CellCom® and FreeSpeak®

Firmware Upgrade Guide

Procedures for updating CellCom 10 / FreeSpeak 10 system components to CellCom/FreeSpeak

Document Reference

CellCom and FreeSpeak Firmware Upgrade Guide

PN 810372Z

Rev J

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Contents

1 Introduction

The **CellCom® and FreeSpeak® Firmware Upgrade Guide** replaces the following previously released documents on the CellCom/FreeSpeak release CDs / DVDs :

- *CellCom/FreeSpeak Active Antenna Firmware Upgrade Procedure*
- *CellCom/FreeSpeak Active Antenna DECT Update Procedure*
- *CellCom/FreeSpeak Beltpack Firmware Upgrade Procedure*
- *CellCom/FreeSpeak Beltpack DECT Update Procedure*
- *CellCom/FreeSpeak Upgrading Beltpacks Readme*
- *CellCom/FreeSpeak Upgrading Splitters Procedure*

This document also includes details of installing and configuring the Flash Development Toolkit.

Important note:
You require a valid system passcode to use 20 beltpacks on FreeSpeak or CellCom V2.

1.1 Update / upgrade requirements

To update or upgrade your CellCom or FreeSpeak system components, the following tools and applications are required:

System components	Required
Beltpack	FreeSpeak Upgrader.
Antenna	FreeSpeak Upgrader.
DECT	Flash Downloader.
Splitter	Flash Development Toolkit (FDT).
Basestation	Configuration Editor (plus a valid passcode).

Table 1: Update / Upgrade requirements

Note:
You can also use this document to update the Wireless Beltpacks, Active Antennas and Splitters on the Clear-Com Eclipse system.

2 Beltpack upgrade

To upgrade the beltpack firmware, you must install the **Beltpack Upgrader** tool in the PC Tools directory of the DVD.

This program is installed as *Freespeak Upgrader* in the *Clear-Com* program group. More help on the upgrade procedure is available from within this program.

You can identify the MKII by either of the following:

- The letter **A** at the end of the unit's serial number.
- The software version starting with the letters **3K**.

Alternatively you can enter programming mode on the beltpack and go to the software version menu.

You will find the Beltpack firmware in the **Firmware\Beltpack** directory of the DVD.

2.1 Required software and hardware

To upgrade the beltpack, the following software and hardware are required:

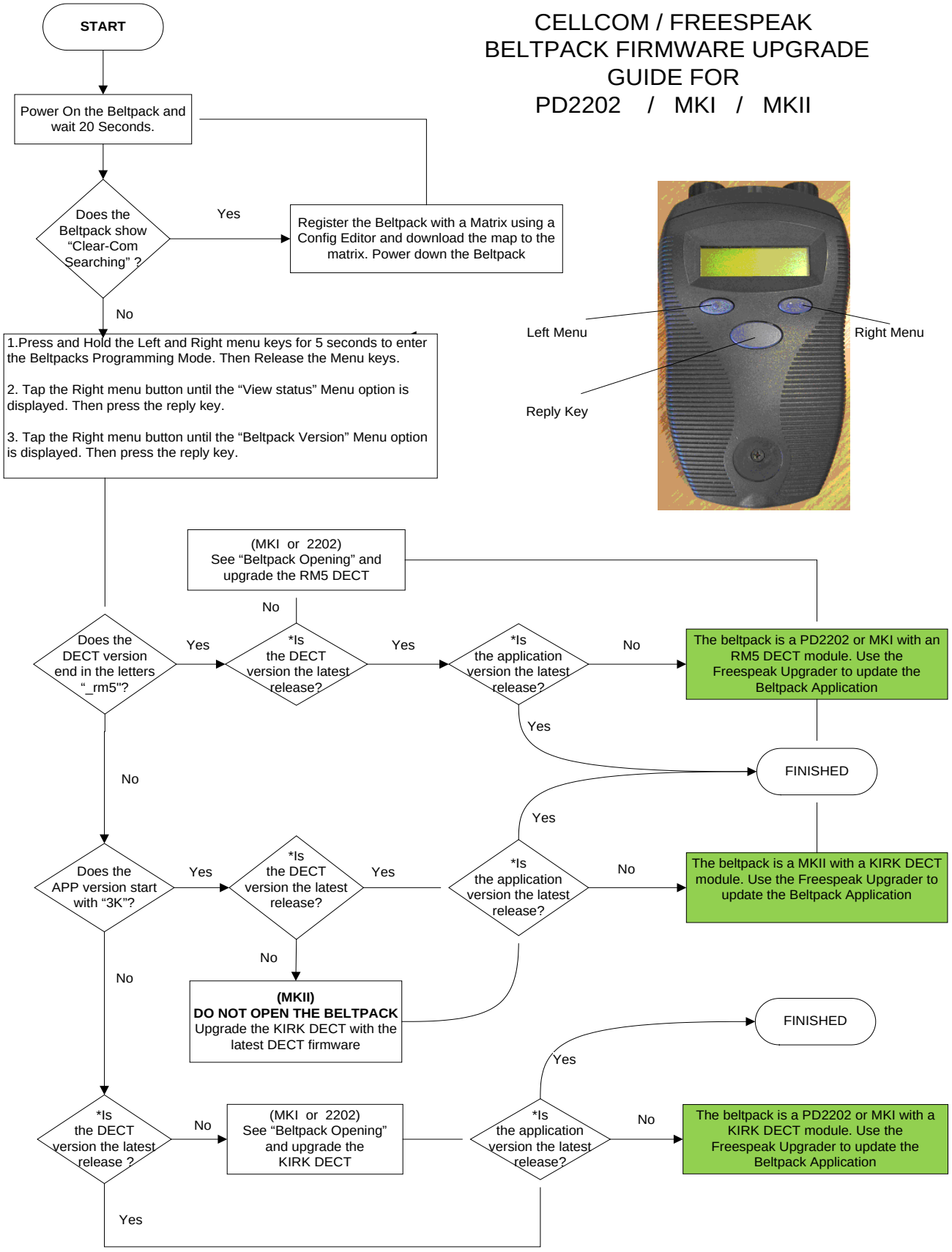
- FreeSpeak Upgrader (supplied with your CellCom / FreeSpeak DVD).
- FreeSpeak Registation Serial Cable
- The latest release of Bootloader and Beltpack (supplied with your CellCom / FreeSpeak DVD).
- A PC with a serial connection.

2.2 Upgrading flow diagram

To upgrade the beltpack firmware, complete the procedure as shown in ***Figure 1: Beltpack upgrade procedure (flow diagram)***

Note:
For the latest firmware information, see the release notes on the DVD.

CELLCOM / FREESPEAK BELTPACK FIRMWARE UPGRADE GUIDE FOR PD2202 / MKI / MKII



* See the release notes for latest version information.

Figure 1: Beltpack upgrade procedure (flow diagram)

2.3 FreeSpeak Upgrader beltpack updates

To update the beltpack with the FreeSpeak Upgrader:

1. Run **FreeSpeak Upgrader** on the PC (ensuring that the correct COM port is selected).

2. Check that the selected firmware file is:
   - The latest Beltpack release (for example, **xxxxx.mot**).
   - The correct file type (such as, **MKI KIRK** or **MKII KIRK**).

   Note:
   *For help determining your hardware version, see **Figure 1: Beltpack upgrade procedure (flow diagram)**.*

3. Switch off the Beltpack.

4. Connect the Beltpack to the PC via the registration cable. Click **Download**.
5. Press the power button on the beltpack to begin the download. The **FreeSpeak Upgrader** progress bar is displayed.

   Note:
   If the download fails, remove and reinsert the batteries in the beltpack, check the cables and try downloading again.

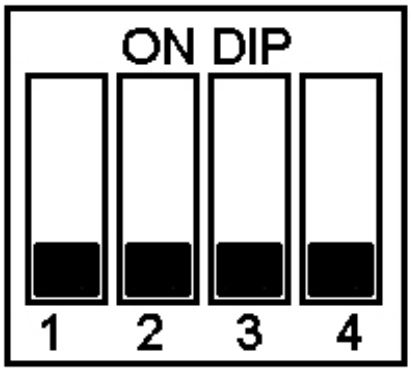
6. Once the firmware file has downloaded successfully (takes about 2.5 mins), remove the registration cable and power off the Beltpack.
7. If the unit is dissembled (remove at least one battery) fit the unit back together and replace the screws.
8. Replace the batteries and power up the unit and check for the correct version and operation.

2.4 Beltpack DECT Updates

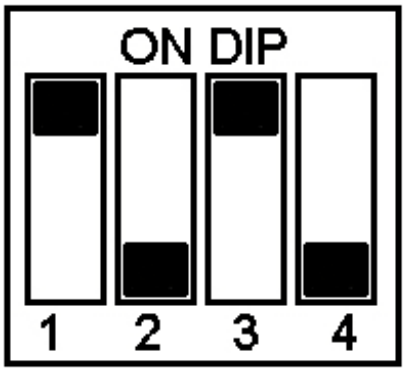
2.4.1 Preparing FS-BP MK I and PD2202 Beltpacks

To set a FS-BP MK I or PD2202 Beltpack in DECT download mode:

1. Open the beltpack case (*see the section on opening beltpacks)* and set the DIP switches to the following positions:



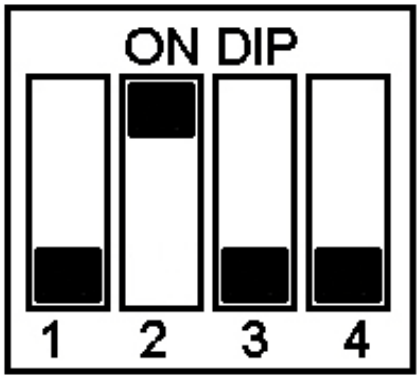
DIP Switch S5



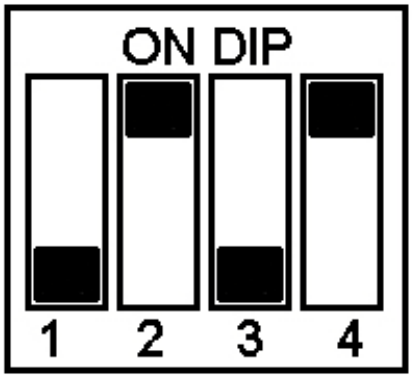
DIP Switch S6

2. Run the DECT Loader (see the DECT Loader section below).

3. The default/normal operating DIP switch positions are as follows:



DIP Switch S5



DIP Switch S6

2.4.2 FS-BP MK II Beltpacks

To set a FS-BP MK II Beltpack in DECT download mode:

1. Connect the PC to the beltpack using the beltpack registration cable.
2. Run **Terminal Emulator** on a connection at baud `19200 8,N,1`
3. Type `# 0174`

Note:
There is a space after the '#'.

The DECT resets and the terminal starts streaming characters. If characters are not seen, check cables, baud settings, hit return on the Terminal Emulator and type `# 0174` again.

4. Run the DECT Loader (see the DECT Loader section below).

5. Power cycle the Beltpack.

2.4.3 Flash Downloader for beltpack DECT updates

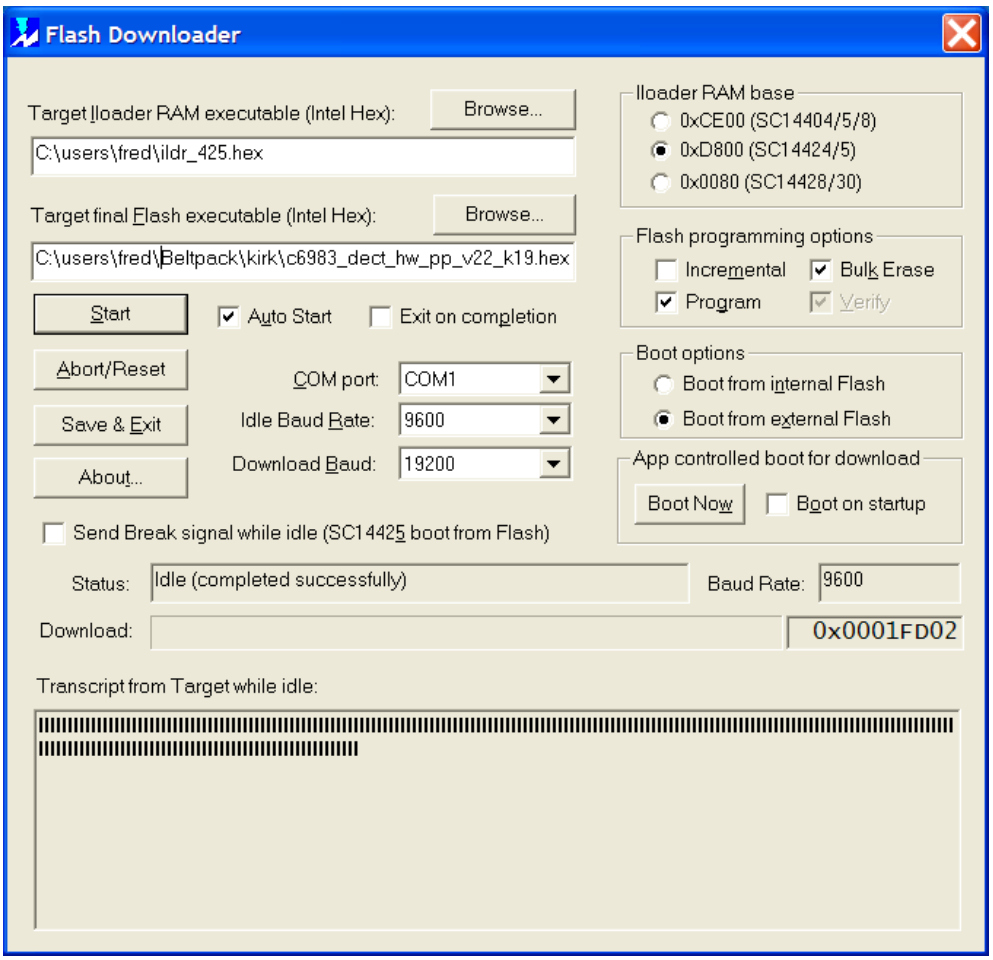


Figure 2: Flash Downloader for beltpack DECT updates

To use the Flash Downloader for beltpack DECT updates:

1. Install the DECT loader onto a PC with a serial port.

2. Connect the PC to the Beltpack using the Beltpack registration cable.

3. Start the **Flashloader** program. Ensure that:
   - The correct DECT update file is selected in **Target Final Flash Executable.**
   - **Send Break signal while idle** and **Boot on start up** are unchecked.

4. ***For FS-BP MK I and PD2202 beltpacks only:***

   Power up the beltpack and check that the black markers are displayed in **transcript from target**. On selecting **Start**, the status changes from **idle** to **erasing flash**, etc.

   For FS-BP MKII beltpacks only:

   Click the start button to begin the download.

The **ildr_425.hex** can be found in the DECT images directory. The auto start begins on starting Flash **Downloader** with the beltpack connected and powered on.

2.5 After the DECT is upgraded

2.5.1 FS-BP MK I and PD2202 beltpacks

After the DECT is upgraded:

1. Turn off the beltpack.
2. Disconnect the power or **remove a battery.**
3. Set the Dipswitches to their normal operating position.
4. Reassemble the beltpack (see the section on opening beltpacks). Install the batteries, power up and check that the BP versions are correct in the version menu.

2.5.2 FS-BP MK II beltpack

After the DECT is upgraded, power cycle the beltpack and check that the BP versions are correct in the version menu.

If the beltpack is not connected to a system, the version can be displayed by tapping the **up/right** menu button on the **searching screen**.

2.6 Updating the beltpack bootloader

Warning

*Only update the bootloader if software has **never** previously been installed on the beltpack. The bootloader is usually installed at the factory production stage and is **not** required for routine system upgrades.*

Before you can update the bootloader, you must:

- Install the Flash Development Toolkit (FDT). The FDT is available to download at Renesas - Flash Development Toolkit Download.
- Ensure that the beltpack batteries are fully charged.

You can find the beltpack firmware in the **Firmware\Bootloader** directory of the DVD.

To update the bootloader:

1. Install the Flash Development Toolkit (FDT).

   Note:
   For details on configuring the FDT, see the appendix.

2. Remove:
   - At least one battery from the beltpack.
   - All the screws from the beltpack.
3. Remove the cover.
4. Slide main PCB assembly off and place to the side of the case.
5. To put the beltpack into boot mode, use a sharp implement to change the following DIP switch settings:
   - **ON/OFF** to **ON**
   - **MD2** to **ON**.
6. Power up the beltpack by replacing the battery(s).
7. Connect the beltpack registration cable supplied with your base station between the PC and the Beltpack.
8. Run FDT on the PC. The following settings are configured on the FDT:
   - Device: **H8S/ 2318/f** .
   - CPU Crystal Frequency: **10.36Mhz** .
   - **Boot mode.**
   - **19200 baud.**

9. Select **Bootloader01a.mot** (or the latest version) and **Download it to Device.**
10. When the download has completed, close FDT and power off the Beltpack by removing at least one battery.

11. Put the beltpack back into **Normal Mode** by changing the following DIP switch settings:

    - **ON/OFF** to **OFF**
    - **MD2** to **OFF.**

12. Replace the battery and power up the beltpack. The **green** status LED (LED2) indicates that the bootloader is waiting for comms from the PC.

3 Antenna upgrade

To upgrade antenna firmware, install the **Beltpack Upgrader** tool from the PC Tools directory of the DVD.

This program is installed as *Freespeak Upgrader* in the *Drake Electronics* program group. More help on the upgrade procedure is available from within this program.

Antenna firmware can be found in the **Firmware\Antenna** directory of the DVD.

3.1 Required software and hardware

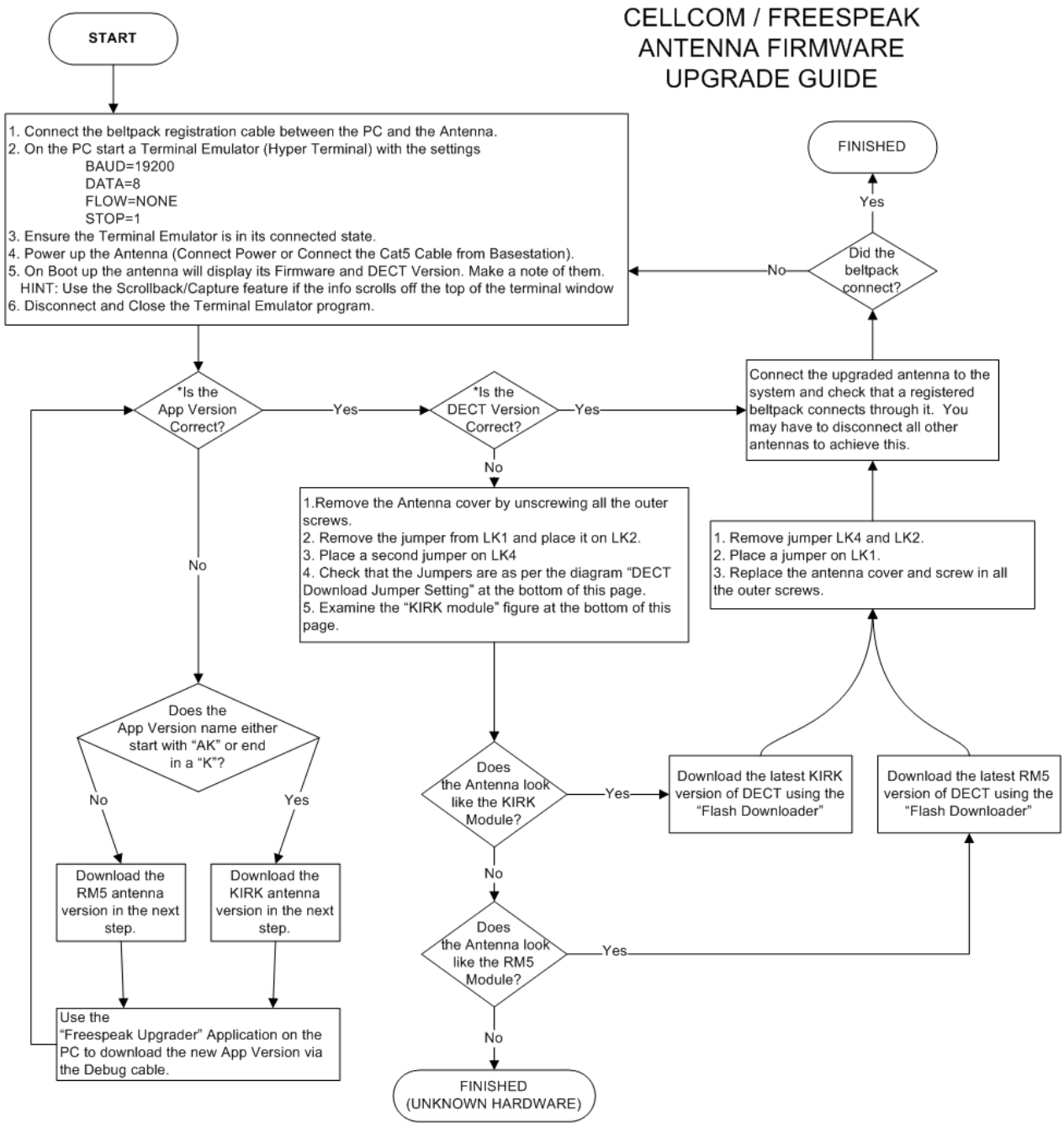
To upgrade the beltpack, the following software and hardware are required:

- FreeSpeak Upgrader (supplied with your CellCom / FreeSpeak DVD).
- FreeSpeak Registation Serial Cable
- Latest release of the bootloader and Antenna applications (supplied with your CellCom / FreeSpeak DVD).

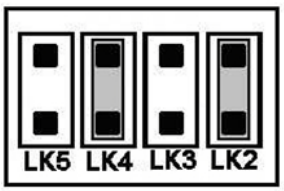
3.2 Upgrading flow diagram

To upgrade the beltpack firmware, complete the procedure as shown in
***Figure 3:* CellCom / FreeSpeak antenna upgrade procedure (flow diagram)**

Note:
For the latest firmware information, see the release notes on the DVD.



* See the release notes for latest version information.



DECT Download Jumper Setting

KIRK Module

RM5 Module

Figure 3: CellCom / FreeSpeak antenna upgrade procedure (flow diagram)

3.3 Freespeak Upgrader for Antenna Updates

To update the active antenna with the FreeSpeak Upgrader:

1. Run **FreeSpeak Upgrader** on the PC (ensuring that the correct COM port is selected).
2. Check that the selected firmware file is the latest AA release
3. Click **Download**.

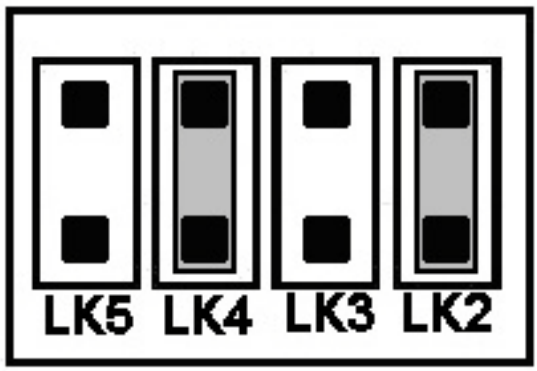
   Note:
   The active antenna should still be connected to the PC via the beltpack registration cable.
4. When the firmware file has downloaded successfully (download takes about 2 minutes) the **green** status LED flashes.
5. If the antenna is disassembled, remove the registration cable and power the active antenna down. Replace the antenna cover, and screw it together again.

3.4 Active Antenna DECT Updates

3.4.1 Preparing Active Antenna

To set an active antenna into DECT download/debug mode, open the case and put links on LK4 and LK2, as shown below.

These are the same links set to upgrade or debug the DECT firmware. Remove these links for normal operation.



Take care to use the correct version of the DECT firmware for your version of antenna:

- **RM5** (older units).
- **Kirk** (newer units, and the bulk of CellCom/FreeSpeak shipments).

You can determine the type of the antenna by checking the current version of firmware.

1. Use the Registration Cable connection to connect a terminal emulator (such as HyperTerminal) set at 19200,8,N,1 using the registration cable connection.

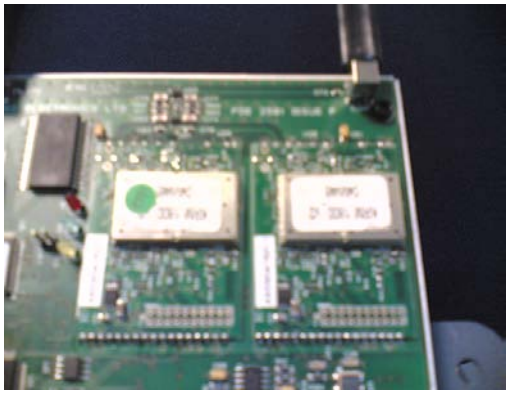
2. Power up the unit. The software versions are displayed.

3. Check that the software versions are correct.

   If the version number displayed contains a **K** (for example,. **AA_AK**), then you must upgrade using the **Kirk** version of the DECT firmware (for example, **c6983_dect_hw_fp_v15_k19.hex**).

   If the version number does **not** contain a **K** (for example, **ActiveA02d**), then you must upgrade using the **RM5** version of the DECT firmware (for example, **c6657_hw_fp_v14_rm5.hex**).

   You can also find out which version of the firmware you require by comparing your hardware with the images below:



Kirk Module

RM5 Module

3.4.2 Flash Downloader for Antenna DECT updates

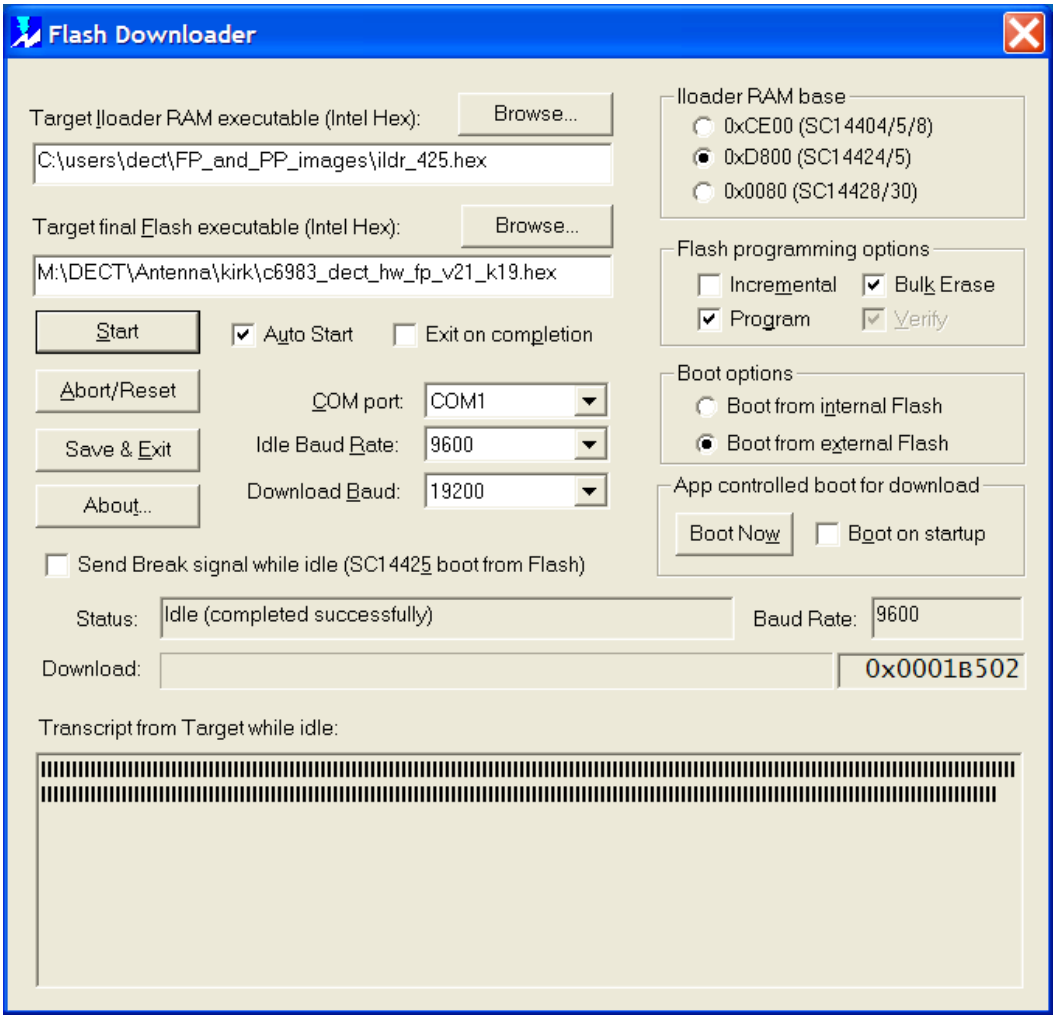


Figure 4: Flash Downloader for antenna DECT updates

To set an active antenna in DECT download mode:

1. Install the DECT loader onto a PC with a serial port.

2. Connect the PC to the antenna using the registration cable.

5. Start the **Flashloader** program. Ensure that the correct DECT update file is selected in **Target Final Flash Executable.**

3. Power up the antenna. Select start. The DECT should start updating. The status changes from **idle** to **erasing flash**. The **ildr_425.hex** can be found in the DECT images directory.

Note: *Auto-start begins if:*

- *You save and restart the flash downloader application on your PC.*
- *The correct settings were previously saved.*
- *The antenna is connected and powered up.*

4. After the DECT is upgraded, turn off the Antenna, disconnect the power and remove the jumpers from the **LK2** and **LK4**.

5. Check that Jumper **LK1** is shorted as this activates the watchdog.

6. Connect a terminal emulator (i.e. HyperTerminal) set at `19200,8,N,1.`

7. Power up. Check that the software versions are correct.

3.4.3 Active antenna bootloader

Note:
You are only required to update the active antenna bootloader if an application has never previously been installed to it.

Before you can update the bootloader, you must install the Flash Development Toolkit (FDT). The FDT is available to download at Renesas - Flash Development Toolkit Download.

You can find the beltpack firmware in the **Firmware\Bootloader** directory of the DVD.

To update the bootloader:

1. Install the Flash Development Toolkit (FDT) to the PC. Details on configuring the FDT are in the appendix.

2. Remove all the screws from the antenna (**except** the bottom ones), then slide the cover off.
3. Put the antenna into **Boot Mode** by putting a Jumper onto **Link 3** (**LK3**, the 3rd from the edge).

   Tip: *The jumper could be moved here from **LK1**.*
4. Power up the antenna (or press the **Red** reset button. if already powered up).

5. Connect the beltpack registration cable between the PC and the antenna.

6. Run FDT on the PC with the following configuration:
   - Device: **H8S/ 2318/f**
   - CPU Crystal Frequency: **10.36Mhz**
   - **Boot Mode**
   - **19200 baud**

7. Right Click **Bootloader01a.mot** (or whatever is the current version) and select **Download File to Device.**

8. When this is complete, close FDT and power off the antenna.

9. Put the antenna into **Normal Mode** by removing the Jumper from **Link 3**.

10. Power up the antenna. The **green** status LED (next to **LK7**) flashes to indicate that the bootloader is waiting for comms from the PC.

4 Splitter upgrade

Splitters do not have a bootloader, so all firmware upgrades are implemented using the Flash Development Toolkit (FDT).

4.1 Required software and hardware

To upgrade the splitter, the following software and hardware are required:

- Flash Development Toolkit (FDT), obtainable from Renesas - Flash Development Toolkit Download..
- FreeSpeak Registation Serial Cable
- Latest release of the Splitter application (supplied with your CellCom / FreeSpeak DVD).

4.2 Upgrading the splitter

To upgrade the splitter:

1. Remove all the screws from the unit, and remove the cover.
2. Move the jumper from **LK1** to **LK2**.
3. Connect the beltpack registration cable between the PC and the Splitter.
4. Run FDT on the PC with the following configuration:
    - Device: **H8S/ 2318/f**
    - CPU Crystal Frequency: **16.38Mhz**.
    - **Boot mode.**
    - **19200 baud.**
5. Add the file to be downloaded to the project by right clicking **Target Files** and selecting **add files to project**.
6. Right click the file name and select **Download File To Device**.

    Tip: *If download fails, try changing the baud rate to **38400**.*
7. When the download is complete, power off the unit.
8. Move Jumper from **LK2** back to **LK1**.
9. Power up the splitter. The **green** status LED should flash at 1 second intervals.

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5 Basestation upgrade

From CellCom/FreeSpeak v2, the Configuration Editor (supplied with the DVD) is used to upgrade the application code. The Configuration Editor replaces the Ethernet Upgrader program.

If the application code cannot be upgraded using the ethernet upgrade method (for example, if there is a complete failure of the ethernet port), then you can use Hyperterminal, S4 driver or an equivalent.

5.1 Required software and hardware

The following software and hardware is required:

- Ethernet/Ethernet Cross-over Cable.
- Xilinx USB Programmer.
- CellCom/FreeSpeak Registration Cable.
- Memory SIMM (older units only).
- Boot PROM (older units only).
- Latest version of Application Code (supplied on the CellCom/FreeSpeak DVD)
- Latest version of Xilinx Code (supplied on the CellCom/FreeSpeak DVD)
- CellCom/FreeSpeak PC ToolKit
- Valid v2.0 Passcode

5.2 Upgrading flow diagrams

To upgrade the basestation, complete the procedures as shown in:

- ***Figure 5:CellCom / FreeSpeak basestation upgrade procedure (flow diagram)***
- ***Figure 6: CellCom / FreeSpeak 10 basestation upgrade procedure (flow diagram).***

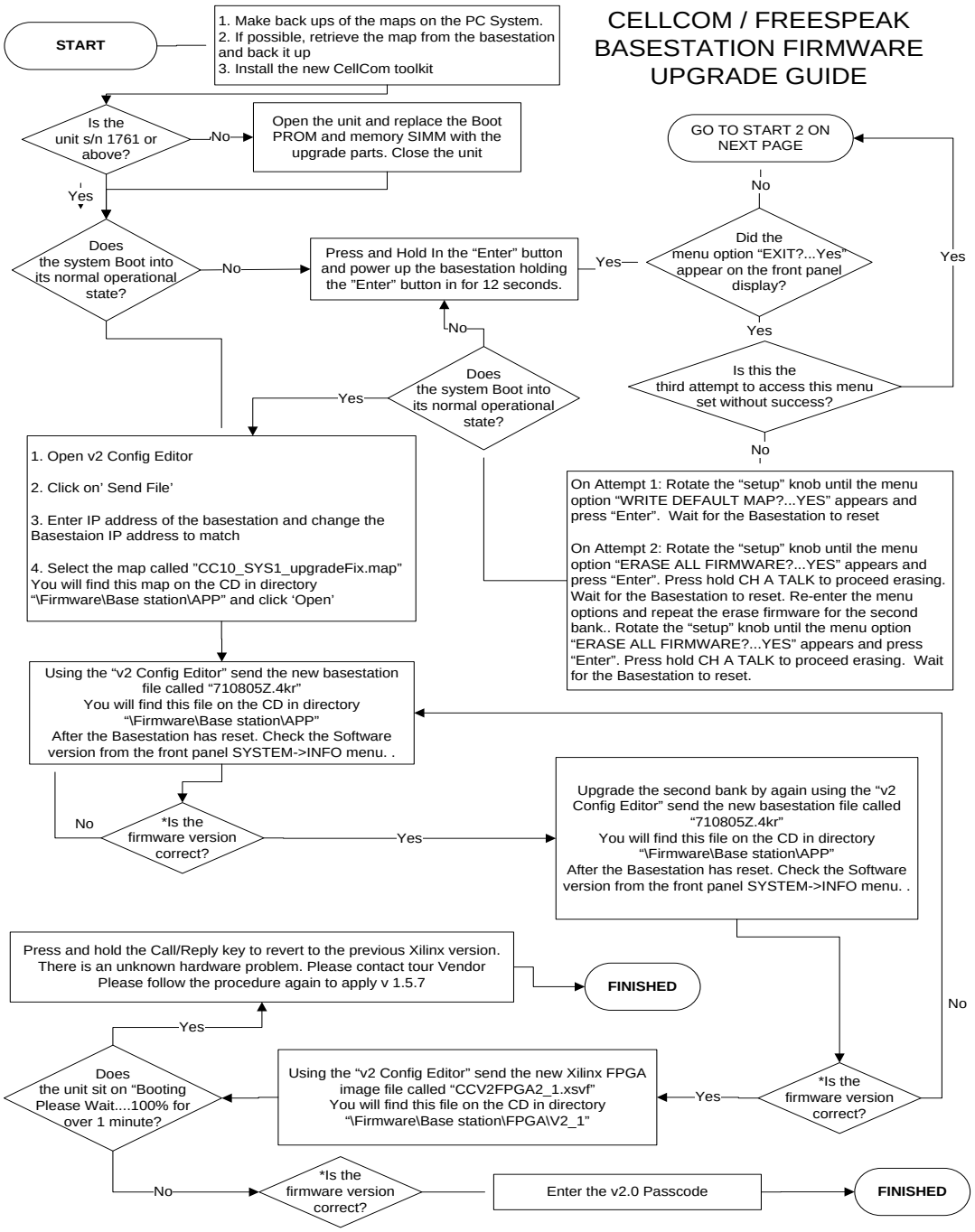


Figure 5:CellCom / FreeSpeak basestation upgrade procedure (flow diagram)

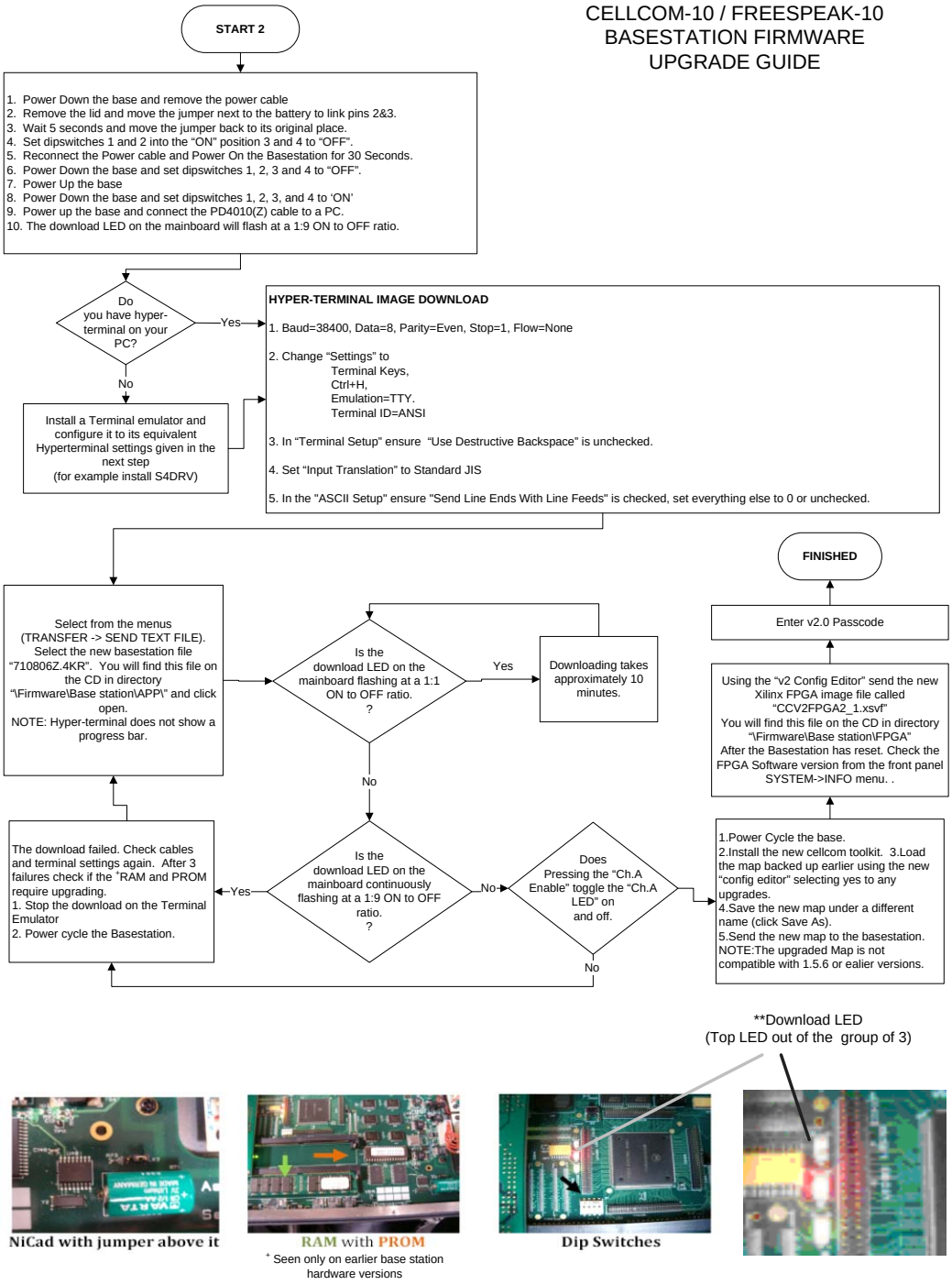


Figure 6: CellCom / FreeSpeak 10 basestation upgrade procedure (flow diagram).

5.2.1 Upgrading the basestation with the Configuration Editor

To upgrade the basestation with the Configuration Editor:

1. Connect the PC to the basestation using an Ethernet Crossover cable or similar.
2. Open the Configuration Editor.
3. Click **Send File**.
4. Enter the IP address of the basestation.
5. Edit the IP address of the PC to be on the same subnet.
6. Select the File to be downloaded (this can be a utility file, such as the **upgrade fix** map, or a firmware version).

   Note:
   For more information on file loading order, see the basestation upgrade flow diagrams above.
7. To begin download, click **Open**.

   Progress is indicated in the program. The basestation also displays download progress information. On completion the basestation resets.

5.2.2 Serial upgrade of the basestation

To perform a serial upgrade of the basestation:

1. Power down the basestation. Remove the mains cable and remove the case lid.
2. Move the **LK2** jumper across, 1 pin away from the power supply. Wait 5 seconds, then move the jumper link back to its original position (towards the power supply).
3. Set DIP switches 1 and 2 to the ON position.
4. Set DIP switches 3 and 4 to the OFF position.
5. Reconnect the power. Power on the basestation and wait 30 seconds.
6. Switch off the basestation. Remove the power connector and set DIP switches 1, 2, 3 and 4 to OFF.

7. Power up the basestation and connect to a PC running S4 driver. The download LED flashes with a 1:9 ON:OFF ratio.

   The serial settings are:

   - Baud Rate: **38400**
   - Data Bits: **8**
   - Parity: **Even**
   - Stop Bits: **1**
   - Flow Control: **None**

8. Download the application file to the basestation. The download LED flashes with a **1:1 ON:OFF** ratio.

9. Wait for the download to finish (the download LED flashes with a **1:9 ON:OFF** ratio). To check if the download completed successfully, see if the **CH A Enable** button on the basestation toggles to the corresponding LED.

10. Power cycle the base station.

5.3 Xilinx upgrade of the basestation

If the Basestation Application and Configuration Editor software are running at v2.0, the Xilinx FPGA can be upgraded from the Configuration Editor. This allows you to upgrade the unit without opening it, although it will increase the power up from cold time of the basestation by approximately 30 seconds.

The Xilinx FPGA can also be upgraded using the iMPACT Xilinx software and associated USB programmer (ie. Model DLC9G programmer). This requires the case to be opened. The iMPACT software can be found at the following web address:

http://www.xilinx.com/xlnx/xil_sw_updates_home.jsp

Note:
A license agreement will need to be accepted before download. The download is large (approx 1Gb).

To upgrade the Xilinx FPGA using v2.0:

1. Connect the Basestation and PC via Ethernet.

2. Open the Configuration Editor software.

3. Click **Send File**.

4. Enter the basestation IP address.

5. Find the ***.XSVF** file to be applied (this can be found on the DVD).

6. Click **Open**. The download begins and a progress bar is displayed.

   When the download is complete, the basestation restarts automatically, running the new Xilinx software.

To upgrade the Xilinx FPGA using the iMPACT software:

1. Remove the case lid from the basestation.

   Warning: *Exposed voltages*.

2. Connect the USB connector of the download cable to the Computer USB port. Connect the 14way IDC header into CON12 of the basestation unit.

3. Start the iMPACT programming tool.

4. Select **Cancel** in the **Load Project** dialog.

5. In **Flows**, double click **Boundary Scan**.

6. Right click the main window and select **Initialize Chain**. If the cable is correctly connected, the chip chain will be displayed. The chain should appear to contain 2 devices.

7. The selected devices are displayed as green in the program. Click **Bypass the first device** to ignore it.

8. On the second device, select the file image that is to be used, and click **Open**. The latest Xilinx image can be found on the DVD.

9. Right click on the second device, and select **Program** from the drop down list. **Verify** and **Erase Before Programming** should be selected.

10. To begin programming, click **OK.**

11. Restart the basestation. XiLINX versions can be checked from v2.0 onwards from the INFO display on the basestation.

5.4 Incorrect boot PROMs and memory SIMMs

A number of the older CellCom/FreeSpeak units have **incorrect** boot PROMs and memory SIMMs.

This can cause the basestation to fail the application upgrade process. The memory SIMM has been removed from later iterations of the hardware design, so if this is not present in your basestation you will not be able (or be required) to change the hardware components.

Non-RoHS basestations can be identified by their Serial Number. All units before **1760 and below are non-RoHS units and require a new boot PROM and 8Mb memory SIMM.**

A Boot PROM and memory SIMM pack are listed as part of the upgrade package.

6 Appendix A: FDT setup

Because of licensing restrictions, a copy of the Flash Development Toolkit (FDT) cannot be included on the CellCom/FreeSpeak DVD.

A freeware version of the FDT may be downloaded from the following site:-

Renesas - Flash Development Toolkit Download

This is a direct link to the latest version at the time of publishing (Renesas Flash Development Toolkit V.3.07 Release 02). This FDT may be downloaded and used but cannot be distributed under the licence provided. If the above link does not work, please go to the Renesas download site:

Renesas FDT Download Site

Alternatively, go to the Renesas global site homepage below and navigate to the FDT download page through the support links (enter FDT into the search field).

http://www.renesas.com/homepage.jsp

Select the latest version of the FDT to be downloaded and follow the instructions. As a guide the installation and set-up of Renesas Flash Development Toolkit V.3.07 Release 02 is outlined below but please note that this may change through the Renesas web site changes.

6.1 Installing the FDT

To install the FDT:

1. After selecting the tool to download, read and accept the licence agreement.

2. The download page is displayed. Select **Download.**

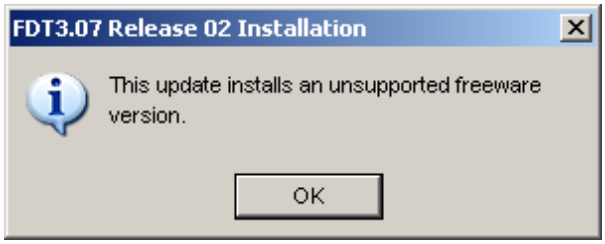
Figure 7: Renesas download page

3. Run (or save and run later) the installer.

4. The installation is downloaded. Speed of download varies according to the speed of your internet connection

5. When prompted, select **Run.**

6. The installation will start. The following dialog is displayed:



Click **OK.**

Note:
A warning webpage may also be displayed.

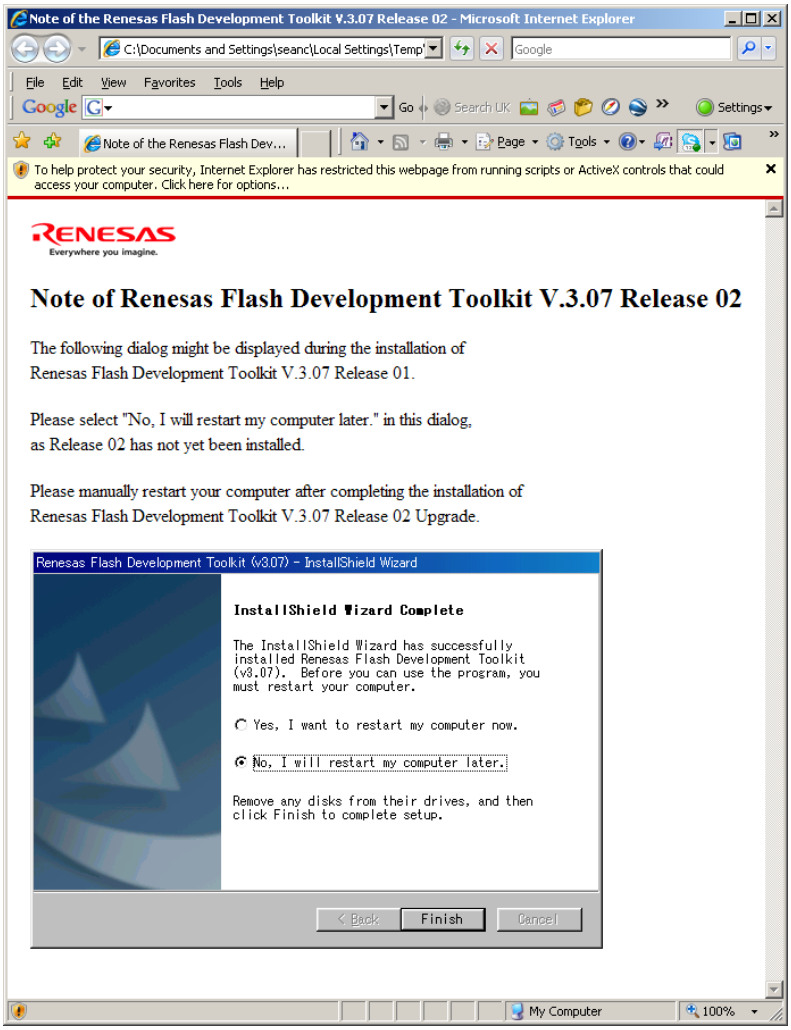


Figure 8: Renesas warning webpage

7. The install wizard is displayed. To go to the next page, click **Next**. Select the desired installation language.

8. Accept the license agreement.

9. Enable installation of **Kernel: Protocol B – H8S-2300** family feature drivers.

   Other features can be installed but are not required. It is recommended that you do **not** install **AutoUpdates**.

10. In **Select Options**, ensure that support for ***.MOT** data files is selected. You can select support for other file types but support for other file types is not required.

11. In **Choose Destination Location**, accept or change the installation directory.

12. To begin the installation, click **Install**. When the installation is complete, click **Finish**.

Note:

After accepting Finish, the installer may start an additional installation. You can cancel the additional installation without affecting the FDT.

6.2 Configuring and using the FDT

To configure and use the FDT:

1. From the start menu, select **Renesas\Flash Development Toolkit 3.07\Flash Development Toolkit 3.07 Basic**

   Note:
   You can also run the full tool and save the setting under project. See the documentation installed with the tool if you wish to do this.

2. FDT opens. Select the device (currently this is only **H8S/2318F**).

3. Select the serial port you are using (for example, **COM 1**).

4. Select the CPU Crystal Frequency as specified in the instructions. The current settings are shown below.
   - Beltpack: **10.36MHz**
   - Antenna: **10.36MHz**
   - Splitter: **16.38MHz**

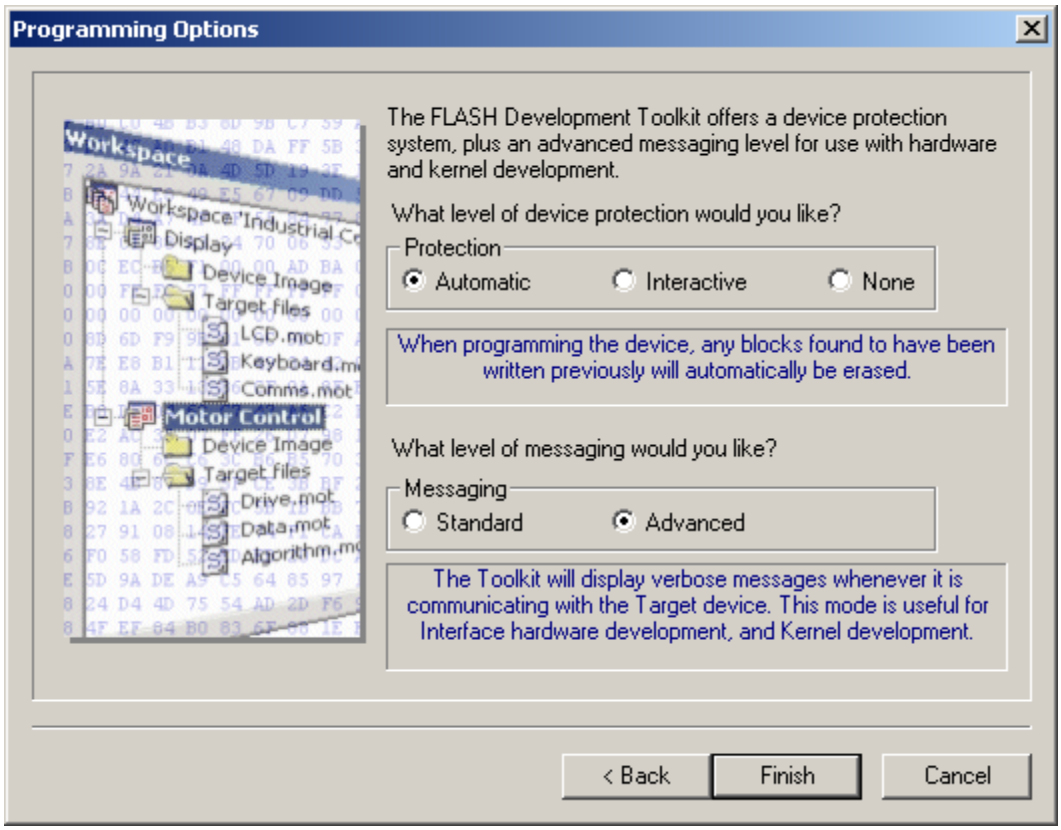
5. Set the connection mode (**Boot mode** for all applications).

6. Set the recommended speed as specified in the instructions. The current speed is 19200 for all applications.

   Note:

   *You must deselect **Use default** to allow this to be set.*

7. Leave protection and Messaging to the default settings below:



8. In FDT Simple Interface, select the User/Data Area and then select the file to be downloaded.

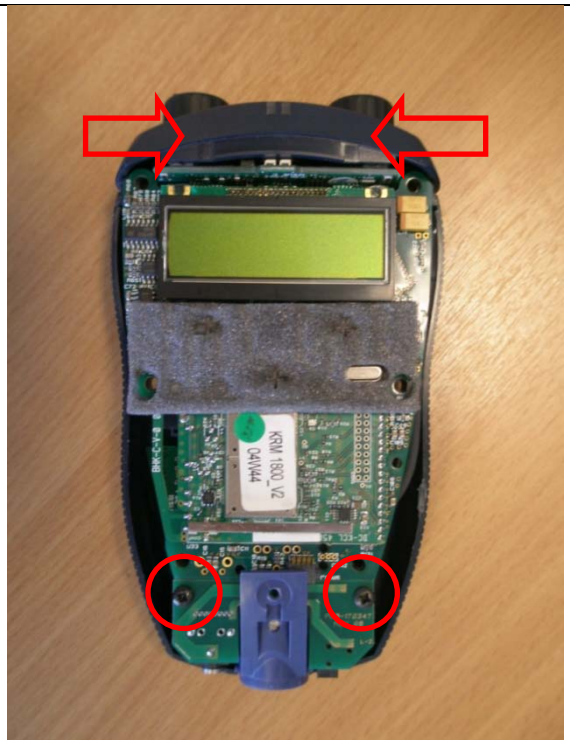
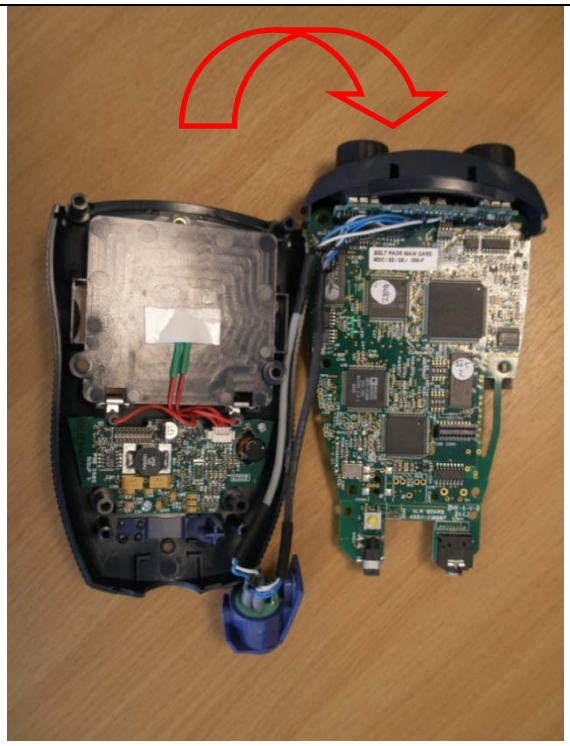
9. Ensure that the beltpack registration cable is connected to the unit and the unit is configured as per the instructions.

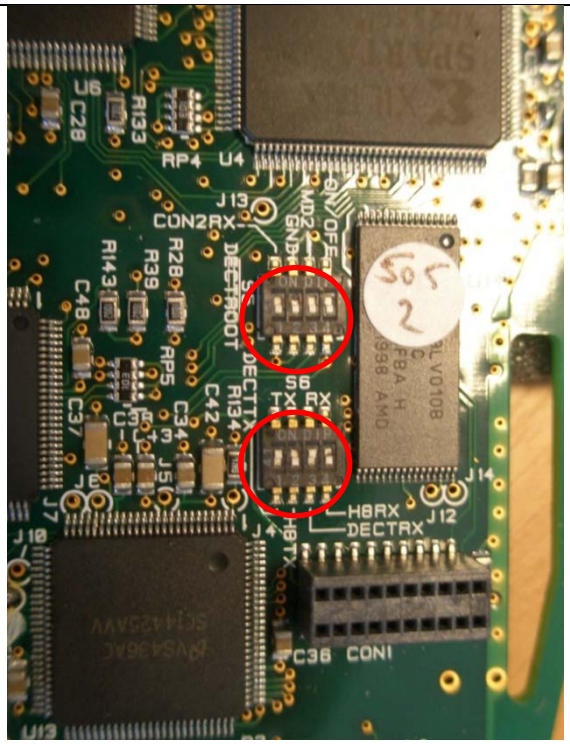
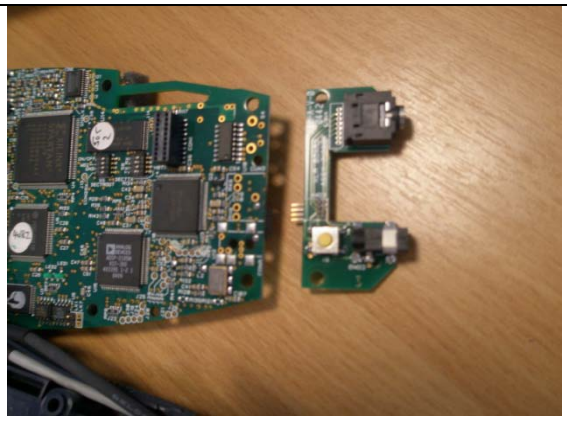
10. To start the download, select **Program Flash Start**. If the download is successful the appropriate message is displayed in the application window.

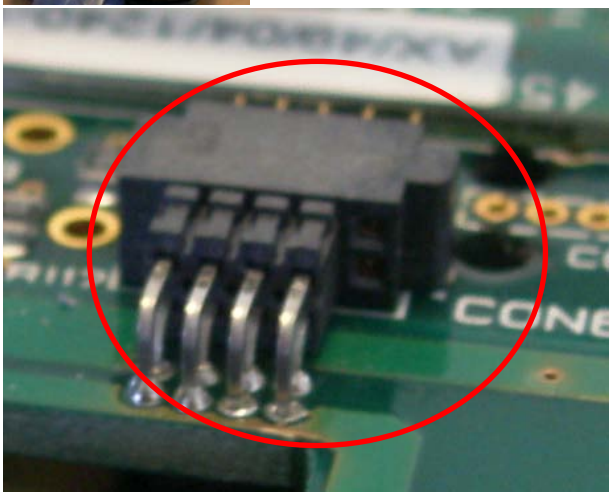
7 Appendix B : Beltpack opening

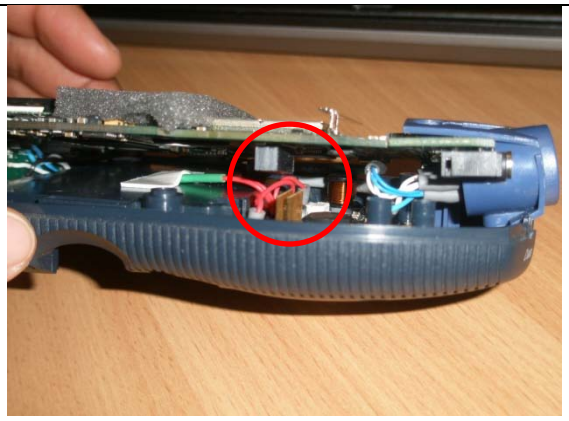
7.1 Disassembling a MKI Beltpack For a DECT Upgrade

1		• Remove the Belt clip • Remove the Battery clip • Remove the 7 screws from the rear of the unit
2		• Remove the Clear-Com badge from the front of the unit and remove the screw below

3		• Remove the front cover by pulling it forward. Apply pressure towards the table on the top (encoder part) of the chassis to keep the PCBs from lifting as you remove the front bodywork • Remove the 2 screws holding the PCB by the XLR connector
4		• Separate the front and rear parts of the beltpack enough for the connectors to clear by lifting the boards vertically. Be aware that there are 3 boards loosely connected together. If possible lift all 3 without separating them. • Once you have cleared the connectors, open the unit like a clamshell around the wiring as not to stress the cables, and rest on a work surface The XLR may rest loose

5		• Adjust the dip switches as required *See* Preparing FS-BP MK I & PD2202 Beltpacks Only *for download mode dipswitch settings*
6		• Should the lower board become separated, reconnect it before attempting to reassemble the unit. There is a single connector that if mis-aligned will damage the unit.

7	 	• Ensure that the connector is aligned as shown in this picture. **Warning:** *Failure to do so will result in damage to the unit.*
8		• Should the upper board and assembly become separated, reconnect before attempting to reassemble the unit. There are 2 connectors which can be mis-aligned if care is not taken

9		• Fold the connected upper boards over towards the rear of the unit. • Place the XLR connector so that it straddles the lower board • Line up the connector between the top and bottom halves. This can be mis-connected without due care • Adjust the XLR connector and the two halves together
10		• Replace battery clip • Power • Program the DECT as required • Repeat steps 4 – 9 changing the dip switches back to the default. *See* Preparing FS-BP MK I & PD2202 Beltpacks Only *for the default dipswitch settings*

10		• Replace screws and badge.

7.2 Disassembling a 2202 Beltpack For a DECT Upgrade

	• Remove the battery cover • Remove the 6 screws fastening the unit • Remove at least 1 battery.

	• Open the unit like a clamshell. • Separate the case by lifting the back up, while attempting to keep the front of the unit and PCB together • Take care when moving two halves apart as the cables to the battery are often tight • Adjust the dip switches as required • Close the unit and replace the battery without the screws • Power up and run the DECT loader to upgrade the DECT **NOTE:** *For dip switch settings See* Preparing FS-BP MK I & PD2202 Beltpacks Only. • Remove a battery and set the dipswitches back to the default.
	• When reassembling the unit, take care as to not crush the battery cables with the case. Use a small screwdriver (or similar) to try to keep the cables clear of the case until it is sealed. • Screw up the unit.