

# Panasonic

ideas for life

Air Conditioners  
2007 / 2008



*e-ion* Air Purifying System & **INVERTER**



# e-ion Air Purifying System with Patrol Sensor

A revolutionary new mechanism catches dust particles and brings them back to the filter, working with the Patrol Sensor to thoroughly clean the air.

Industry first\*<sup>1</sup>



03

Dust is negatively charged and airborne bacteria and mould are inactivated

## Total Clean Mechanism

01

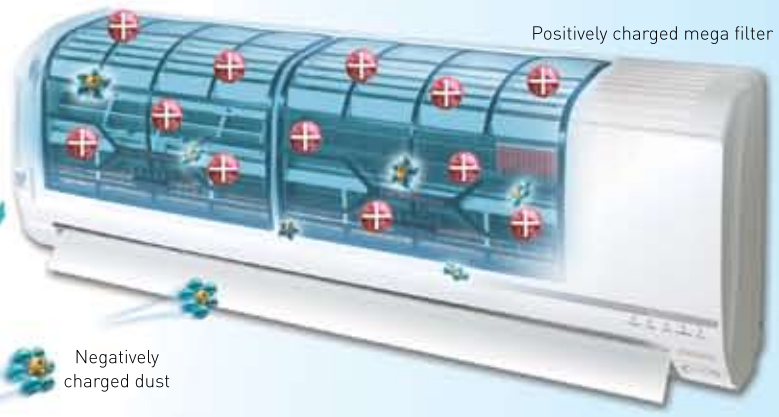
*Detects the Dirt*  
**Patrol Sensor**

02

*Shoots and Catches*  
**Active e-ion Generator**

\*1 For an air conditioner with a dust collection system that releases negative ions from an ion generator to negatively charge dust particles and then collect them with the entire surface of a positively charged filter. [As of June, 2007]

Positively charged mega filter



Negatively charged dust



04

Electrically collected by the e-ion filter



Sensor monitors air quality

3 trillion<sup>\*2</sup>  
Active e-ions



Active e-ions are discharged

Faster dust collection than ever before!  
About 5 times more efficient.

03

*Charges and Inactivates*  
**Active e-ion**

04

*Captures Electrically*  
**Positively Charged Mega Filter**

<sup>\*2</sup> 3 trillion is the simulated number of active e-ions under the mentioned conditions.  
Actual measured active e-ions at the centre of the room (13m<sup>2</sup>):100k/cc  
Calculated number of active e-ions in the entire room assuming they are evenly distributed. 05

# Patrol Sensor

A sensor monitors dirt in a room 24 hours a day!

Air is monitored both during air conditioner operation and when it's switched off. When dirt is detected, the air purifying function is started to immediately clean the air in the room.

## How It Works

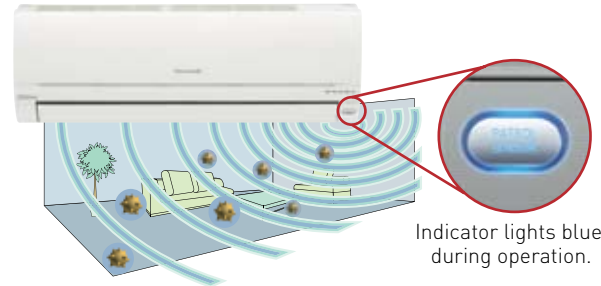
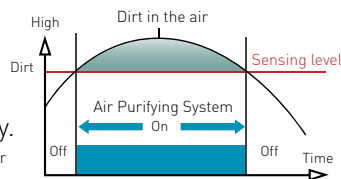
### ■ Monitoring

Whether the air conditioner is operating or not, the sensor constantly monitors dirt in the air.

### ■ Detection

The sensor measures the dirt in the air, and above a certain level the air is judged to be dirty.

If dirt concentration exceeds the sensing level, the Air Purifying System is switched on.



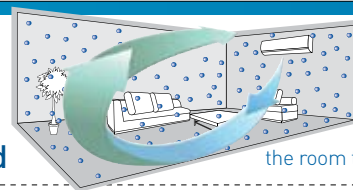
Indicator lights blue during operation.

This kind of dirt is detected



# Active e-ion

Shot out to catch and inactivate airborne bacteria and mould



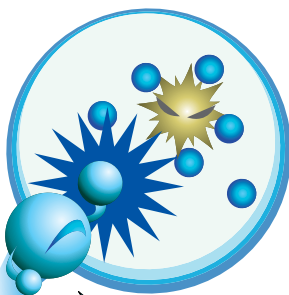
3 trillion active e-ions

About 3 trillion active e-ions fill the room to clean it entirely.

## Active e-ions have two actions

### Negative Charging

Negatively charges dust particles for effective collection.



### Inactivating

Inactivates bacteria and mould to make them harmless.

## Inactivating Effect

### ■ Active e-ion: inactivating mechanism

The same inactivating mechanism for mould and viruses.



Active e-ions stick to the surface of bacteria.

OH radicals work on the cell wall.

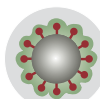
The bacteria are inactivated.

The illustration is simulated

### ■ Target substances



Mould



Viruses



Bacteria

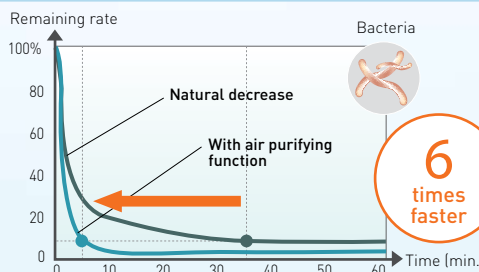
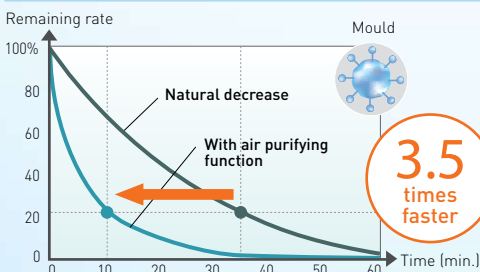
Inactivates more than 99\*

\*99% inactivation was certified as indicated below.

Certificated by Japan Food Research Laboratories

•Test report number: No. 205010211-001 Bacteria: Staphylococcus aureus subsp. aureus (NBRC12732) •Test report number: No. 204101750-001 Virus: Influenza virus A

## Removal performance Change in airborne mould and bacteria



### Measurement conditions

Certificated by Japan Food Research Laboratories  
Test report number: 304110078-001  
Test method: The e-ion Air Purifying System was operated in a test room (10m<sup>2</sup>) and changes in airborne mould and bacteria were measured by means of the Air Sampler Method (MAS100).

# Mega e-ion Filter

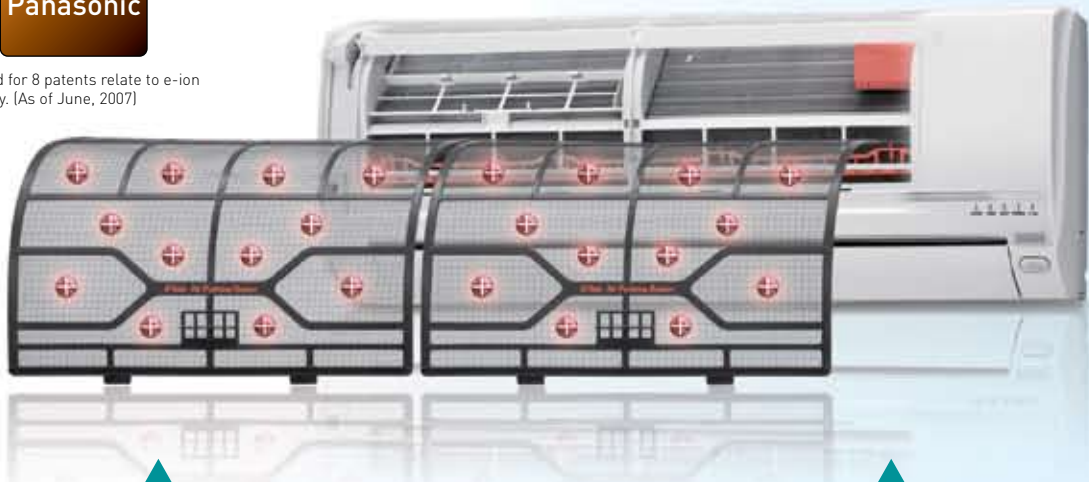
Big and electric – that's why the dust can't escape!

Using the force of attraction between positive and negative charges, the e-ion Filter – which is 7 times bigger and finer than ever – powerfully captures dust particles.

**8** patents\* applied for

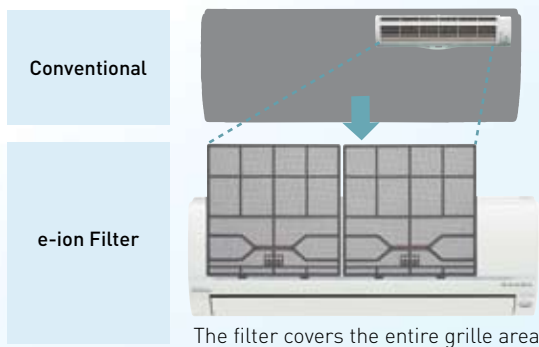
Only from Panasonic\*<sup>1</sup>

\*Panasonic has applied for 8 patents relate to e-ion Air Purifying technology. (As of June, 2007)

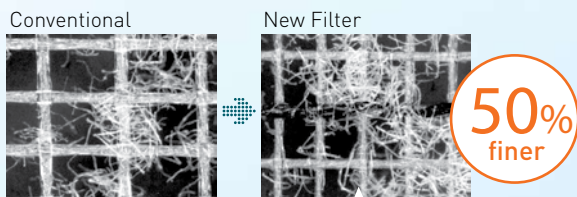


## Thorough Collection with a Bigger, Finer Filter

The mega size air purifying filter covers almost the same area as the intake grille to prevent dust from escaping.



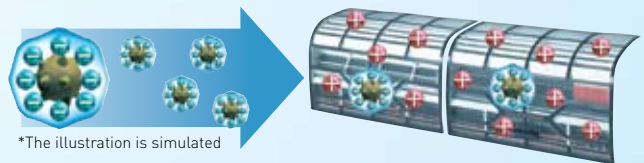
## Ultra-fine mesh



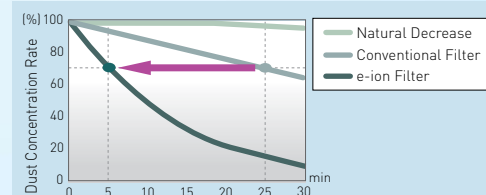
Also captures microscopic dust (100~1,000µm)

## More Effective Collection with Electric Action

The entire filter is positively charged to powerfully attract negatively charged dust.



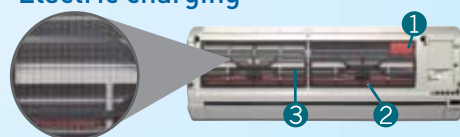
## Changes in dust concentration



About **5** times\*<sup>2</sup> more efficient

\*Panasonic in-house investigation.

## Electric charging



Electric Induction Fibres extend across the entire area of the filter.

\*1 For an air conditioner with a dust collection system that releases negative ions from an ion generator to negatively charge dust particles and then collect them with the entire surface of a positively charged filter. (As of June, 2007)  
\*2 After 5 cigarettes were smoked in a roughly 20m<sup>3</sup> room, air conditioner operation was started and the decrease in particulate concentration was measured with a dust meter.