

# Panasonic<sup>®</sup>

## DECT Repeater Operating Instructions

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Model **KX-A272**



Please read before use and save.

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## Overview

A repeater is used when you need to extend the range of your cordless DECT telephone or PBX cell station, to include areas where reception was previously not available. The repeater extends the range in all directions, allowing several floors to be covered.

Up to 6 repeaters can be registered at a DECT base unit, and up to 18 repeaters can be registered at a PBX cell station (when utilising Serial Repeater ID Programming).

Please note : The number of simultaneous calls on a Cell Station is reduced by adding a repeater. This is by design. Each repeater is controlled using one speech path. The repeater can support up to a maximum of two handsets.

## Compatibility

The Panasonic DECT repeater is:-

- Compatible with selected Panasonic consumer DECT products. Please refer to your repeater packaging or your DECT operating instructions for compatibility information.
- Capable of providing full handover with TDA PBX products plus TD1232/TD816 with TD7590 (a software upgrade may be necessary).
- Designed to be used as a range extender (no handover) using TD7580.
- Designed to be used as a range extender (no handover) using TD7590 (without the software upgrade).

## General Safety

- Only use the power supply included with the product.
- Do not connect the AC adaptor to any AC outlet other than the standard AC220-240V.
- The apparatus is approved for use with PQLV19E, PQLV19AL and PQLV19CE power supply.
- This apparatus will restrict emergency telephone calls from portable handsets linked through the repeater under the following conditions:
  - The portable handset batteries need recharging or have failed.
  - During a mains power failure.
  - When the key lock of the portable handset is set to ON.
  - When the handset is in direct call mode.
- Do not open the repeater.
- This apparatus should not be used near emergency/intensive care medical equipment and should not be used by people with pacemakers.
- Care should be taken that objects do not fall, and liquids are not spilt onto the unit. Do not subject this unit to excessive smoke, dust, mechanical vibration or shock.

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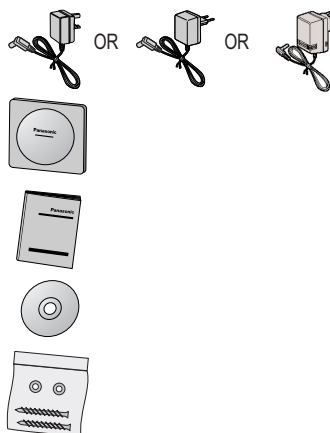
## Environment

- Do not use this unit near water.
- This unit should be kept away from heat sources such as radiators, cookers, etc. It should also not be placed in rooms where the temperature is less than 5°C or greater than 40°C.
- The AC adaptor is used as the main disconnect device. Ensure that the AC outlet is located near the unit and is accessible.

**WARNING: TO PREVENT THE RISK OF ELECTRICAL SHOCK, DO NOT EXPOSE THE PRODUCT TO RAIN OR ANY OTHER TYPE OF MOISTURE.**

## Accessories (Included)

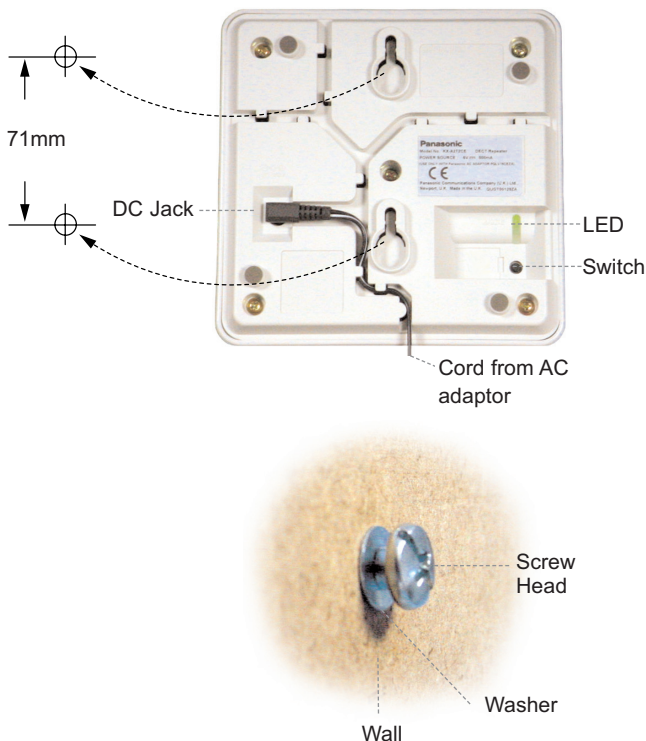
- AC Adaptor  
PQLV19E (UK only)  
PQLV19AL (Australian)  
or PQLV19CE (European)
- Repeater  
KX-A272
- Quick Setup Guide  
QUQX00112Y
- Operating Instructions (on CD-ROM)  
QUQX00117Y
- Screw Pack



## Wall Mounting

This unit can be mounted on a suitable wall or placed on a flat surface.

- Insert screws into wall. Avoid pipes and electrical cables etc. that may be present/buried. The centre of the screws must be 71mm apart. Allow a protrusion of 2mm from the base of the screw head to the wall, using the washer provided (see diagram below).
- Arrange the AC cord as shown, then mount the unit (4 possible routes available).



## Connection

- Plug in the AC adaptor to the rear of the unit, and fasten the AC cord to prevent it from being disconnected.
- The AC adaptor must remain connected at all times. (It is normal for the adaptor to feel warm during use).

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## Placement

To get the best performance from the repeater:

- Select a raised position (on wall etc), which is well within range of the Base Unit/Cell Station.
- Avoid positioning the repeater close to objects that will interfere with reception, such as thick walls, radiators, metal shelving etc.
- For maximum distance noise-free operation, place your DECT repeater away from electrical appliances such as TV, radio, personal computer or other telephone equipment.
- Keep a minimum distance of 10m between repeaters.
- If the Green LED flashes - move the repeater closer to the Base Unit/Cell Station or away from obstructions etc.

## LED Status

### Red LED (Indicates special states)

On/off/blink specification	Definition
On	Repeater is not assigned to any system
Off	Normal Operation
Slow blinking - "320ms on / 320ms off"	Manual registration mode
Intermittent blinking "100ms on / 2.4sec off"	Verification mode (Flashes in time with monitor beep tone)

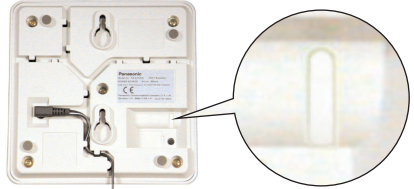
### Green LED (Indicates registration / communications states)


On/off/blink specification	Definition
On	Repeater successfully registered
Off	Repeater de-powered
Slow blinking - "320ms on / 320ms off"	Registration process 'searching' for Cell Station / unregistered
Fast blinking - "200ms on / 200ms off"	Repeater ID programming mode / Site Survey mode (PBX application only)

## Automatic Registration

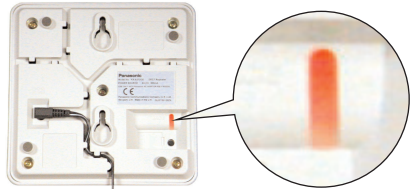
Automatic registration cannot be performed if the repeater is already registered to another base unit or cell station. Please follow the DE-REGISTRATION procedure on page 10 before attempting Automatic Registration.

- Ensure that the repeater is switched off (disconnect the AC adaptor) (both LEDs are OFF).



- Place your DECT base unit into registration mode by pressing and holding the  button for 10 seconds. This step is not necessary for registration to PBX cell stations.

- Power on the repeater, by connecting the AC adaptor. The red LED will light for 2 seconds, and then the green LED will flash slowly. This indicates that the repeater is searching for the cell station or base unit.

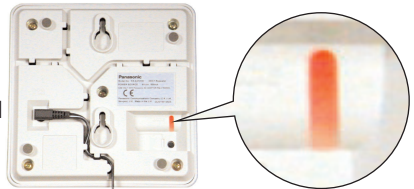


- When the repeater has found the cell station or base unit, the green LED will go steady ON.

Note: It may take up to 60 seconds for the repeater to register with the cell station or base unit.



- If after 60 seconds the registration has not completed, the red LED will go steady ON, indicating that registration has been unsuccessful. In this case the registration must be repeated. Power off the repeater and start again.

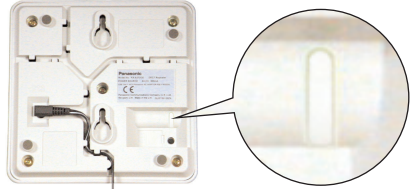


- Please note : 1) Manual registration procedure may be required if the repeater is used with unlisted products.  
2) We recommend that you power down any cell station that you do not wish to connect to the Repeater prior to Registration.

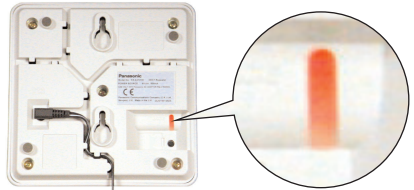
## Manual Registration

There must be at least one handset already registered to the base unit or cell station to carry out manual registration.

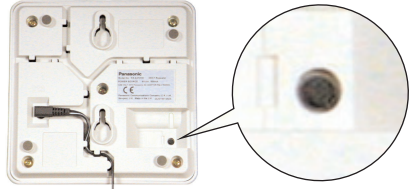
- Ensure that the repeater is switched off (disconnect the AC adaptor) (both LEDs are OFF).




- Power on the repeater, by connecting the AC adaptor. The red LED will light for 2 seconds, and then the green LED will flash slowly.

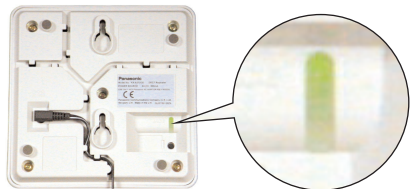


- Hold down the repeater switch for 3 seconds. The green LED and the red LED will flash alternately.



- Place your DECT base unit into registration mode by pressing and holding the  button for 10 seconds. This step is not necessary for registration to PBX cell stations.

- When the repeater has found a suitable cell station or base unit, the green LED will flash quickly.

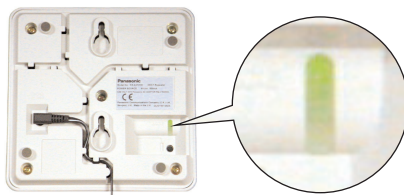


- Please note : 1) We recommend that you power down any cell station that you do not wish to connect to the Repeater prior to Registration.



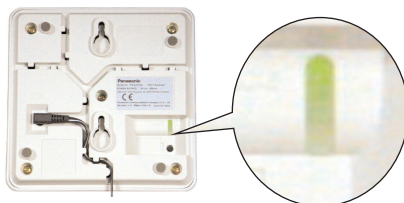
## Manual Registration continued.

- Press 'off hook' on the handset. The green LED will go steady ON.

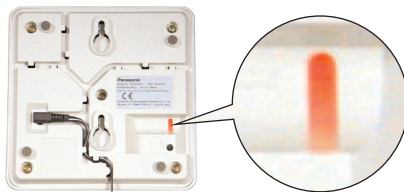


- Enter a unique identifying number on the handset keypad for each repeater registered. The identifying number can be 2 to 7 for domestic DECT products, and 000 to 255 for PBX DECT products. The digit will display on the handset screen.

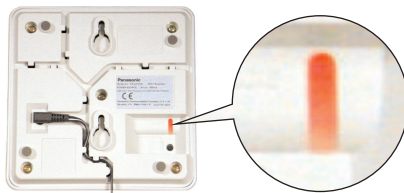
- The green LED will flash to correspond with the dialled digit. i.e digit 5 will cause the green LED to flash 5 times. For PBX use the digit 0 will cause the green LED to flash 10 times. i.e digits 025 will cause the green LED to flash 10 times for '0', then a delay of 2 seconds, then flash 2 times for '2', then a delay of 2 seconds, then flash 5 times for '5'. You do not have to wait for the confirmation flashes when registering.



- Dial "\*" on the handset to store the identifying number to memory. The green LED will go off for 1 second. If the identifying number entered is already assigned, the red LED will light for 1 second. A new identifying number must then be entered followed by "\*". The green LED will then flash slowly for a short period of time before going steady ON. Registration is complete.



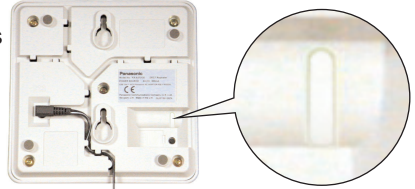
- If the registration is not successful, the red LED will turn steady ON. In this case, repeat the registration process.



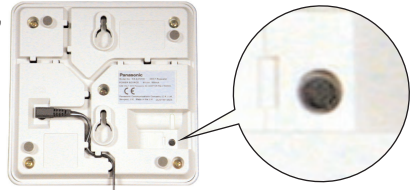
## De-Registration

In order to perform de-registration, the repeater must have already been registered to a base unit or cell station.

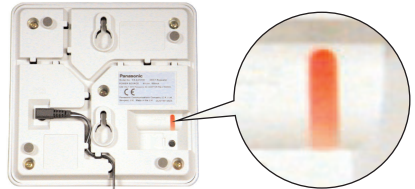
- Ensure that the repeater is switched off (disconnect the AC adaptor) (both LEDs are OFF).



- While holding down the repeater switch, power on the repeater by connecting the AC adaptor. Continue to hold down the repeater switch for 10 seconds. The red LED will flash slowly.



- After 10 seconds the red LED will go steady ON. The Repeater is now de-registered successfully.

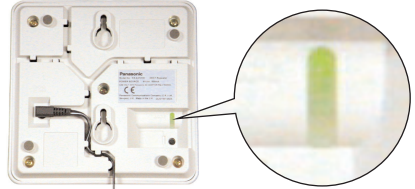


- To re-register the repeater, please follow the normal registration process.

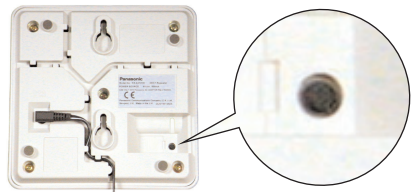
## Verification Tone

Repeater coverage can be checked by using the in-built verification tone. The coverage area of the repeater can be checked - if the 'beep' is no longer heard, then the handset is no longer in range of the repeater.

- Ensure the repeater is powered ON, and the green LED is steady ON.

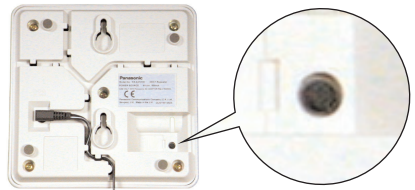


- To activate a verification tone, press and hold the switch for one second. The green LED and the red LED will flash alternately, with the red LED synchronised with the verification tone sounding on the handset.



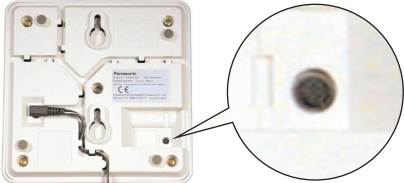

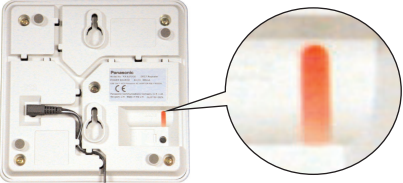
- To return the repeater to normal mode and disable the verification tone, press the repeater switch a second time. The green LED will go steady ON, and the red LED will go OFF.

NB: The verification tone can also be cancelled by powering off the repeater.



## Site Survey Mode (PBX option only)

This function can be used to measure the transmission quality, and identify problematic transmission areas of the repeater installation. This function can be used when registered or de-registered.

- Ensure the repeater is powered OFF before starting.
- To activate the site survey mode, press and hold the switch, then Power ON, while continuing to hold the switch. The red LED will flash slowly.
- Continue to press and hold down the switch for 5 seconds. When the switch is released the green LED flashes fast and the red LED will go OFF.
- Activate Site Survey function on handset. The Repeater CSID is 1234567890.
- To change the site survey channel, press the switch the required number of times (i.e twice for channel 2). The default site survey channel is 1.
- The red LED will flash the number of times corresponding with the channel selected. The channel between 0 and 9 can be selected by pressing the switch the corresponding number of times (channel 0 = 10 times) At channel 9, one switch press will change the channel back to 0
- Site survey mode is now operational.
- To turn OFF the site survey mode, Power OFF then repeater, then Power ON.
- Please note : 1) The repeater site survey mode works independently from the PBX cell station. This means that the PBX cell station does not have to be placed into site survey mode.  
2) When using more than 1 repeater in site survey mode simultaneously, please ensure repeaters are set to different channels.

For more information on how to use site survey, and for a list of compatible handsets, please refer to the appropriate PBX Installation manual.

## Serial Repeater ID programming (PBX option only)

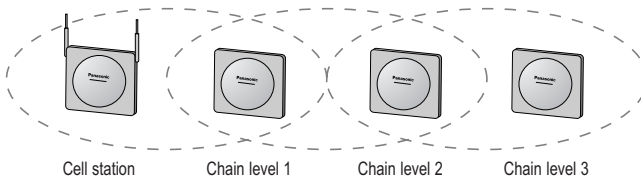
This function is used to control up to 3 repeaters in a chain configuration on a PBX system. To ensure correct operation (and to avoid circular linking), each repeater must be assigned a different chain-level (1 – 3). The first repeater (nearest the cell station) is assigned chain-level 1, each additional repeater will then be assigned an incremental number (up to 3), the highest number being assigned to the repeater furthest removed from the cell station.

By default, a repeater is registered to chain-level 1 when first registered to a cell station. After registration, the chain-level may be changed to a different chain-level. Additional repeaters can be registered to operate on the same chain-level, this will allow star configurations on each chain-level. All repeaters and cell stations must have a unique Radio Part Number (R.P.N.).

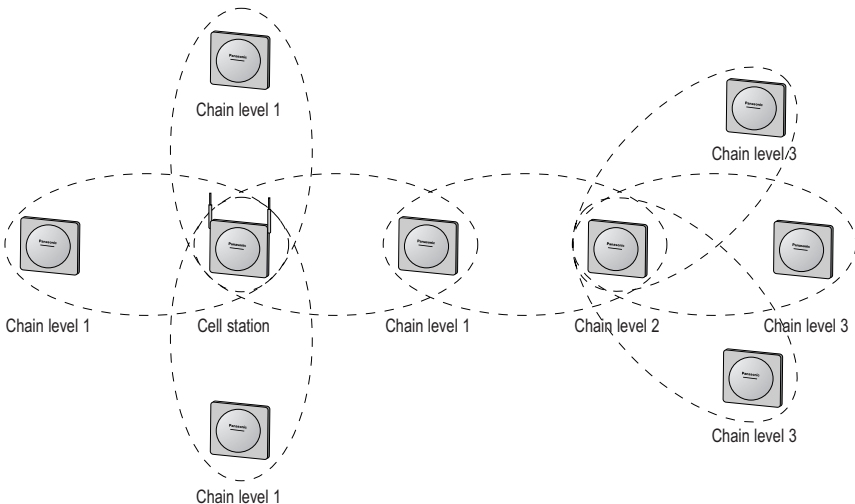
There can be 6 repeaters per chain level. Chain-level 1 and chain-level 2 repeaters can support another 6 repeaters.

There follows 2 example setups, showing both star and chain configurations.

### Chain Configuration



### Star Chain Star Configuration

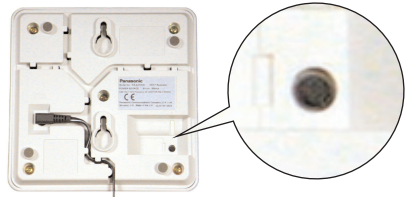


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## Serial Repeater ID programming continued.

- Ensure that the repeater is switched OFF. (both LED's are OFF)
- Power ON the repeater.
- Assign the repeater to a base by following either the manual or automatic registration process.
- Bring the repeater into close range of the repeater on the parent level (i.e. when assigning a repeater to chain-level 3, the repeater must be brought into close range with the repeater already set to chain-level 2.).
- Press the switch the corresponding number of times to set the chain-level.  
(i.e. 3 times = chain-level 3 etc.).  
The red LED flashes a number of times corresponding to the chain level.

NB: Pressing the switch 4 or more times corresponds to chain-level 1.



- After two minutes from power ON, the new chain-level and Radio Fixed Part Identity (R.F.P.I.) are then stored into the repeaters memory, and the repeater returns to normal operation.
- Please note : This function is not available for domestic DECT appliances, only PBX.

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## Before Requesting Help

Problem	Possible Cause	Solution
No function (LED not lit)	No power Not turned on	Check AC cord is plugged in Check AC adaptor is switched on
Cannot register (Green LED flashes)	Out of range of base or cell station, or base unit cell station not powered	Move repeater closer to base unit or cell station Repeat registration procedure Check base unit / cell station is on
Handset beeping	Verification tone on	Switch off verification tone
Poor audio quality	Out of range of base  Out of range of handset	Move repeater closer to base unit/ Cell Station Move handset closer to repeater
A ringing call suddenly stops when moving from zone to zone (PBX option only)	Delay when moving from cell station to repeater during incoming ring in group ring mode	Answer the call before moving beyond repeater/cell station boundary
When talking and moving from zone to zone, you hear an alarm or continuous noise, or your call is disconnected.	The new zone is in 'busy condition', so handover cannot occur.	Return to original zone and continue your call

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# Technical Information

## Specifications

Standard:	DECT=(Digital Enhanced Cordless Telecommunications)
Number of channels:	2 Duplex Channels
Frequency Range:	1.88GHz to 1.9GHz
Duplex Procedure:	TDMA (Time Division Multiple Access)
Channel spacing:	1728 kHz
Bit rate:	1152 kbit/s
Modulation:	GFSK
RF Transmission Power:	Approx. 250mW
Voice Coding:	ADPCM 32kbit/s
Operating Range:	Up to 300m outdoors (line of sight) Up to 50m indoors
Power Source:	AC Adaptor 220-240V AC 50/60Hz
Power Consumption:	4.6 VA
Operating Conditions:	5°C - 40°C, 20% - 80% relative air humidity
Dimensions:	140mm x 140mm x 37mm
AC adaptor cord length:	1.5m

- Specifications are subject to change
- The illustrations used in this manual may differ slightly from the original device.



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## CONDITIONS OF GUARANTEE

This guarantee is in addition to and does not in any way affect any statutory or other rights of consumer purchasers. If within the applicable guarantee period, the appliance proves to be defective by reason of faulty design, workmanship or materials, we undertake subject to the following conditions to have the defective appliance (or any part or parts there of) repaired or replaced free of charge.

1. The appliance shall have been purchased and used solely within either the UK or ROI and in accordance with standard operating instructions and the technical and/or Safety Standards required in the UK.
2. The appliance should be returned together with this guarantee and proof of date of purchase promptly on being found defective at the purchaser's risk and expense to the authorised dealer from whom the appliance was purchased or to the nearest authorised dealer. All enquires must be through such dealers.
3. This guarantee shall not apply to damage caused through fire, accident, lightning, misuse, wear and tear, neglect, incorrect adjustment or repair, to damage caused through installation, adaption, modification or use in an improper manner or inconsistent with the technical and/or safety standards required in the country where this appliance is used, or to damage occurred during transit to or from the purchaser.
4. If at any time during the guarantee period any part or parts of the appliance are replaced with a part or parts not supplied or approved by us or of an objective quality safe and suitable for the appliance, or the appliance has been dismantled or repaired by any person not authorised by us, we shall have the right to terminate this guarantee in whole or in part immediately without further notice.
5. The purchaser's sole and exclusive remedy under this guarantee against us is for the repair or replacement of the appliance or any defective part or parts and no other remedy, including, but not limited to, incidental or consequential damage or loss of whatsoever nature shall be available to the purchaser.
6. This guarantee shall not apply to batteries and any other items of limited natural life.
7. Our decision on all matters relating to complaints shall be final. Any appliance or defective part which has been replaced shall become our property.
8. The guarantee period applicable to this product shall be 12 months.

Please keep these Operating Instructions with your receipt.

### **Panasonic Business Systems U.K.**

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Receipt No.	Date of Purchase
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Model No. <b>KX-A272E</b>	Serial No.
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Hereby, Panasonic Communications Company (U.K.) Limited declares that this (KX-A272E) is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

A copy of the manufacturer's declaration of conformity to the essential requirements of the R&TTE Directive is available at the following web address: <http://doc.panasonic.de>

**For your future reference**

Serial No. \_\_\_\_\_ Date of purchase \_\_\_\_\_

(found on the bottom of the unit)

Name and address of dealer \_\_\_\_\_

**C€0436**

1999/5/EC

Technical specifications are subject to change.

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**QUQX00130YA** KU1203AP0104AP1