

KX-A406 Repeater Installation Guide

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Overview

- A KX-A406 Repeater is used when you need to extend the wireless coverage of a KX-TGP600 to include areas where reception was previously not available.
- Up to 6 KX-A406 repeaters can be registered to one TGP600 main unit.
- Up to 3 repeaters can be arranged in cascade.
- Coverage will vary depending on the environment. Building structure can impact wireless coverage and penetration
- KX-TGP600 can support up to 8 simultaneous calls. Each KX-A406 repeater can support up to 4 simultaneous calls.
- Edge repeater in cascade configuration can support up to 4 simultaneous calls.

IMPORTANT

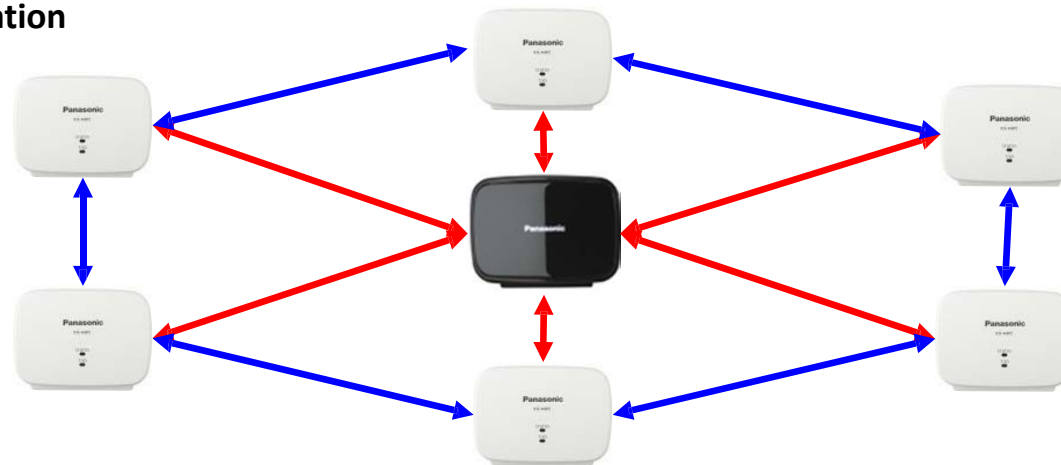
The maximum number of simultaneous calls defined above are supported when the TGP600 is configured in Narrowband mode. The number of simultaneous calls is reduced when the TGP600 is configured in Wideband mode. See KX-TGP600 and KX-A406 Manuals for details. Visit www.Panasonic.net to obtain these manuals.

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Configuration Examples

Standard Configuration



Registration / Handover



Handover Only



Cascade Configuration



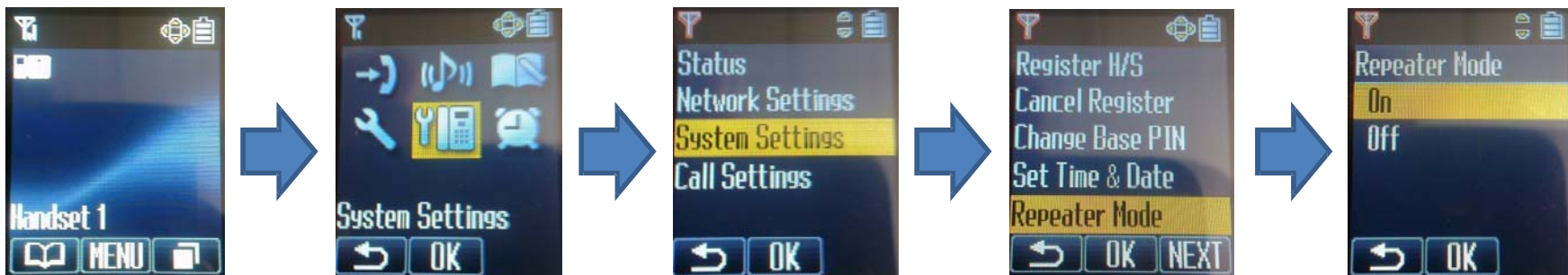
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KX-TGP600B Preparation

Enable “Repeater Mode” on the TGP600

- From KX-TPA60/65, press **Menu** -> **System Settings** -> **System Settings** -> **Repeater Mode**
- Set to “**On**” and press “**OK**”



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KX-TGP600B / KX-A406 Standard Registration Procedure

Set the KX-TGP600 to registration mode

- Power on the TGP600
- Press and hold the Handset Locator Button for approximately 4 seconds until STATUS indicator begins to flash red

Set the KX-A406 to registration mode

- Power on the KX-A406
- KX-A406 goes into automatic registration mode (if not already registered)
if already registered, deregister the unit and follow this procedure again (see instructions on page 7)

Registration is complete when the KX-A406 STATUS and RSSI/ID indicators are solid green. Press and release the Locator button on the TGP600 to exit registration mode.

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Registration is complete



IMPORTANT:

Other DECT wireless products may interfere with the registration process including Panasonic DECT Multi-cell PBX and SIP DECT devices. It is recommended to turn off all other DECT devices for successful registration or perform the registration procedure in an environment where other DECT devices do not exist

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KX-A406 Deregistration Procedure

- Disconnect the power from the KX-A406
- Press and hold the PROGRAM button on the back of the unit
- Connect power to the KX-A406
- Continue holding the PROGRAM button for approximately 10 seconds (STATUS indicator will flash red)
- Deregistration is complete when the STATUS indicator is solid red
- Disconnect power from the KX-A406
- Release the PROGRAM button
- Unit is ready for automatic registration

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KX-A406 Cascade Registration Procedure

Confirm Destination Repeater's ID

- Locate the destination repeater (ensure power is on)
- Press and release the PROGRAM button
 - STATUS: amber
 - RSSI/ID: flashing green
- Count the number of times the RSSI/ID indicator flashes green. The number of flashes is the unit's ID number
- Press and release the PROGRAM button to return to Operating Mode.

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Cascade Registration Procedure

- On the TGP600, press and hold the Handset Locator Button for approximately 4 seconds until STATUS indicator begins to flash red
- Power on the KX-A406 repeater to be cascaded
 - *if already registered, deregister the unit and follow this procedure again (see instructions on page 7)***
 - STATUS: amber
 - RSSI/ID: amber
- When the STATUS indicator begins flashing red, press and hold the PROGRAM button for 5 seconds until the STATUS indicator begins flashing green
- Confirm the RSSI/ID indicator flash sequence. Press and release the PROGRAM button until the RSSI/ID indicator flash sequence matches the destination repeater's ID number
- Press and hold the PROGRAM button (approx: 5 seconds) until the RSSI/ID indicator is solid red

Registration is complete when the KX-A406 STATUS and RSSI/ID indicators are solid green. Press and release the Locator button on the TGP600 to exit registration mode.

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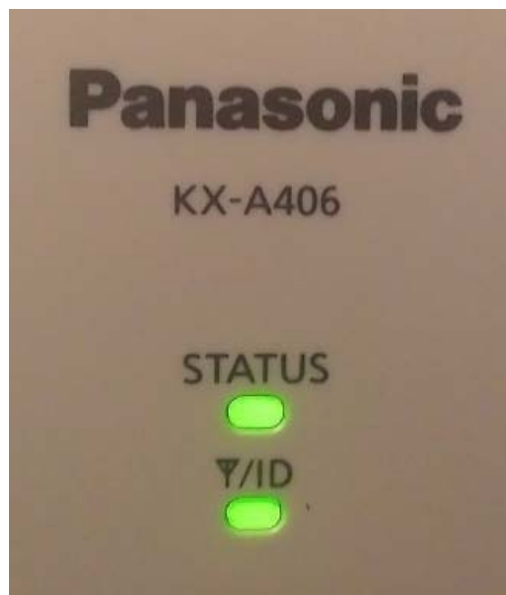
KX-A406 Site Survey (Easy Method)

- Register the KX-A406 repeater to the TGP600 main unit
- The KX-A406 STATUS and RSSI/ID indicator will be solid green when the repeater is close enough to the TGP600 to provide strong coverage and handover performance.
- If the KX-A406 STATUS indicator is green and the RSSI/ID indicator is amber, the repeater is too far from the TGP600 to provide strong coverage and handover performance. Move the repeater closer to the TGP600 until both indicator's are solid green.
- If the KX-A406 STATUS indicator and RSSI/ID indicator are red, the repeater is too far from the TGP600 to provide to reach it. Move the repeater closer to the TGP600 until both indicator's are solid green.

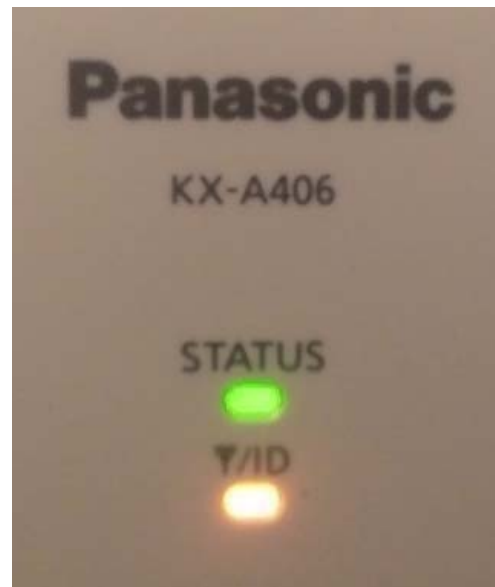
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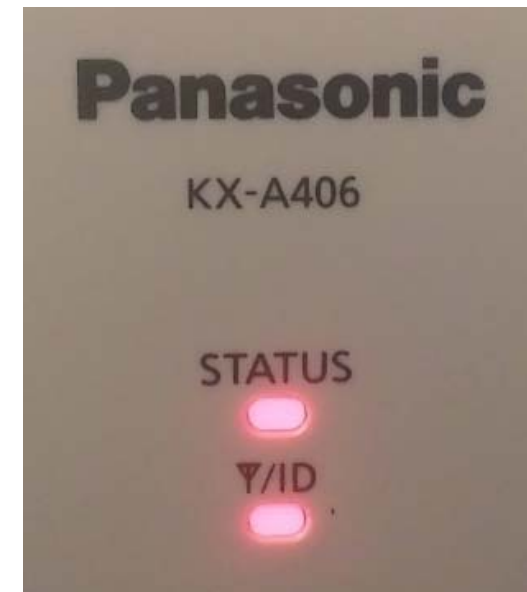
Repeater is close enough to the TGP600 to support strong coverage and handover performance



Repeater can connect to the TGP600 but the coverage is weak and cannot support good voice quality and handover performance



Repeater is too far from the TGP600 to connect and must be moved closer



Dealer Maintenance Mode Utility

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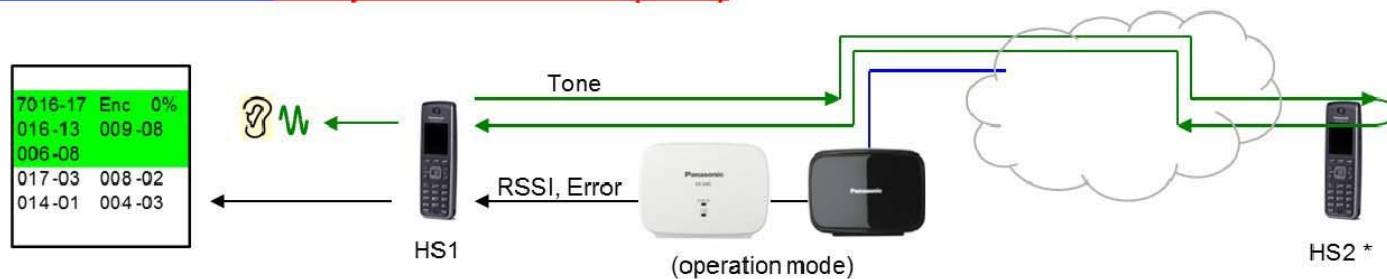
Wireless Coverage Measurement Utility (Maintenance Mode Method)

You can measure the wireless coverage of an environment using two methods of the TGP600 Maintenance Mode

(1) Site Survey: at Site survey mode



(2) HS Area Check : at Operation mode (Talk)



* : Doesn't matter whether HS2 is registered by the same Base Unit as HS1 or another Base Unit.

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The table below outlines the difference between the two methods available to measure wireless coverage

| Handset Maintenance Mode | Check timing | | Check item | | | | Monitored Repeater | |
|--|--------------|-----------|------------|-------|---------------------|-----------|-----------------------|------------------------------|
| | Situation | HS status | RSSI | Error | Sound | Hand over | Current Sync Repeater | Detected Repeater/ Base Unit |
| (1)Site Survey (to check coverage area of a Repeater) | Site Survey | - | Yes | Yes | - | No | Yes | No |
| (2)HS Area Check (to check coverage area of the system) | Operation | Talk | Yes | Yes | Tone (with 2 HS) | Yes | Yes | Yes |

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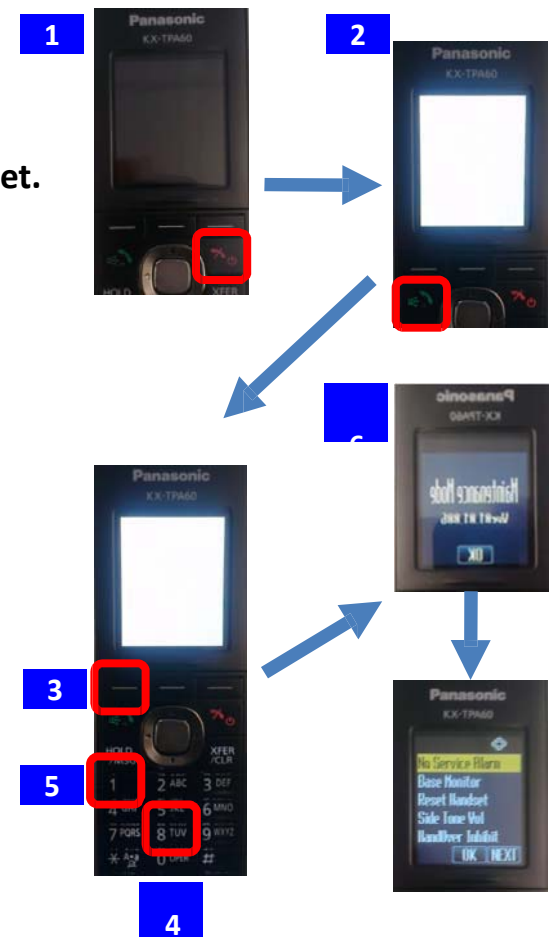
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Maintenance Mode

Use the following procedure to enter Maintenance Mode on the KX-TPA60 handset.

1. Turn on the KX-TPA60 by pressing and holding the POWER/CANCEL key
2. After turning on the handset, a blank screen will be displayed. At this time, press and hold the TALK/SP-PHONE key for approximately 8 seconds
3. Press the left soft key
4. Then press the [8] key
5. Then press the [1] key
6. Press OK to enter Maintenance Mode main menu

To exit Maintenance Mode, turn off the TPA60 handset and turn it back on.



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Site Survey

RSSI and Error Rate

RSSI (Radio Signal Strength Indication) and Error Rate from a Repeater to Handset are displayed on the LCD of KX-TPA60.

Background color of both RSSI and Error Rate indication area on the display becomes green when RSSI and Error Rate are good.

| RSSI | | Error Rate | |
|----------|--|------------|--------------------------------|
| Value | Quality | Value | Quality |
| 13 to 17 | Very Good | 0% | Better |
| 8 to 12 | Good | 2% | Good |
| 4 to 7 | May receive noise | 3% | May receive noise |
| Under 3 | May receive noise easily or become disconnected. | 10% | May fail to make/receive calls |



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KX-A406 Repeater Site Survey Mode

This function can be used when registered or de-registered.

1. While pressing and holding down the PROGRAM button, turn on the Repeater by connecting the AC adaptor.
-> The STATUS indicator will flash red.
2. Continue to hold down the PROGRAM button for 5 seconds.
-> The STATUS indicator will flash red quickly.
3. Release the PROGRAM button.
-> The STATUS indicator will flash green.





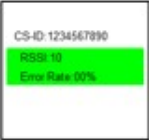
The repeater is now in Site Survey Mode

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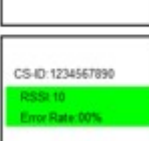
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KX-TPA60 Site Survey Mode

When you use registered Handset

1. Enter "Maintenance Mode" and Press "OK" according to Slide 12.

2. Select "Site Survey" and Press "OK".

3. Press "OK" again.

4. HS starts to search the Repeater which is site survey master.

5. HS shows RSSI and Error rate after it synchronizes the Repeater.


When you use unregistered Handset

1. Turn on Handset, and press "MON."

2. Press "OK".

3. HS starts to search the Repeater which is site survey master.

4. HS shows RSSI and Error rate after it synchronizes the Repeater.


KX-A406 Repeater Installation Guide

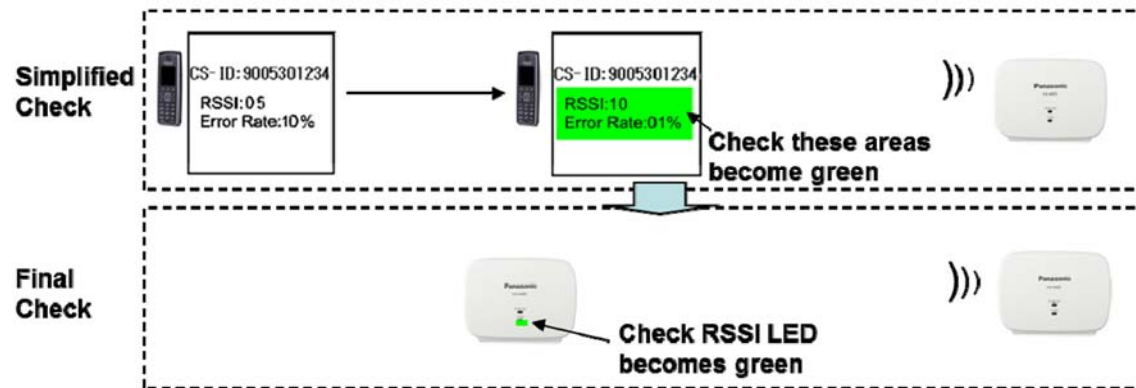
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RF coverage area check for one Repeater at site survey stage

You can check the RF coverage area of each Repeater (Site survey master Repeater) by RSSI and Error rate monitor.

<TIP>

“Site Survey” mode may be used as simplified check to find the position of cascade Repeater which receives air synchronization signal from other Repeater. The criteria which the background color of RSSI and Error Rate monitor on HS change to green are similar with the one which changes the Repeater’s indicators to green. However, this is a simplified check so you should confirm whether the Repeater can synchronize with other Repeaters by its LED indicators finally, because the Repeater position and its antenna direction affects RSSI and Error rate.



KX-A406 Repeater Installation Guide

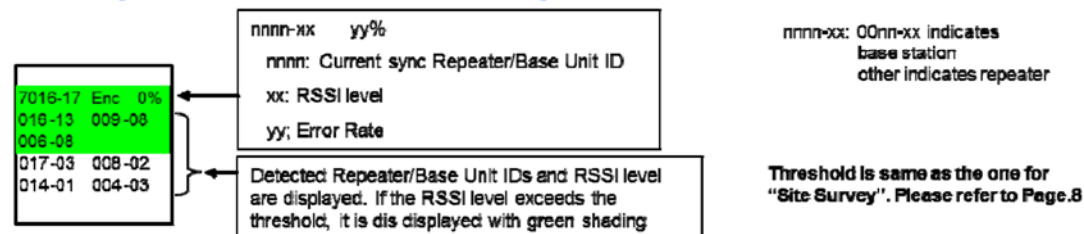
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HS Area Check

1. RSSI and Error Rate

Repeater Number, RSSI (Radio Signal Strength Indication) and Error Rate from synchronized Repeater are displayed on the LCD of the TPA60. HS number and RSSI from other detected Repeaters are also displayed.

Background color of both RSSI and Error Rate indication area on the display becomes green when RSSI and Error Rate are good.



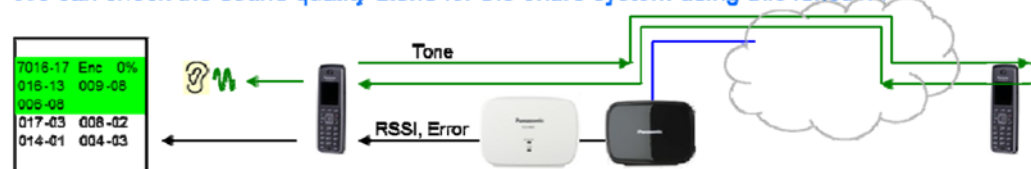
2. Tone Sound

You can check Sending and Receiving sound condition at the same time using this mode.

One Handset sends Tone sound to another Handset. And another Handset returns Tone.

Both Handsets should be set "HS Area Check" mode : On.

We can check the sound quality alone for the entire system using this function.



KX-A406 Repeater Installation Guide

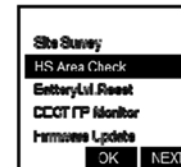
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KX-TPA60 HS Area Check Mode

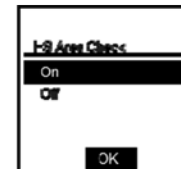
1. Enter "Maintenance Mode" and Press "OK" (refer to page 13).



2. Select "HS Area Check" and Press "OK".



3. Select "On" and Press "OK".
(To exit this menu, press "POWER/CANCEL" key)



4. Turn OFF the HS by pressing and holding the POWER/CANCEL key.

5. Turn ON the HS to start using HS Area Check mode

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KX-TPA60 HS Area Check Mode

RF coverage area check for system after tree survey.

Two HS which are set in "HS Area Check" mode, are used for coverage area check.

You can check the RF coverage area of the entire system by not only RSSI and Error rate monitor but also by listening to tone after making a call between two HSs.

You can easily understand the accurate coverage area by listening to the tone.

(For example, Installer can hear the noise if there is any RF interference, etc)

Handover can be also checked.

