn't exist.[B1]

That all makes sense but it doesn't describe my portable air conditioner, as I said, provided we make sure the pipe is fitted properly out the window, it works extremely well and the rest of the house doesn't heat up at all.[S]

I bought mine under the assumption it would work the same way as other air conditioners would, and it does, it's great.[B2]

I think the fact it's called a portable, I don't think you would expect the same performance anyway, but you buy it because it's more suitable than one you install, for example so you can take it with you every time you move house, not because it's the best performer. It's still a good air conditioner, maybe not a great one, but you can't take a great one with you so what's the use of that.[B2]

Maybe that's true if it's only working by itself, but as mine is augmenting a ducted system, the only air it's sucking into the room is air that has already been partly cooled anyway, no it doesn't apply in our situation.[A]

I think it's something you do expect, that it's not going to be as good as one on the wall which we can't have anyway, but it will be far better than a fan, and that's good enough.[B1]

I don't care as long as it keeps me cool at the end of the day.[S]

If they didn't work, I think the public should be aware they're actually not an air conditioner, but they do work very well, so do people actually need to know? I think it only confuses things.[A]

In fact, only one participant (out of thirty-one) was able to relate the technical explanation to her own experience:

I was running one in Sydney in the midst of quite a big heatwave in December, disgustingly hot and humid, and to be honest, I didn't find it all that effective. Again it was probably a lot to do with the space we were trying to cool – it was great if you were sitting in front of it, but if you were sitting on the other side of the room, the room was about this size (large family room) it wasn't so good. Yes, it was cooler than outside during the heat of the day, but if you left it running and it started to cool down in the evening, you'd find it was cooler outside than it was inside.[A]

Personal Spot Cooler (with no exhaust duct)⁸:

This is a self-contained unitary unit but with no external condenser discharge. It is of very limited use and value in residential applications – larger versions are sometimes used in large commercial centres to assist if the main air-conditioning is not functioning properly as a temporary solution.

The unit takes air from the room for both cooling the occupant, and for cooling the condenser. The occupant feels a cool breeze from the discharge grill, but the room temperature actually rises because of the rejection of heat from the compressor and condenser into the conditioned space [ie, rather than to the outside]. If humidity exists in the room, it may be lowered in the cooling process, with any moisture removed being collected in a tank within the unit.

In stark contrast to their reactions to the description of the single duct portable space conditioners, almost all participants claimed to understand and accept the description of the personal spot cooler, many equating it with not using the exhaust pipe on the portable space conditioner.

I can relate to what they are saying here. I tried to use my (portable) air conditioner without the ugly tube once, I thought I'll see if it works without the duct going out the window, but never again. I just wanted to see what would happen. But the room heated us very quickly, a big mistake, so we always use the tube, ugly though it is.[B2]

Unlike the other one, this does make sense, if you are blowing the hot air into the same room you are blowing the cold air, only someone sitting directly in front of it is going to get any benefit at all.[A]

I wonder why they'd ever sell a product like that, it doesn't make much sense.[S].

This one is blowing hot air into the rest of the house. So while you sit in front of it you could be fine, you get up to go to the toilet, and the rest of the house is 5 or 10 degrees hotter than where you are sitting, because this blows hot air out the back of it. It could even be a fire hazard with all that heat being fed into the house.[B1]

While most would not (now) consider buying a spot cooler, a few could see a role for it, particularly where there is no window or door to vent out the exhausted hot air.

So it would be the better one for a hallway where there's no window.[S]

That would be useful where you have a space in the house where you don't actually have a window.[S]

We have a study downstairs, it doesn't have windows except at the top of the wall, it could work there.[S]

Mum got one of those for my grandfather years ago. She first took him our old portable air conditioner, but his bed at the retirement home was too far from the window for the outlet pipe to reach, so she bought him one of these that didn't need an outlet pipe. It worked really well to keep him cool in bed provided they left the window and door open.[B2]

Wouldn't you face the back out a window or door anyway?[S]

3.2.3 The Meaning of 'Air-Conditioner' – Is a Portable Space Conditioner an Air Conditioner?

When asked where they would look or who they would ask if seeking the definition for an 'air conditioner', the immediate response from many people these days is simply "I'd Google it". The entry that appears first when 'definition of air

⁸ ibid

conditioner' is typed into Google is

<http://www.thefreedictionary.com/air+conditioner>, which defines an air conditioner as “an apparatus for controlling, especially lowering, the temperature and humidity of an enclosed space”. Whether or not this matches the definition on which technical standards are based, it does tend to reflect many participants' views, although some leave out the reference to de-humidifying, and others add a reference to purifying:

Changing temperature, dehumidifying and purifying:

Lowers the temperature, conditions the air, makes it cleaner, less humid.[A]

It cools, filters and dehumidifies the air.[B1]

It's a dehumidifier with gauze to filter the air and a condenser to cool it.[B2]

Changing temperature and dehumidifying:

An air conditioner changes the air somehow, the temperature or perhaps the humidity. In fact yeah, the humidity, when I think about running the air conditioner to defrost the windows in the car, it removes the moisture, so it's cooling and dehumidifying.[A]

Reducing humidity and temperature, making the conditions optimal, more comfortable, enabling you to feel better.[B2]

Changing temperature only:

Lowering the temperature of the air to suit your preferences, whatever they are.[B2]

Bringing the air to the level of comfort you want.[A]

Getting it to the temperature you feel comfortable at.[B2]

Just something that changes the temperature in the room, like a cooler, cools it down.[A]

Technically it's about transforming the air, changing it, I'd say it's a way of processing air to deliver an artificial climate in a confined space.[S - architect]

To my mind it has to cool, and I don't care what else it does. It has to cool, not heat or anything else, it just has to cool effectively.[S]

Importantly, as mentioned earlier, however they define the term, our participants believe that a single ducted portable space conditioner is an air conditioner, and that a personal spot cooler falls short, the key point of difference being that one ducts the exhausted hot air out of the home whereas the other does not.

3.2.4 The Role of the Duct

The role of the duct (as technical experts describe it) or vent (as at least one industry member refers to it) or pipe or tube or hose (as many consumers refer to it) in removing the hot exhaust air to the outside (if fitted correctly in a door or window) is understood by most participants and retail staff, with only one or two regarding its use as optional. However, some stores (e.g. Bunnings, Aldi, K-Mart) do not have trained staff to advise customers, and indeed, customers can select and take the product through the checkout with talking to a staff member.

Most participants see the pipe as unattractive, many find it is inconvenient to position, some find it difficult to retain in the window or door, and few are able to seal it as well as they would like. However, almost all find that they can get it to operate “effectively enough” to do the job.

Of course you have to use the tube, you have got to get rid of the hot air, you have to put the hose somewhere, like through a window or out the door.[A]

That big long tube thing is the only issue, unless you want to put it permanently in the one spot, it's a bit of a hassle having to put that out a window, and especially if you want to move it around from room to room, apart from that it does a good job.[B1]

There's truckloads of hot air. In fact even the piping is ridiculous, I wrap around dry towels to insulate it. You have to use it though, because otherwise you might as well turn the heater on, and have the air conditioning on at the same time, so it's ridiculous. I reckon you can get as much heat out and don't let any back in the room. So I think if anything if they want to improve them, they should use some sort of hard, flexible duct pipe rather than the thin, soft concertina version they have now.[A]

Yes, I always have the duct out the door. I'd been told you don't have to, by the shop guy, but I always do – there's a lot of hot air that comes through there and you don't want it blowing inside.[S]

It comes back to how well you seal your vent off, if you do it's OK, but if you can't do that, you have problems.[B1]

Participants reported that some earlier models did not include a framework or bracket or guide with which to hold and seal the pipe in the window or door. For some models the pipe and/or its flange and/or the framework or bracket on those earlier models was an optional extra.

On the other hand, the models purchased more recently by participants and those the intending purchasers who had looked at so far, generally seemed to include the pipe, with most also having some sort of framework or bracket as standard.

However, as confirmed in our mystery shopping exercises, some models do not supply a framework or bracket, and some only supply them as an optional extra. The sturdiness of the frames or brackets varies immensely, ranging from very sturdy metal extendable frames, to quite flimsy plastic versions.

3.2.5 Preferred Names

After the technical descriptions had been read and discussed in each group (and after looking at the labels as well in the Adelaide group), participants were asked to choose their preferred name from a list (or to suggest a new one) for each of the two products. Responses are presented and briefly discussed below:

Single Duct Space Conditioners

<u>Preferred name:</u>	First 'vote'	If 'air conditioner' cannot be used
Single duct portable space conditioner	5	12
Single duct portable room conditioner	3	8
Single duct portable air cooler	1	5
Single duct portable space cooler	4	4

Single duct portable room cooler	2	2
Single duct portable air conditioner	16	Na
Participants	31	31
Total 'conditioner'	24	20
Total 'cooler'	7	11

Even after reading and discussing the technical description, around half the participants still wanted to call it an air conditioner, in fact a number were quite adamant about it. When they are asked to 'vote' again if 'air conditioner' cannot be used, most opt for 'space conditioner' or 'room conditioner'.

Overall, 'space conditioners' receives the highest number of 'votes' (but only twelve out of thirty-one) with 'room conditioner' coming in at eight 'votes'. Twice as many people prefer 'conditioner' than prefer 'cooler' (twenty vs eleven).

Some prefer 'conditioner':

Even after reading the labels, my preferred name is 'portable air conditioner', because that's what it is whether they say it's 'not an air conditioner' or not! [A]

When I go shopping for one, I'd still go 'I'm going to buy an air conditioner' because that's what the shop people know it as. [A]

With these, even if they change the name, we will still call them air conditioners, because they are air conditioners. [S]

I would still prefer to call it an 'air conditioner', because that's what it does, but if you can't use the word 'air' I would prefer to call it a 'room conditioner' than 'space conditioner' because in a house you talk about cooling or heating rooms, not spaces. [B2]

It's very confusing. It says it's a space conditioner, then it says it's not an air conditioner, but surely if it conditions a space they mean the air in that space, so it must be an air conditioner, it's just playing semantics. [B1]

Some prefer 'cooler':

I'm looking for the end result to be the same – you know, that it cools the air, that's what I'm looking for, I don't care what it's called, I just want it to cool the air. [A]

Yes, if they start calling it something different, like an air cooler, sooner or later it will catch on, in fact I like it more. Then in 10 or 20 years time, you might say 'remember when that used to be called an air conditioner'. [A]

I can understand (from the technical description) why you don't want to call it an air conditioner, but if you can't guarantee to cool down a room, I don't think it should really be called a 'cooler' either, but I've got no better suggestion. [A]

I don't see the difference between calling it a room cooler and an air conditioner – if one box said room cooler and one said air conditioner, I'd still assume they are the same thing. But cooler sounds nicer to me. [A]

Unducted Spot Coolers

Preferred name:	'Vote'
Unducted portable spot cooler	14
Unducted portable personal cooler	11
Unducted portable personal spot cooler	3
Unducted portable localized area cooler	3

Portable air conditioner	0
Participants	31

In contrast to the space conditioners, no one in any of the four focus groups wanted to call the spot cooler an air conditioner. Of the names tested, 'spot cooler' came out on top with fourteen 'votes', but followed closely by 'personal cooler' with eleven 'votes'.

Some prefer 'spot cooler':

I like how it says 'spot cooler', that says it all, it just cools where it's aimed at.[B1]

Some prefer 'personal cooler':

I think it's the sort of information, instead of saying 'it's not an air conditioner' which immediately begs the question 'what is it, then?' – just say 'this is a personal cooler that will produce cooler air in front that will keep you cool, but produce hotter air behind' and a simple statement like that so you'd understand exactly what it does.[B1]

3.3 Labelling Implications

The foregoing discussion raises a series of issues that need to be addressed in developing an appropriate label design. These issues are:

- Should these products carry a label at all?
- If these products are labelled, should it be based on the Energy Rating Label?
- If so, should it be based on the Energy Rating Label?
- What colour scheme should the label have?
- How should the label be headlined?
- What name should the label carry?
- What type and tone of message should the label convey?
- Should the label include any numbers or symbols?

Should these products carry a label at all?

As can be seen from the views presented and discussed throughout this report, in the absence of a label (or some other vehicle to effectively convey the information) consumers are likely to continue making decisions as they do now, and probably do so in increasing numbers.

Almost all consumers (in our focus groups) can see the logic and value of having a warning label (but not necessarily called that) on portable spot coolers, because they can accept the argument that they do not work effectively (or at all) as an air conditioner.

However almost all are far less enthusiastic about having such a label on portable space conditioners because they believe (and many eagerly provide anecdotal

evidence and recount their own experiences to justify this belief) that they do work effectively, or at least sufficiently effectively to meet their needs. In many cases (e.g. rentals) they see them as the only option.

1. If the purpose of the label is primarily to inform consumers that portable space conditioners do not work effectively (and are therefore not air conditioners), then current technical arguments (as provided for this research) run counter to consumers' perceptions and experiences, and are therefore not credible to owners or intending purchasers (even if they accept the logic in theory). It is a matter of comparative effectiveness – if their performance in cooling the air is good enough to be acceptable to a portable space conditioner owner or intending purchaser for their purposes, then as far as they are concerned, they are effective air conditioners.
2. If the purpose of the label is primarily to inform consumers that portable space conditioners do not work as effectively as built-in split systems, most consumers already know this, but either cannot have a built-in split system (e.g. renting), or consider other factors are more important (e.g. affordability, portability, appearance, etc) with a portable product that they believe works effectively enough.
3. If the purpose of the label is primarily to inform consumers that portable space conditioners are not as (energy) efficient as built-in split systems, many owners or intending buyers already 'know' this and/or accept it as a less favourable feature of an otherwise preferred (or only possible) product. Some also suggest that as portables use less power than built-in systems (a belief that may not be correct), their assumed poorer energy efficiency (if correct) may have less relevance. Either way, unless the comparative energy efficiencies of the two product categories (single duct portable space conditioners and built-in split systems) can be effectively calculated and clearly communicated to consumers in a credible way (e.g. using the same or a directly comparable test), it is unlikely to work.
4. If the purpose of the label is primarily to inform consumers that portable space conditioners use more energy than built-in split systems, this runs counter to what most owners and intending purchasers currently believe. In this case, credible comparative hard data to the contrary may convince some people sufficiently to reconsider their choice, but to many others a portable will still be their only (possible) choice. . If consumers refer to energy consumption at all, they generally talk in terms of watts (e.g. 1,100 watts) in the same way that they refer to electric room heaters. Mandating the inclusion of energy consumption in watts on the label would at least enable direct comparison between models on this measure, but does not address energy efficiency differences.
5. If the purpose of the label is primarily to inform consumers that portable space conditioners cannot be tested under the same standard as fixed air conditioners, then instead of using the bald statement “this is not an air conditioner”, which is rejected by most participants as contrary to their experience, the label could assert that “This product

cannot be tested as an air conditioner because it might not be able to (or cannot) maintain the comfort conditions required in AS/NZS 3823", then briefly explain why.

If this⁹ is true, I'd want to know about it, so yes, there should be a label, but please make it more believable than this one.[B2]

Maybe wealthy people will be put off by these labels and go and buy a big one that will cost more and use more electricity. But ordinary working people will still buy portables even if they have warning labels them because they know they work and they have no alternative.[B2]

BUT

Even if I could have it installed, I'm not going to be buying a more expensive fixed air conditioner anyway, being in my income bracket, so this label just reminds me of my circumstances, it doesn't help me.[S]

I'm sure that the fixed units are going to be a lot more expensive, outside my budget. So I wouldn't be overly concerned whatever warning they put on the label (for portables), I'm going to buy it anyway.[B1]

It's so unfair to the poor consumer who can't afford a better one or can't install a better one because they rent.[A]

If these products are labelled, should it be based on the Energy Rating Label?

One principal value of the energy labelling scheme is its credibility among consumers.¹⁰

Research has shown that using a similar label to convey information backed up by fact does not affect the credibility of the labelling scheme and can work effectively (e.g. the old TESAW label, or the WELS warning label for showerheads that do not meet the standard but are available for sale where water pressure is low). However, the energy labelling scheme's credibility could be placed at risk if the scheme conveyed information that was controversial and not supported by established methods of calculation, or if it is thought by consumers to be wrong or to run counter to their experience, or conversely if the information had to be so general and qualified that it had no value for consumer decision making.

The proposed spot cooler label is unlikely to cause concerns, but there is a need to tread very carefully with the space conditioner label in this regard.

Has authority, might stop me:

I would see it as 'this product (spot cooler) isn't recommended by the authorities', the same authorities who bring you the star labels, I trust them so I'd think twice before buying it. But it does beg the question why they are even allowing it to be sold.[A]

It's similar to the star rating [label] without the stars. Without the stars it is saying to me that it doesn't have a star rating, so I might think more carefully about buying that particular model.[A]

⁹ Referring to earlier technical description of a single duct portable space conditioner

¹⁰ Artcraft (2006) *Appliance Performance Labelling in Australia and New Zealand*, Artcraft Research (now named Winton Sustainable Research Strategies) for the Australian Greenhouse Office, Department of the Environment and Heritage, August 2006

With the red even more I'd think about the stars, but there are no stars there and that alarms me, I think 'oh no stars, can't be that good, must be something amiss here' and the message says 'yes, you are right' (with the spot cooler) although I don't agree with the message on the other one (space conditioner).[A]

Has authority, but would not stop me:

Yes, I know it's the same as the energy label, but without the stars, I think I'd give the label a miss. I wouldn't bother reading it.[B1]

With the star rating symbols, you have the six stars and some are filled in. So if that had no stars on it, I'd look at it and question why not, and look more closely – but I'd still buy it if they were all labelled like this, because I want to take it with us.[A]

All the other air conditioners have got an energy rating, you know, the label with the stars across the top, so the fact these ones don't says something about them straight away, that they don't have a rating, a pity because I still need to buy one.[B1]

You are going to go to that and think automatically 'what is the energy rating' and it's not there, so then you'll read the message on it. That's a great idea to get your attention, but it needs a better message than these.[A]

I think the moment I saw that label, I mentioned it was exactly the same as a star efficiency rating, so I'm assuming they are both from government and it's highly recognisable. But this one doesn't make sense.[S]

Could be a cheap imitation:

I'd look and think that's a cheap import, you know how sometimes cheap imports have packaging or labels made to look like something else, like a main brand, trying to sell it off as if it has good energy efficiency. So I think is it a cheap imitation.[A]

What colour scheme should the label have?

The red, black and yellow colour scheme (and shape) of the energy rating label is instantly recognisable, well-liked and has authority. Although the cooling-only air conditioner label uses a blue arch (the reverse cycle label uses blue for cooling and red for heating), this label is not so familiar to owners and intending purchasers of portables, most of whom are not considering fixed units so have not been looking at their labels. The red colour used behind the headlines ('Warning', 'Caution', 'Attention', etc) in the mock-ups in the current research tests well in that respect.

Labels on fridges are red and yellow with stars, so you see the same colour scheme as the industry standard, so you take notice straight away.[A]

The red captures you a lot more than the blue, the blue just looks bland.[A]

I'd say the red alarms, like it's serious, I should read it.[A]

The red is something that the public is more used to reading than the blue, the star ratings being red ... No, I didn't know there was a blue scale on air conditioner labels, only on water labels and these don't need water.[A]

How should the label be headlined?

Given their current perceptions of and experiences with single duct portable space conditioners, most owners and intending purchasers are unlikely to respond positively to (many say they would reject) labels headed 'Warning' or 'Caution' (see Figure 4), and indeed such words tend more to hint at a safety issue (e.g. faulty wiring) than an effectiveness issue.

However, there was a very positive response to the heading 'Attention' (16 out of

23), especially as it conveys the expectation that the label contains information that needs/deserves to be read, without giving it a negative (or positive) connotation.

<u>Space Conditioner:</u> <u>Preferred header:</u>	'Vote'	
Warning	1	<input checked="" type="checkbox"/>
Caution	3	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Attention	16	<input checked="" type="checkbox"/>
Advice	1	<input checked="" type="checkbox"/>
Guidance	2	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Participants (last 3 groups)	23	

Figure 4: Options for Proposed Single Duct Portable Space Conditioner Label



Even where owners and intending purchasers of space conditioners had quite negative perceptions of (but few experiences with) spot coolers, the heading 'Attention' (11 out of 23) gained the highest number of responses for the same reason, the expectation that the label contains information that needs/deserves to be read, without giving it a negative (or positive) connotation.

<u>Spot Cooler:</u> <u>Preferred header:</u>	'Vote'	
Warning	4	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>
Caution	7	<input checked="" type="checkbox"/>
Attention	11	<input checked="" type="checkbox"/>
Advice	1	<input checked="" type="checkbox"/>
Guidance	0	-
Participants (last 3 groups)	23	

'Warning' may be OK for the spot cooler because it doesn't work properly, but not for the space conditioner, because it does work.[B1]

'Warning' says to me 'bad product'. I'd look for the one that didn't say 'Warning' on it. No, it wouldn't stop me buying another portable air conditioner because that's what I need, I just wouldn't buy the one with 'Warning' on it, unless they all had 'Warning', in which case I'd ignore them and buy the one I liked.[A]

'Warning' sounds life threatening, crocodiles or something, in the water, sounds like it might be dangerous, electric shock or something.[S]

As soon as I saw 'Warning' I'd read the whole thing to see what it's talking about, but it needs to be believable.[B1]

The word 'Warning' is very misleading, because it makes it look as though it's dangerous, yet they are not saying that at all.[B1]

'Caution' or 'Warning' says it might blow up, or the wires might be loose and electrocute you.[S]

I'd be looking underneath for loose wires.[A]

'Attention' draws you in whereas 'Warning' puts you off.[B1]

'Attention' means 'look at this', which draws my eye straight away. 'Caution' means 'proceed with care' and 'Warning' means 'beware of the danger', it's a lot harsher, and quite unfair here (space conditioner).[B1]

'Attention' says to me 'please consider this when you purchase' whereas I'd ignore a 'Warning' because it's incongruous that they'd allow anything to be sold that needs a warning label on it, like you'd never see 'Warning, don't buy this can of beans, it has salmonella in it'.[A]

I like 'Attention' because it draws you in and encourages you to think of other options, rather than being dictating. It's more enticing I find, rather than just warning you.[S]

I wouldn't put 'warning' or 'caution', it's not going to electrocute you, but 'attention' really is eye catching, it just makes you aware of what you're buying.[B1]

If I saw 'Attention', I'd look at the options, but not if it said 'Warning', I'd freak out and just ignore it.[S]

Instead of 'Warning' I think 'Attention' would be more honest. 'Warning' is an unfair advantage, if you put warnings on products, people are just going to walk away from them without giving them a fair go, that's unfair to the manufacturers who are making a really good product, whatever you say.[B2]

It comes back to 'buyer beware' and it comes back to you doing your research, and you believe that you are going to buy a product that is going to suit your needs – 'Attention' fits in with that, but 'Warning' just offends me.[B2]

That's the first label I've seen that actually cautions you against an effect which might make you rethink your original intention and investigate wider options, I think is a good idea. It's a very good idea to get our 'attention', but not to warn ('caution') or frighten us ('warning').[S]

What name should the label carry?

The energy rating label scheme labels have 'Energy Rating' in the black section (see Figure 5 LHS). That does not work well for the labels tested for this study as they do not carry an energy rating.

An energy label without stars is not an energy label![B1]

However, using the name of the product does work well (see Figure 5 RHS), especially as it is a message common to all models of that product.

Figure 5: Energy Rating Label, and Mock-Up Portable Labels Using Product Name



What message and tone should the label convey?

During the four groups, the following messages were read and briefly discussed by participants, and ‘votes’ were taken as to the message people preferred most (or rejected least).

For space conditioners, message A emerged way ahead of the others (23 out of 31), for two key reasons:

1. It does not say it is not an air conditioner, and therefore did not directly contradict people’s beliefs.
2. It uses a conditional statement (Over time this may result...), which allowed people to agree with (or at least not reject) its logic, even where their experience was different. However, most of the people who chose message A say they would still buy it, because their experience was different.

	<u>Space Conditioner:</u> <u>Preferred label message:</u>	‘Vote’
A	This product has a cooling function when ducted to the outside, but during hot weather hot air is drawn into the building to replace the exhausted hot air. Over time this may result in an increase in indoor temperatures in other parts of the building. Please ask your retailer about alternatives.	23
B	This product is NOT an air conditioner. Its use during hot weather is likely to result in an increase in indoor temperatures in other parts of the building.	3
C	This product has a short-term cooling function if ducted to the outside, but is not an air conditioner. Please talk to your retailer for alternatives.	3
D	This product has cooling and heating functions but is not an air conditioner. Please talk to your retailer for alternatives.	1
E	This product is NOT an air conditioner. It may provide some cooling under certain conditions, but has limited effectiveness when the outdoor temperature is hot.	1
	Participants	31

On message A:

What about your gas heater. I've got a vented flue gas heater – it's pouring heaps of heat straight up the chimney. So it must suck in cold air from elsewhere in the house. So if someone leaves a door or window slightly open, and I'm sitting by the heater, I can feel a cold draught on the back of my neck, so what? So my gas heater is doing exactly what this does, but in reverse – but they don't say 'This is not a gas heater, do they?'[A]

OK, but do you have to spoon feed people this much? Is it necessary to put these on? Of course they aren't as good as a fully ducted split system, but I've only got \$500, not \$5,000 and I've had one before, and I know it's good enough for me.[B2]

On message C:

When it says 'short term', not having used a portable one before I don't know. What does it mean like can you expect it to work for a couple of hours, a couple of days, how long? I only need it for a few hours a day, will it go that long before heating up?'[A]

On message D:

This one says 'it heats and it cools, but it's not an air conditioner' – well what the hell is it, then? That sounds like a pretty cool definition of a reverse cycle air conditioner to me![A]

Generally:

I don't like the words 'this product is not an air conditioner' – if it looks like an air conditioner, does the same thing as an air conditioner, then it is an air conditioner.[B2]

I don't think you need to, most renters know they can't install an air conditioner, so they are automatically looking for this. And they are desperate so they'll buy one whatever you say.[B1]

I get the feeling they can't really say because of defamation or whatever 'do not buy this product' so they are going to say the most they can say within the legal requirement, trying to put you off but stopping short of telling you not to buy it.[S]

I think it's cynical – most people will just go in and read it and shrug their shoulders and just buy it anyway because they have no alternative, and so later the label covers the manufacturer from prosecution as you have been warned.[A]

I think it's a good idea to have some sort of informative label, because if people want to sell you something, they'll tell you it's great, no matter what. There's a lot of that sort of stuff going on in appliance stores. I'd still buy it even with that on there, but at least it limits the bull from the salesman.[B1]

I think you could reproduce that using a detailed drawing, you could replace all of those words with an image that would be I think more beneficial, and you would quickly deduce what it's all about just by the minute you see red come on the outside of the house and hot air going out and cool air circulating.[S]

With spot coolers either of messages F and G is likely to work well, receiving 26 out of 31 between them. Message F is preferred by more people because it alerts you more clearly than G to the fact (believable in the case of a spot cooler) that this is NOT an air conditioner.

	<u>Spot Cooler:</u> <u>Preferred label message:</u>	'Vote'
F	This product is NOT an air conditioner and is not suitable for general use in residential applications. While it may provide some cooling to part of a room, its use will add heat to the room.	15
G	This product cools one part of a room but emits heat into the rest of the room. It is not an air conditioner. Talk to a salesperson if you would like an air conditioner.	11
H	This product is not an air conditioner, although it may provide some temporary cooling to a part of a room. Talk to a salesperson if you would like an air conditioner.	3
I	This product is a spot cooler and does not function as an air conditioner. While it may provide some cooling to part of a room, its use will add heat to the room.	2

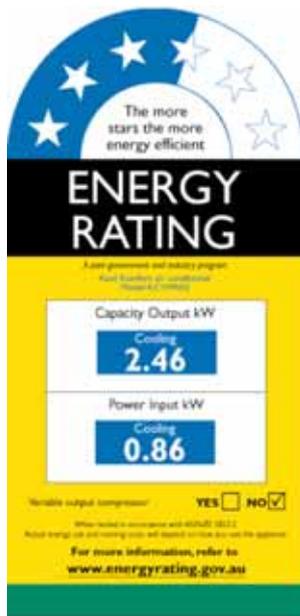
Should the label include any numbers or symbols?

Unlike the energy consumption information on labels for household appliances (fridges, freezers, dishwashers, clothes washers and clothes dryers) which are understood to some extent by most consumers, the figures provided on fixed air conditioners (currently 'capacity output' and 'power input' (see Figure 6 LHS) have never been well understood except by technically oriented consumers, with more people than with other appliances relying on the stars alone in their decisions¹¹. Therefore, to include similar measures on portable space conditioners (see Figure 6 RHS) would be no more communicative to many people even if they were directly comparable, and a star rating is not appropriate according to technical experts. Fixed air conditioners are tested to AS/NZS 3823.2-2009, but single ducted portable space conditioners cannot be tested under this standard. It is understood they can be tested to EN14511¹², but that the two are not directly comparable, and any explanation is only likely to (further) confuse and alienate consumers.

¹¹ Artcraft Research (2003) *A Major Research-Based Review and Scoping of Future Directions for Appliance Efficiency Labels in Australia and NZ*, Artcraft Research (now named Winton Sustainable Research Strategies) for the Australian Greenhouse Office (AGO), November 2003, page 65

¹² Referred to in relevant label mock-ups as AS/NZS for consistency with Australian Standards nomenclature.

Figure 6: Fixed Air Conditioner Label, and Mock-Up of Possible Portable Label



Using numbers:

I think it's still relevant to have figures on there, because if you are going to buy one of these things, you are buying it for a specific reason. So you want to compare it against other portables, not compare with fixed air conditioners which you've already decided you don't want.[B1]

BUT

I'd rather have that one without the numbers, I don't think the numbers mean anything, I read that one without the numbers, and get more the message that I should be looking at other options. I'd probably just ignore the one with the numbers because it's confusing.[S]

For input I'd assume higher is better (sic), putting more cold air into the room, but what's this output?[B1]

This 'input' figure is away with the fairies, it's way off beam, far too low, it says it's only 1.2 kW, whatever that is, but I know mine uses 1,200 watts, about the same power as my room heater uses and not much more than my microwave oven, so it doesn't use much power at all, especially considering how much cold air it blows out.[A]

It doesn't mean much to me. I don't look at the numbers, I've never understood what was good or bad with air conditioners from the numbers, it's not as clear as the stars – this does look like a star rating label, without the stars, so I'd probably take notice of 'please talk to your retailer' and ask him lots of questions.[A]

Using stars:

We're used to stars, I never look at the numbers except with fridges anyway, so can't we have stars here, even if they can't be tested the same way?[A]

BUT

I wondered why don't they put energy star ratings on them like other air conditioners, but if they can't use the same test, they should clearly say that fact on the label and then explain it, not waffle on with this bullshit.[B2]

If they can't be sure the stars are accurate, don't use stars at all or you'll be making a mockery of the whole star rating system.[B2]

Using an Energy Efficiency Rating (EER):

From what you're saying, I take it this EER is an energy rating which is the number of stars, but if you can't have stars, then you can't have the rating, either, surely that's just silly.[A]

3.4 Results of the Mystery Shopper Exercises

Fifteen mystery shopper exercises were undertaken with a range of different retailers in Sydney, Adelaide and Brisbane, including home appliance stores, department stores, super stores and others, as follows:

Stores:	Brisbane	Adelaide	Sydney	Total
Bunnings	1	1	0	2
Aldi	1	0	1	2
K-Mart	0	1	0	1
David Jones	1	0	1	2
Myer	1	0	0	1
Harvey Norman	0	1	1	2
Rick Hart	1	0	0	1
Domayne	0	0	1	1
Good Guys	0	1	1	2
Bing Lee	0	1	0	1
Total	5	5	5	15

The mystery shopper exercises investigated the knowledge and behaviour of retail staff when promoting and selling single-duct portable space conditioners and spot coolers to consumers, using the following checklist as a base:

1. Do they sell portable air conditioners? And split systems? (established before store visit)
2. Scenario: "We've got several rooms (bedroom, small lounge) that get really hot in summer, what do you suggest?"
3. Would a portable air conditioner do the job satisfactorily?
4. Positive aspects – "what is better with a portable?"
5. Negative aspects – "any downside with portables?"
6. What was salesperson level of knowledge of the portable product?
7. Was duct mentioned? If not, probe: "Is there a duct or pipe you poke out a window?"
8. Was salesperson aware of unducted portables (spot coolers)? "I've heard there is a portable that doesn't have an exhaust pipe, do you know of these?" If yes, do they sell them?
9. Was salesperson aware of double vented portables? "Is there one that has two pipes either separate or one inside the other where one of the pipes draws air from outside straight into the unit?" If yes, do they sell them?

The findings are tabled below. For privacy reasons no store or salesperson is separately identified. It should be noted that the 'sample' was a purposively selected cross-section of the kinds of stores in the three cities known to sell portable air conditioners, and as such is not a statistically representative coverage.

Mystery shopping attempts to simulate the actual shopping experience not only in terms of the approach and questions asked, but also in terms of 'going with' the situation at the time. Thus stores were visited throughout the day on both week days and weekends. Depending on the type of store and time of day, in many stores there were few staff serving in appliance sections (often these were tied up dealing with customers), and several have only checkout or roving staff, with no staff dedicated to

selling appliances. We asked to speak to “someone that knows about air conditioners”, but accepted whoever was available at the time, whether they knew anything or not.

1. Whether sell portables/fixed:	Portable [n]	Fixed [n]	
Yes, in stock/displayed now	8	11	
Yes, but no stock yet (mid-Oct)	5	0	
Sometimes/only when stock arrives	2	0	
No, don't sell	0	4	
<i>Total</i>	<i>15</i>	<i>15</i>	

2. Store's initial suggestion:	[n]	
Fixed	7	⇒ Two of these asked if we were renting, saying a portable would suit better if we were.
Portable	5	
Either/both	3	
<i>Total</i>	<i>15</i>	

3. Would portable do the job satisfactorily:	[n]	
Yes [unqualified]	3	> Yes = 9
Yes, but a fixed unit is better	6	
Maybe/not sure	3	
No	3	
<i>Total</i>	<i>15</i>	

4. Positive points about portables:	[n]	
Can move wherever needed/portable	8	<i>Some offered two or more points</i>
Can use same day/no installation	7	
Cheaper price/better offer than fixed	4	
Can take with you if you move	3	
Just as good/better in small room	2	
Cost less to run	2	
No good points mentioned/known	5	
<i>Total salespeople</i>	<i>15</i>	

5. Negative points about portables:	[n]	
Not as effective/don't work as well	4	<i>Some offered two or more points</i>
Cumbersome/heavy/hard to move	4	
Need to empty water	1	
Need to vent out window or door	3	
Noisy to operate	3	
Short life/don't last long/poor quality	2	
No bad points mentioned/known	4	
<i>Total salespeople</i>	<i>15</i>	

6. Salesperson's knowledge of product (as perceived by us):	[n]	
Excellent – knew it inside out	3	Most stores have specialist sales person in this field, but he/she was often with another customer or absent, so we took whoever would serve us.
Some knowledge but less confident	5	
Not familiar with product	5	
No salesperson (checkout staff only)	2	
<i>Total</i>	<i>15</i>	

7. Knowledge of exhaust duct:	[n]	
Duct explained without prompting	2	> Adequately explained = 10
Duct explained after prompting	8	
Duct known but not explained well	3	> Not adequately explained = 5
Duct not known or explained	2	
<i>Total</i>	<i>15</i>	

8. Unducted portables (spot coolers):	Unducted (spot)	Double ducted	
9. Double duct portables:			

	cooler) [n]	[n]	
Yes, known and is (or has been) sold here	2	2	
Yes, known but not sold here	3	2	
Not sure/vague recollection	4	2	
No knowledge	7	9	
<i>Total</i>	<i>15</i>	<i>15</i>	

4 Recommendations

A direct message along the lines that “this is not an air conditioner” was rejected by most participants as contrary to their experiences in the case of current owners, and contrary to their perceptions and the experiences of those whose views they trust in the case of intending purchasers. However, they generally suspect that portables do not perform quite as well as fixed units.

Recommendation 1: it is recommended that subject to further research, the label for single duct portable space conditioners should have a heading reading “Attention”, and a statement in the body of the label with wording to be developed through further testing.

The figures provided on fixed air conditioner labels (currently ‘capacity output’ and ‘power input’) are not well understood by many consumers, and consumer reaction was not positive in response to the inclusion of similar figures on mock-ups of labels for single duct portable space conditioners. The use of an EER figure to indicate energy efficiency was also not well received, particularly as the tests (EN14511 versus AS/NZS3823) are not directly comparable. Importantly, in stark contrast to other appliances, consumers do not seem concerned about energy efficiency with portable units even when informed that there may be big differences between models, and many do not respond positively to hearing about it – as mentioned elsewhere, other purchase factors (affordability, portability, not being able to install a fixed unit, etc) are more important or pressing than energy efficiency.

Recommendation 2: It is recommended that energy efficiency measures, ratios or symbols not be included on the label.

A preliminary Internet search and enquiries among industry members and retailers suggest that no statistically representative hard data are available about ownership and usage patterns of portable air conditioners. The qualitative findings in the current research (and responses in the recruitment process) suggest that ownership and usage patterns for portable air conditioners may be quite different from fixed air conditioners. For example, purchasers are more likely to be renting. Some, perhaps many, have two or more portables. Many store them away over winter, only bringing them out when the weather warms up. Many use them for only a few hours a day rather than for extended periods or 24/7.

Recommendation 3: It is recommended that a quantitative research study be undertaken to establish the patterns of ownership and usage of portable air conditioners (versus fixed air conditioners if data about them are similarly scarce) so that information about, and comparisons of, their energy use and energy efficiency (or some other measure of output) can reflect real world usage.

Appendix: Label Mock-Ups Used in the Study

A.1 Mock-ups of Labels for Single Ducted Portable Space Conditioners



WARNING

SINGLE DUCT PORTABLE SPACE CONDITIONER

Koolhaas Single Duct Portable Space Conditioner Model KK334

This product has a cooling function when ducted to the outside, but during hot weather hot air is drawn into the building to replace the exhausted hot air. Over time this may result in an increase in indoor temperatures in other parts of the building. Please ask your retailer about alternatives.

Initial Capacity	Power Input
2.9	1.2
kW	kW

When tested to AS/NZS14511, inside temperature = outside temperature

For more information visit www.energyrating.gov.au

CAUTION

SINGLE DUCT PORTABLE SPACE CONDITIONER

Koolhaas Single Duct Portable Space Conditioner Model KK334

This product has a cooling function when ducted to the outside, but during hot weather hot air is drawn into the building to replace the exhausted hot air. Over time this may result in an increase in indoor temperatures in other parts of the building. Please ask your retailer about alternatives.

Initial Capacity	Power Input
2.9	1.2
kW	kW

When tested to AS/NZS14511, inside temperature = outside temperature

For more information visit www.energyrating.gov.au

ATTENTION

SINGLE DUCT PORTABLE SPACE CONDITIONER

Koolhaas Single Duct Portable Space Conditioner Model KK334

This product has a cooling function when ducted to the outside, but during hot weather hot air is drawn into the building to replace the exhausted hot air. Over time this may result in an increase in indoor temperatures in other parts of the building. Please ask your retailer about alternatives.

Initial Capacity	Power Input
2.9	1.2
kW	kW

When tested to AS/NZS14511, inside temperature = outside temperature

For more information visit www.energyrating.gov.au

ADVICE

SINGLE DUCT PORTABLE SPACE CONDITIONER

Koolhaas Single Duct Portable Space Conditioner Model KK334

This product has a cooling function when ducted to the outside, but during hot weather hot air is drawn into the building to replace the exhausted hot air. Over time this may result in an increase in indoor temperatures in other parts of the building. Please ask your retailer about alternatives.

Initial Capacity	Power Input
2.9	1.2
kW	kW

When tested to AS/NZS14511, inside temperature = outside temperature

For more information visit www.energyrating.gov.au

GUIDANCE

SINGLE DUCT PORTABLE SPACE CONDITIONER

Koolhaas Single Duct Portable Space Conditioner Model KK334

This product has a cooling function when ducted to the outside, but during hot weather hot air is drawn into the building to replace the exhausted hot air. Over time this may result in an increase in indoor temperatures in other parts of the building. Please ask your retailer about alternatives.

Initial Capacity	Power Input
2.9	1.2
kW	kW

When tested to AS/NZS14511, inside temperature = outside temperature

For more information visit www.energyrating.gov.au

WARNING

SINGLE DUCT PORTABLE SPACE CONDITIONER

Koolhaas Single Duct Portable Space Conditioner Model KK334

This product is NOT an Air Conditioner. It may provide some cooling under certain conditions, but has limited effectiveness in hot outdoor temperatures.

Initial Capacity	Power Input
2.9	1.2
kW	kW

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Initial Capacity	Power Input
2.9	1.2
kW	kW

When tested to AS/NZS14511, inside temperature = outside temperature

For more information visit www.energyrating.gov.au

A.2 Mock-Ups of Labels for Unducted Portable Spot Coolers

