AGILE™ RADIO FIRE DETECTION SYSTEM
PROGRAMMING AND COMMISSIONING MANUAL

CONTENTS

**This manual is intended for use with
AgileIQ™ version 3.4.5 or above**

INTRODUCTION TO THE AgileIQ™ PC SOFTWARE TOOLS

AgileIQ™ is a powerful software application that provides a user with all the functionality necessary to create, commission and maintain an RF Fire Detection Network. Specifically designed to be used with a System Sensor 200 Series Commercial RF Fire Detection System, the AgileIQ™ PC software tools allow easy system design and development, RF site surveying and commissioning, as well as system maintenance and diagnostic operation for the complete wireless system.

The AgileIQ™ software runs on a Windows based PC and communicates with the loop powered gateway and wireless detector devices through an RF interface. This interface is connected to the Laptop/PC using a standard USB connector and talks with the wireless devices using RF communication.

The software tools present the user with a number of menu driven interactive screen options to implement and maintain an RF system. These include:

- Site information and layout planning
- Site RF survey aids
- Network configuration management
- RF device programming
- System checks and diagnostics

The software interface is designed for simplicity of operation and ease of use especially with touch screens, typically used on tablets. It is structured to lead the user through the basic steps necessary to set up and operate an RF network. A series of informative guides ('wizards') are available to help with specific tasks, using a step-by-step approach with on-screen instructions.

A **Quick Start Guide** is provided, showing the user how the software is organised and how to generate a basic working radio system.

The sequence of steps begins with the **SITE** tab screen at start-up. When a project is defined and site information added, two new tabs **CONFIGURATION MANAGEMENT** and **AREA SURVEY** appear. These allow the user to develop a network layout design and carry out a site RF survey. When the design is complete and 'frozen' two new sub-tabs appear in the **CONFIGURATION MANAGEMENT** tab; namely, **COMMISSIONING** and **DIAGNOSTICS**. These allow the user to complete the installation of the RF system on the site and run checks on the running RF network.

Informative **HELP** pages are available at each screen, providing the user with a quick and simple way to find out what the main buttons in that screen do and when to use them.

System Requirements
The minimum requirements for a PC to run AgileIQ™ are:

- Operating system: Windows 10; 8; 7; Vista and XP (with service pack 3)
- Hard disc: 32MB free
- RAM: 64MB
- Screen resolution: 1024x768 or greater

How to Install the AgileIQ™ PC Tool Software and USB Interface (Dongle)

See *Appendix F* for details of where to find and download AgileIQ™.

AgileIQ™ operates on a PC running Microsoft Windows 10, 8, 7, Vista or XP. Ensure that **Administrator Rights** are enabled on the user account. (If not, the install and setup processes will not work.)

1) Having downloaded and saved the latest AgileIQ™ setup file, find the executable file (***setup_agileiq_v.XXX.exe***) and run it (***Start > Run > [Browse: Downloads] > Open: setup_agileiq_v.XXX.exe***). Follow the onscreen instructions to install the AgileIQ™ software application onto the PC. If the default settings are accepted the install wizard will create a new directory in ***C:/Program Files (x86)*** called ***AGILEIQ_<version>*** and puts an AgileIQ™ shortcut on the PC desktop. An uninstall option is also included, should removal of the application be required.

2) Double left click on the ***AgileIQ™*** application icon. It will ask for the USB interface (Dongle) to be connected.

3) Plug the interface into a spare USB port. Wait for the dongle LED to turn green and click ***OK***.

4) Depending on the Windows version being used on the PC:

Using Windows 10/8/7/Vista, the program starts with no other action required.

Windows XP will ask for a driver. Accept the default action; XP will find the driver automatically.

Note: when the USB interface is attached, Windows may take a few seconds to recognize the new hardware correctly; always wait a short period (the LED on the USB interface should change colour from amber to green) before proceeding with any other operation.

When the USB interface is found, the AgileIQ™ application will start and open a blank site information window.

5) At this window, it is now possible to start a new project or open an existing one.

In the unlikely event that the USB interface is not recognised or requires an upgrade, see the *Dongle Firmware Upgrade* appendix later in this manual.

The basic functions of AgileIQ™ allow the user to Design, Install and Maintain a radio system.

To gain access to the more advanced features of the software requires a special dongle licence. (See *Appendix G: How to obtain an AgileIQ™ PRO licence*). Without a dongle licence, the AgileIQ™ software will run in a basic (LITE) mode with the advanced features disabled.

A list of the advanced features available with a PRO licence is given in the section below.

AgileIQ™ PRO Features

To run the AgileIQ™ PC tool, a radio USB interface (dongle) is required.

The basic functions of AgileIQ™ allow the user to Design, Install and Maintain a radio system. These basic AgileIQ™ functions (LITE) are available for free; but to run more advanced PRO features requires a licence.

All dongles are shipped with 2 months complementary access to the PRO features for a trial period – when this expires, AgileIQ™ will run in basic LITE mode only. The following message appears:

To obtain or renew the PRO licence, the user has to purchase a code from System Sensor Europe to unlock the advanced features in the Agile IQ™ program.

Extra features available in AgileIQ™ PRO

AgileIQ™ PRO provides a number of advanced features offering greater flexibility in design and installation, plus enhanced reporting on system operation.

- View and print Diagnostic log reports in PDF format.
- Facility to recover the network configuration in the RF gateway.
- Fast replication of a configured device (cloning) in the field.
- Alternative mesh design option to give optimum battery lifetime.
- CAD file to JPEG converter
- Continuous diagnostic display for system testing
- Network un-commissioning via gateway
- Adding a node to an existing mesh with two extra links
- Additional mesh network design choices:
  - Fast mesh calculation
  - Ability to propose preferred links routing
  - Universal wall attenuation adjustment
  - Allow priority for a design without repeaters
  - Opportunity to select key subsets of the RF links in a table.

If an attempt is made to use an advanced feature when in LITE mode, the following message appears:

Access to the advanced features requires a dongle related licence. See *Appendix G* for details of how to apply for a licence.
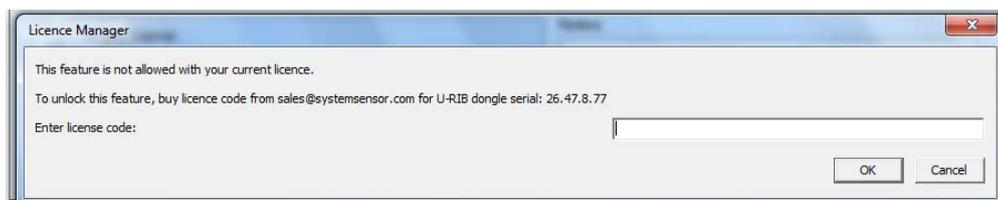
Dongle Manager

The ***Dongle Manager*** window allows the current USB interface to be restarted in situ or to have its firmware upgraded if required.

Click on this button (bottom left corner of the AgileIQ™ screen) to open the ***Dongle Manager*** and click on ***Restart Dongle***.

Note: If the PC goes into *power-down* or *sleep* mode for a period, it may be necessary to restart the dongle as described above.

Firmware Upgrade: An older version of a dongle can have its firmware rewritten with a later revision. See *Appendix D* for details of upgrading a dongle.

Dongle licence activation code: For details of purchasing and installing a PRO version of the dongle, see *Appendix G*.

AgileIQ™ has integrated **Help** features to provide assistance to the user at any time. A **Quick Start Guide** is available immediately the application loads; it is recommended that new users read this short introduction to AgileIQ™ before continuing.

Click on the blue **Help** button with the yellow flash, at the bottom left edge of the window to open the *Quick Start Guide*.

Help pages are available for every AgileIQ™ screen or tab. These provide a brief pictorial description of the main buttons and operations available in that particular tab. Click on the blue **Help** button in the bottom corner of the tab window to open the respective Help page.

AgileIQ™ buttons:

The different buttons available in AgileIQ™ are listed and defined in the Reference section at the end of this manual. Hovering over a button with the mouse pointer will reveal the button name for a few seconds.

Left clicking with a mouse on a button activates the function. Some of the buttons are 'hidden' in some fields. Double (left) clicking on an active field on the screen will reveal any additional buttons allowing an extended range of options in that area. In some screen views an arrow button will enable/disable a drop-down panel, allowing access to extra functions.

Note: AgileIQ™ is intended to be tablet friendly, hence the use of large buttons and icons. Double tapping into a field or icon on a touch screen, or double left clicking on a mouse will perform the same operation and this is equivalent to a single right click with a mouse. For brevity in this manual, the words **click** and **double-click** will be synonymous with tap and double-tap, and right click is not referred to.

Starting a New Project

When the AgileIQ™ application starts up, it opens in the **SITE** tab and the user must define the project to work on first. This can be a new project or a previously created and saved one.

1) To generate a new project in the **SITE** tab, click on the **Create New Project** button at the top left of the *Site Information* window, enter a filename and path and save the new file. Two new windows are created - **Site Areas** and **Area Configurations**; the programme automatically creates a default *Site Area* and a default *Area Configuration*. The titles can be changed/edited by double clicking on the name. The program asks if a plan image is to be saved (this can be added at any time).

2) To recall an existing project, click on the **Open Saved Project** button and follow the search path to the correct file, then click **Open**.

3) Use the **Create New** button to open and define more *Site Areas* or *Area Configurations*.

4) Double click in the **Notes** box to open the *Edit Notes/Surveyors* window; insert or edit in a free text format. Double-click on the *Area Name* to enable the edit/delete options and to add an image to the area.

5) When a *Site Area* is added, a new tab **Area Survey** appears.

This allows RF Energy and Links Quality measurements to be carried out (See relevant sections in this manual).

A new window **Area Configurations** will have appeared in the *Site* tab.

6) Use the **Create New** button to open and specify one or more area configurations; an area configuration will comprise a network with one gateway. Again, double click on the **Notes** field to reveal the **Edit** button, which allows free text configuration information to be added.

7) Double-click on the configuration name to enable additional editing options:
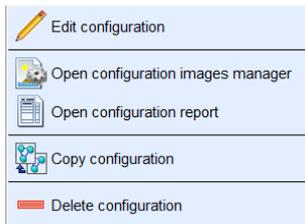
See: *Other Options Available in the Site Tab* section below for more details.

8) When an area configuration is added, a new tab **Configuration Manager** appears. This enables the field and functions necessary to create the mesh network design.

SITE	CONFIGURATION MANAGEMENT	AREA SURVEY	DEVICE DIRECT COMMAND

9) Having created a project, it is now possible to either map out a draft network design in the *Configuration Management – Design* tab, or to take a series of site survey measurements first, using the tools available in the *Area Survey* tab. For information on how to proceed, see the *Order of Working* section later in this manual.

Other Options Available in the Site Tab

Additional function buttons will be revealed on the screen by double-clicking onto the following places:

● On any of the notes areas enables text to be added and edited.

● On an area name enables the *Edit*, *Delete* and *Add Area Image* buttons. The **Add Area Image** button allows a plan to be included as a background to the design area (must be in JPEG format). Another button is available (**Open CAD converter**) to allow CAD files to be changed to JPEGs. The following formats can be converted:

  ● DWG/DXF/DWF CAD formats up to 2012 version

  ● Hewlett-Packard PLT, HPGL, HGL, HG, PRN, SPL, HPGL-2

  ● Scalable Vector Graphics: SVG

  ● Computer Graphics Metafile: CGM

● On an area configuration enables the following actions to be carried out on that configuration: *Edit*, *Delete*, *Copy*, *Lock*, O*pen the Configuration Report* and *Open the Images Manager*. **Open the Configuration Report** gives access to the current configuration information; the **Configuration Image Manager** allows picture files to be added, organised and deleted.

Producing a Configuration Report

The AgileIQ™ software has the facility to generate a complete configuration report containing all the information relating to the design layout, area surveys and device configuration data. It does this automatically from the data that is entered into AgileIQ® during the project; it is possible to include additional information, photos, screen-shots and images into a report. At any time, the report can be saved as a PDF or printed out in hard copy if required. The report information is stored for reference and review in the site project file.

It is recommended that this report should be part of the overall fire system document set provided at system hand-over to the end user for reference and future site maintenance.

Order of Working

There may be several factors which dictate the specific order in which the different tasks in an RF system project should be carried out. Depending on the site information that is available and how the installer wishes to proceed, the next step in the process may be either to run a check on the site's RF characteristics or to start a draft design. In this manual, for example, it has been set out as if a preliminary RF site survey will be carried out first to check on the suitability of an RF solution before the detailed RF layout is attempted. In this case the user may now wish to go to the *Area Survey* tab where *Links Quality* and *RF Energy Scans* can be considered.

However this order of working may not always be appropriate. If the site layout and conditions are reasonably well documented, it may be pertinent to start with the initial system design in order to plan the job and identify any critical areas that require specific checks before completing the design phase. Subsequent installation and commissioning work may also be carried out at different times, as is common in new electrical installations.

And for some installations there may be a good case for doing the site survey at the same time as the system components are fitted and commissioned. Small projects and extensions to existing RF systems could benefit from such a combined approach.

As discussed earlier, a set of hardware equipment is available from System Sensor to help perform an RF survey. In addition to this equipment, a PC Laptop or Tablet with the AgileIQ™ application installed will be required.

How to do an RF Energy Scan

The RF energy scan should be carried out on a site to identify if any frequency channels should be avoided. This RF energy measurement should be carried out close to where the gateway will be situated and at other points around the site where the radio system will be operating. In particular, scans should be carried out in the vicinity of other RF systems and where there are any link quality issues.

To run the scan:

1) Select an area in the **Site** tab, then go to the **Area Survey** tab and select **RF Energy Scan**; the top line of a channel table will be displayed. Channels to be scanned can be de-selected/ selected by clicking on the channel number (0 – 17).
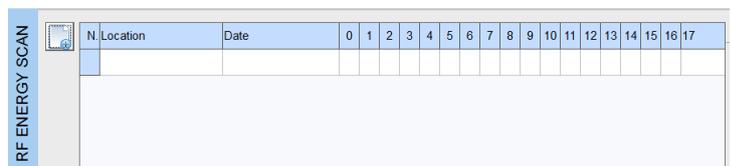
2) Click on **Create New** and reference the location of the scan in the new window. All channels selected will be tested; the scan can be stopped/aborted at any time.
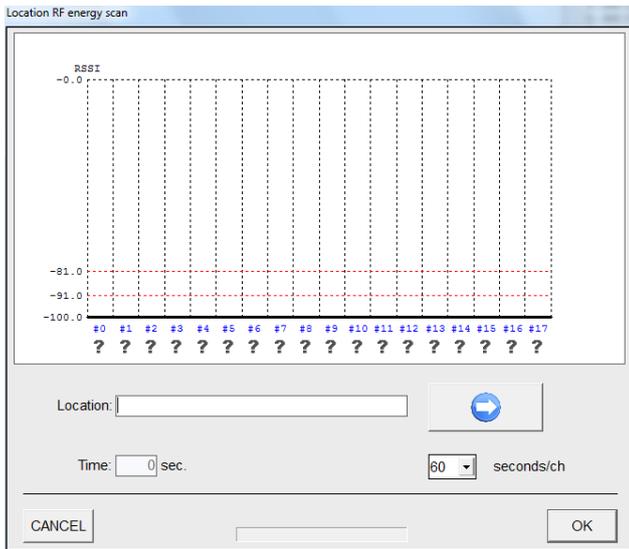
Note: The time allowed for each channel test can be selected by the user, so if 60 seconds is chosen it will take 18 minutes to complete one scan of all 18 channels. The longer the scan time, the more likely it will be to pick up infrequent events.

3) Click on the **Start** button and the RF energy scan will begin. When completed all the channels will be rated for signal suitability. The three categories are:

✅ Acceptable   ⚠️ Marginal   ❌ Unsuitable

An example is shown below:
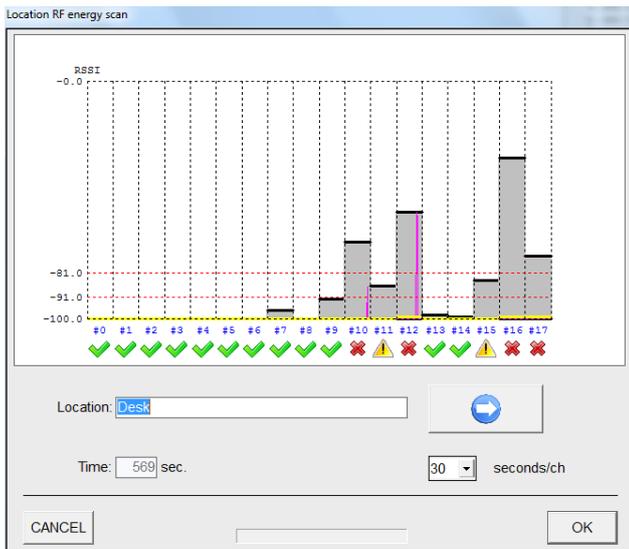
4) Click **OK** and the results will be copied as a line into the *Area Survey – RF Energy* table.

N.	Location	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	Desk	2015/06/04 14:02:47	✅	✅	✅	✅	✅	✅	✅	✅	✅	✅	❌	⚠️	❌	✅	✅	⚠️	❌	❌

5) Choose a suitable main channel and a suitable back-up channel for the gateway to run at this location (refer to the following section before doing this step).

6) Double left click on a record name to **Edit** or **Delete** the record.

Channel Selection

For a reliable, stable RF system, the following recommendations should be implemented wherever possible when selecting the main and back-up RF communication channels.

1) Do not use any channels that are categorised as Unsuitable in the RF energy scan table.

2) Avoid using channels that are categorised as Marginal unless this is unavoidable, and then preferably only use them for the back-up channel.

3) Channel 0 is used by the RF fire System for commissioning and diagnostics purposes. Whilst CH0 can be used in a configured network system, it is not recommended when there is more than one gateway operating in an area, as its use may interfere with the commissioning and maintaining activities on the other systems nearby.

4) When using multiple gateways, ensure that the main communication channels for the different networks are not on adjacent channel numbers. It is recommended that they are separated by at least one channel to avoid any possible cross-talk in the primary signalling paths. Always leave a minimum of one channel between each main channel as in the example table above. The quality of any separating channels is not important in this respect.

5) When communication on a primary channel is blocked, the RF device switches to its back-up channel to transmit and receive messages. Therefore it is prudent to ensure that the main channel and back-up channel frequencies are kept some distance apart in an attempt to avoid the effects of the blocking signal. It is recommended that the main channel and backup channel for a gateway network are not less than 4 channels apart, for example: CH1 and CH5, CH2 and CH6 etc.

6) Table 2 below shows how 8 gateway networks could be configured across the available channels to satisfy the above recommendations for main to main and main to back-up channel selection, avoiding the default channel CH0. Of course, there are other possible configurations that could be devised, and the table assumes that all channels have adequate signal available.

How to Take a Link Quality Measurement

A pair of RF devices (set up as a Ping-Pong pair) are used to perform a link quality measurement. A wizard button is available in AgileIQ™ to help create a site Ping-Pong pair. (See the section: *Guiding 'wizards' available in AgileIQ™* later in this manual.)

For each new site survey, always use fresh batteries in the Ping-Pong pair.

1) Place each powered device into a cup on the top of the poles and physically position the poles on the site at the two ends of the link to be measured. The poles are telescopic and the length is adjusted and fixed by means of a locking clamp. (If the site survey poles and accessories are not available, the

Channel	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Main Use	Default		#8		#7		#6		#5		#4		#3		#2		#1	
Back-Up Use	Default			#4		#3		#2		#1		#8		#7		#6		#5

Table 2: Typical RF Channel Configuration for Multiple Gateways (addresses 1 to 8)

ping-pong pair can be placed conveniently close to the points for the measurement, but the reading obtained may not be as accurate as positioning the measuring points at the ceiling level.)

2) Always use the Laptop/Tablet with the Dongle RF Interface near to the device set to address #1 (a few metres).

3) Whilst devices are designed to generally be omni-directional in performance, note any signal strength variations with device rotation, using the markings on the detector base as a reference.

A) Before a Design Has Been Created

4) Open the **Area Survey** tab and click on the **Create New** button; the **Link Quality** record box will appear. Select the main channel number chosen from the RF Energy measurement (described above). Enter the From/To locations of the two nodes on the link to be measured for future reference.
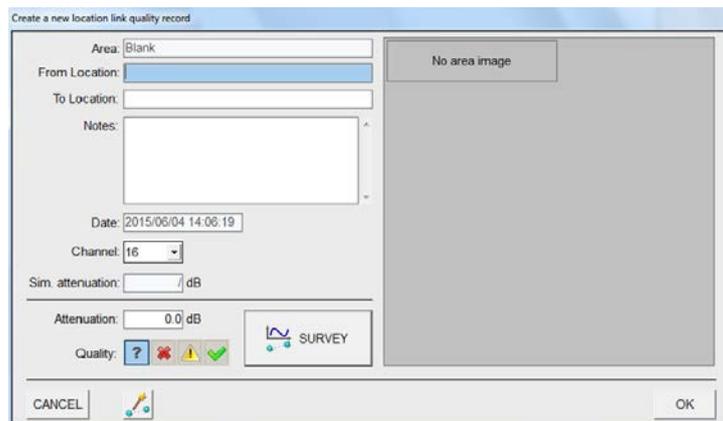
5) Click on the **Survey** button and then on the **Start** button in the graph window that appears. The signal strength reading is updated and displayed in the graph.
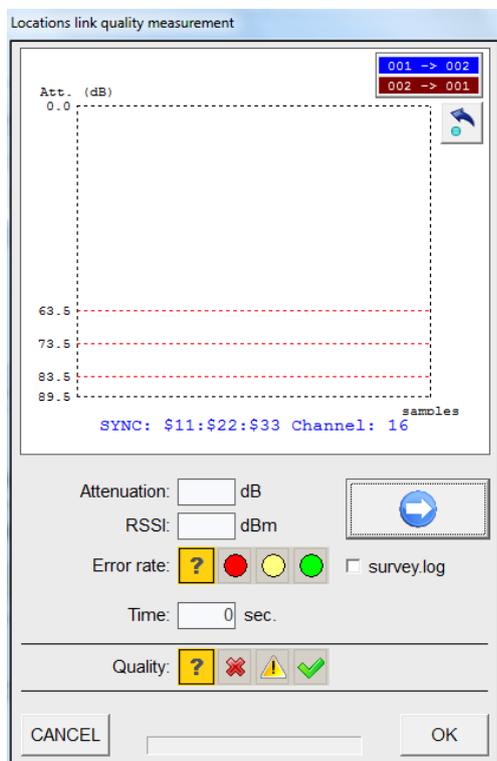
6) When satisfied that the measurement is stable, **Stop** the recording.
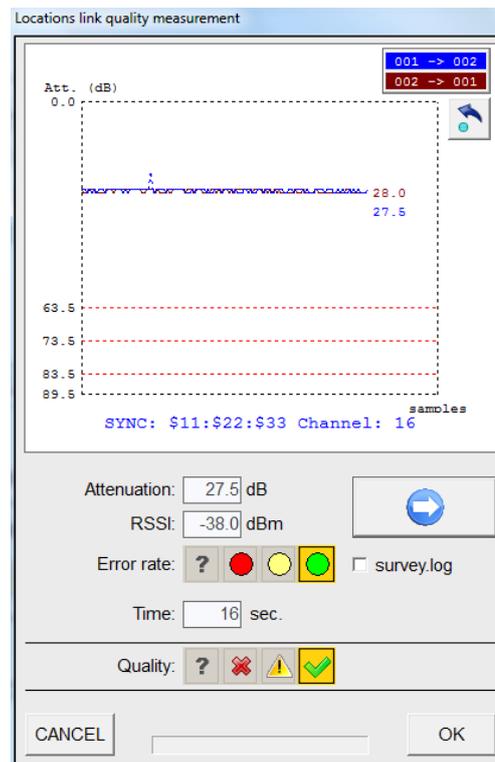
7) To accept the measurement, click **OK**. It is possible to add or edit any required notes to the record; then click **OK** and the record will be added to the project A**rea Survey Links Quality** table.

N.	From location:	To location:	Date	CH	Sim. Att.	Att.	Q
1	A	B	2015/06/04 14:22:38	16	/	27.5	✓

B) If a Design Exists

4) Open the **Area Survey** tab. If the links have been exported from the design layout (See *Exporting Links*), the links table will already contain the From/To locations of the system link nodes. To measure one of these links, click on the **Edit** button to open the **Link Quality Record** box.
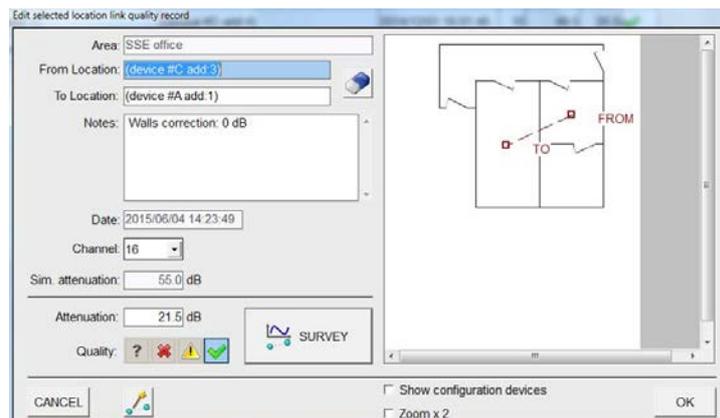
5) Ensure that the main channel number chosen from the RF Energy measurements is selected, and proceed as described above.

6) Double left click on a link in the link table to **Edit** or **Delete** the link record.

If a design layout exists, it is also possible to carry out the **Link Quality** measurements from the **Configuration Management** tab – see the section below.

How to do a Link Survey Test for a Linked Mesh Design

When a system design layout exists and the network links have been created, some or all of the network links can be exported into a table in the **Area Survey – Links Quality** tab. There are three different export options:

(i)   List all the Links

(ii) List the Primary Links

(iii) List Only the Critical Links

The installer can choose which link export option to use, based on the level of confidence in the overall design data. Measuring only the (theoretical) *Critical Links* will represent the shortest practical survey, whilst recording *All the Links* quality measurements will give the most thorough RF representation of the site, but will be much more time consuming. Note that a full mesh with 32 devices could have in excess of 60 links to be measured, which will require several hours of work to complete.

It is possible to revise the Link Quality table by deleting/adding links (double left click on a link to reveal the options to **Edit** or **Delete**), or by clearing all links from the table and then exporting a different set to it.

It is important to note that only one gateway mesh design can have a link table that is 'active' in the Area Survey tab. Make sure that the link table used is the one associated with the final mesh design if several tries or earlier copies have been made for one gateway. Delete any old links in the Area Survey link table and export the required links from the final design. These link can then be measured for signal strength and compared with the theoretical value calculated by the mesh generating wizard. Remember that links cannot be exported after a design has been locked.

As discussed in an earlier section, it is possible to perform **Link Quality** measurements from the Links table. It is also possible to call up the **Link Quality Record** box, in order to carry out **Link Quality** measurements directly from the design layout diagram in the **Configuration Management** tab. This may be more helpful when carrying out a large survey.

Use the following method:

1) In the **Site** tab, run the project file and select the area location to be surveyed.

2) Open the **Configuration Management** tab to show the system design layout. The links prioritised for measurement will be identified in the design diagram, depending on which link export option has been accepted for the link table.

3) Double click on a link in the diagram to open the **Link Quality Record** box.

4) Physically position the poles with the ping-pong pair positioned at the two ends of the link to be measured.

5) Use the Laptop/Tablet with the USB interface connected close to the device set to address #1. Click on the **Survey** button and then on the **Start** button in the graph window that appears.

6) When satisfied that the reading is stable, **Stop** the recording.

7) To accept the measurement click **OK**. It is possible to add or edit any notes to the record; then click **OK** and the record will be added to the **Area Survey – Links Quality** table.

8) Continue with the measurements for all the links identified in the layout. At the end, the **Area Survey – Links Quality** table will have all the RF signal strength values (RSSI) filled in and the link quality indicated as **Acceptable**, **Marginal** or **Unsuitable**. It is recommended that, for a reliable RF system, all the primary links should be in the *Acceptable* category. Reconsider the design if this is not the case, or revise if any of the links (primary or secondary) are *Unsuitable*.

IMPORTANT NOTE: To comply with EN54:25 requirements for the effects of site attenuation, it is necessary for each link in the network to be set-up with an adequate signal strength (RSSI value). The link quality measurement tool in AgileIQ™ is designed to provide the required signal strength margins for compliance. Both the *Acceptable* and *Marginal* quality measurements provide adequate allowance for possible local attenuation on a link. Never use a link when the quality has been assessed as *Unsuitable*.

 Acceptable   Marginal   Unsuitable

Be sure to make all the required link survey measurements before commissioning the gateway network. Once a mesh network is commissioned it will not be possible to make individual link measurements on that communication channel without powering off all the devices, because the network itself will be using that channel. Verification of the link quality on a running mesh network is achieved using the AgileIQ diagnostic tool and the active network results are recorded in a diagnostic log. (See: *Accessing Network Activity Information* section.)

Measuring Wall Attenuation

The following method can be used to check and record the RF signal attenuation caused by a wall.

1) Using a Ping-Pong pair (two un-commissioned devices, set to addresses #1 and #2), as used for **Link Quality** checks, start by recording the signal quality across an open part of a room, setting up the two devices with device #2 nearest the wall to be checked. The dongle should be within range (a few metres) of device #1. Note the orientation of device #2 (e.g. use the line on the device base, with respect to compass North)

2) To take the measurement, open the **Area Survey** tab and click on the **Create New** button; the **Link Quality** record box will appear. It is not necessary to enter the From/To locations of the two nodes on the link.

3) Click on the **Survey** button and then on the **Start** button in the graph window that appears. The signal strength reading is updated and displayed in the graph.

4) When satisfied that the measurement is stable, **Stop** the recording and make a note of the attenuation value.

5) It is not necessary to accept the measurement – this would record it in the Links Quality table; click **Cancel**.

6) Move device #2 to the other side of the wall, ensure it is in the same orientation as before and take a second measurement, again noting the attenuation value.

7) Subtract the first attenuation value from the second attenuation value; the result is the attenuation in signal strength resulting from the wall.

8) This figure can be used for the wall attenuation in the design simulation and should be entered into the **Edit Wall** information box as a **Custom** value.

Producing a Survey Report

The AgileIQ™ software has the facility to generate a complete configuration report containing all the information relating to the design layout, area surveys and device configuration data. The report is generated automatically and exported to a PDF or printed out in hard copy if required. (See *Creating a Site Report* section of this manual.)

Summary of Basic RF Site Survey Principles

1) Site diagram: Obtain or create a facility diagram or floor plan drawing that depicts the location of walls, walkways, etc.

2) Visual inspection: Walk through the facility to verify the accuracy of the facility diagram. Add any potential barriers that may affect the propagation of RF signals such as metal racks, water tanks, cabinets and partitions, items that are not shown on the floor plan.

3) Device positions: Determine the preliminary location of devices; be certain to consider mounting options. Make sure all doors and windows etc are closed when the survey measurements are taken.

4) Verify RF link quality: Take note of signal readings at the different device locations, moving through the site. (In a multi-level facility, perform signal checks on the floors above and below.) Note any signal strength variations with device rotation. Based on the results of the testing, it may be necessary to relocate some devices and redo any affected tests. Where appropriate, introduce an additional device or a repeater to form a bridge between two locations with a weak link. Never use a link that has been categorised by AgileIQ™ as having *Unsuitable* quality.

5) Document the findings: Once satisfied that the planned location of devices will have adequate link quality, identify them clearly on the facility diagrams and add all relevant notes to the project; the installers will need this information. Also, provide a log of signal readings for reference and as support for any future network additions or redesign. (See: *Creating a Site Report* section.)

SYSTEM DESIGN

Recording Site Information

1) In the *Site* tab, create a new project window, as described in the section: *Starting a New Project*. Alternatively, open a saved project with the *Open Saved* button.

2) When the area location and area configuration are defined, a new tab: *Configuration Management* appears. The system layout and design work for the mesh network will be done in this tab.

- THE CONFIGURATION MANAGEMENT TAB

Using the Configuration Management – Design Window

Click on the *Configuration Management* tab to enter the Design region.

How to Include a Site Plan?

As a default, the planning area shown in the right hand pane of the *Configuration Manager – Design* tab is clear of any background. To help with the design layout, a square grid can be added as a background or a plan of the site can be included.

Including grid lines is a standard option in the design area window; see the section *More Design Area Options* below.

In addition, or as an alternative, a more detailed site area drawing can be included as an image. This image can be used to place the RF devices at the desired locations in the site as the area configuration network is developed. The site plan image must be in JPEG format.

To add a site area plan into the design area:

1) Open the *Site* tab and double-click on the relevant *Site Areas* name; a new menu of options will appear:

2) Click on *Choose Image for the Area* and a Windows search box will appear. Select the required JPEG image file and click *OPEN*. The plan will be displayed in the layout area of the *Configuration Management – Design* tab. A zoom in/out slider is available (bottom right of the screen) to change the size of the view.
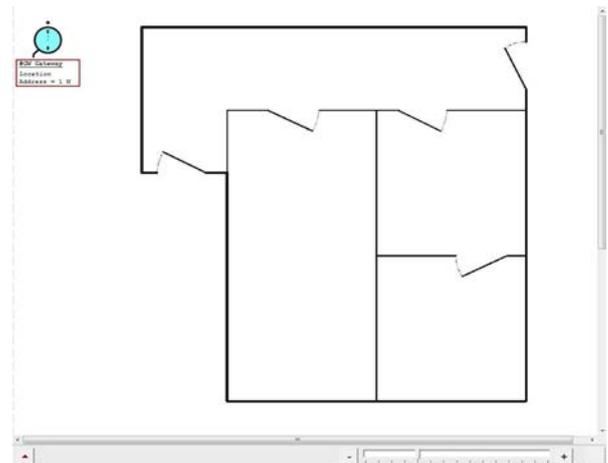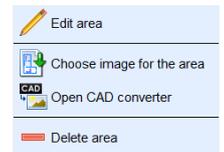
Adding a Scale to the Plan

A ruler tool is provided to calibrate the planning area in metres. A scale must be added to the plan before mesh attenuation calculations can be performed.
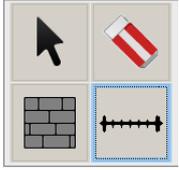
1) In the *Configuration Management – Design* tab, click on the scale (*Set metric reference*) button.

2) With the scale button highlighted, click on the plan at the start of a known dimension, then click at the other end of the dimension. A measurement box will appear and a value in metres between 1 and 100 can be typed in; click *OK* to accept. A dimensioned scale line will appear on the plan.
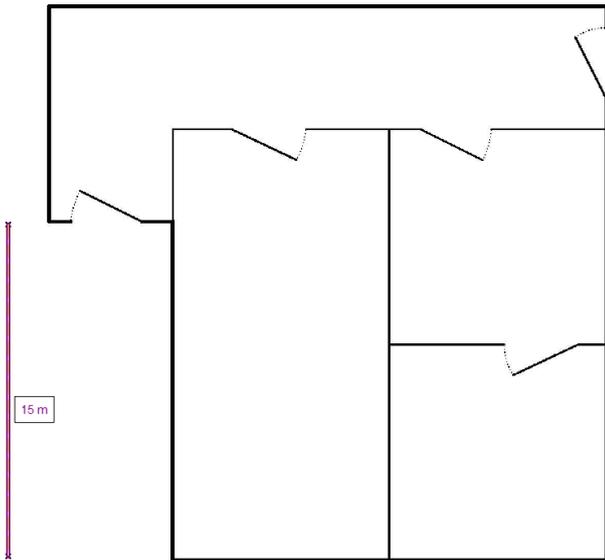
3) Delete the ruler with the delete button or re-calibrate the plan by clicking on the scale button and inserting a new ruler; the old one will be overwritten and disappear.

Positioning and Moving Devices

Using a grid or an area plan diagram, RF sensors and devices can be positioned in a network according to site requirements and local fire regulations.

Note that the AgileIQ™ software uses a left click on a mouse (or a single tap on a touch screen) to select a device and a second click to position or move the device. It does not use a Drag-and-Drop technique.
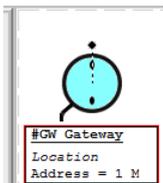
The gateway for the area location always appears at the top left of the *Configuration Management – Design* diagram by default.
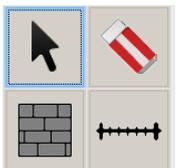
1) Move the gateway to its proposed position, where it will be connected with the analogue loop. Left click on the *Move* arrow in the LH pane, left click on the centre of the gateway symbol and then left click the point where it should be relocated.

2) A range of RF devices are available for selection; they are shown in groups of four at the top of the LH pane of the *Configuration Management – Design* tab. An arrow button scrolls through to other device types. A count of the number of devices in a configuration is shown, up to the maximum of 50.

3) Left click on the required icon in the LH pane and then left click at a point in the layout; the device will appear.

4) With the device icon highlighted, continue to click where new devices are required.

5) To change the device selection, click on a new icon.

6) To deselect a button, click in the grey area of the LH pane outside the buttons (or use the ESC key).

7) To delete a device, select the *Delete* button and click on the centre of the unwanted device.

8) To move a device, highlight the *Move* arrow in the LH pane, click on the centre of the device to be moved and then left click at a point in the layout to reposition the device; the device will move to this new position.

9) Double click in the centre of the device to open a window to edit the device information:

Ensure that the device addresses are correct according to the panel requirements and that the information associated with each device is inserted as necessary.

The position of these information panels can be changed (from within the device information window) or the panels can be hidden (See: *Other Options available in the Configuration Management Tab* section).

Defining the Back-up Node

As discussed in the *RF Basics* section, a special node is required in the mesh to take over the network synchronisation role should the gateway be powered off. The mesh creation wizard defines this device in the network, but the designer can suggest a preference for its position.

When making alterations on site to an installed mesh network, it is useful to be able to gain access to the gateway and backup node. Therefore it is worth ensuring that both the gateway and the backup node are physically easy to reach. The designer can accomplish this by recommending the device to be used as the backup node.

The backup node must have a direct (primary) link, with suitable signal strength, to the gateway.

1) Open the device information window for the device to be recommended as backup node (see point 9 previously).

2) Type * as the first characters in the **Location Field**. The mesh generation wizard will try to use this device as the backup node, if possible. (Note: this feature tends to work best in the mesh *Optimise Battery* option; see *Using the Mesh Creation Wizard* section.)

More Design Area Options.

There are several sets of options available in the **Configuration Management – Design** tab. Two of these can be revealed by the two up-arrow buttons at the bottom left side of the screen.

Additional Design Icons
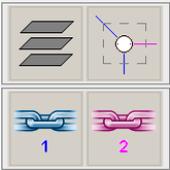
The left most button, at the bottom of the device icon pane, will enable the additional icons: **Add Floors**, **Add Primary Links**, **Add Secondary Links** and **Focus on Links** at a specific node. The arrow button will toggle in operation, providing a reveal/hide facility.

The specific actions performed by these extra icon options are:

Add Floors: different floor levels can be incorporated into the layout of a location if required. See *RF Barriers – Walls and Floors* section for instructions on using this option.

Add Primary or Secondary Links: provides a manual method to add links between nodes. Click on the icon, and then click on a start and an end node to add a directional link.

Focus on Links: by clicking on this icon, then clicking on a node, it is possible to view only the links to that node in the design window. Clicking a second time on the node will restore visibility of all the links.

Show/Hide Options

The second up-arrow at the bottom left of the design area window will enable the following additional options: **Show Walls**, **Auto Align Walls**, **Enable Distance Meter**, **Show Survey Links Quality**, **Show Device Information**, **Show Picture**, **Show Configuration Links**, **Show Grid**. The arrow button will toggle in operation, providing a reveal/hide facility:

The specific actions performed by these extra functions are:

Show Walls: set as default, un-ticking this box will hide all added walls in the layout.

Auto Align Walls: set as default, when walls are added to a layout they will align with the layout outline.

Enable Distance Meter: allows a distance measurement to be made in the *Design* window; can only be used when a ruler scale has been added. When the box is ticked, the cursor can be used to define two points and the distance between them is displayed. This measurement will disappear from the screen on the next action.
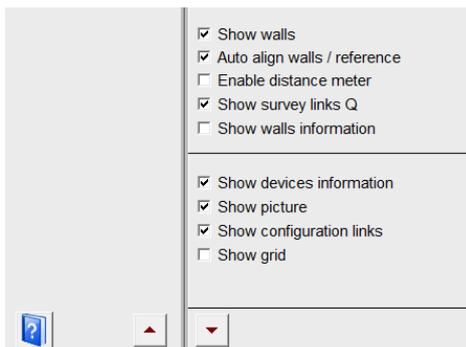
Show Survey Links Quality: set as default, un-ticking this box will hide all the link information in the layout that is listed in the *Links Survey* table.

Show Walls Information: ticking this box will add all the wall attenuation information to the design layout.

Show Device Information: set as default, un-ticking this box will hide all the device information in the layout.

Show Picture: set as default, un-ticking this box will hide the plan image in the layout.

Show Configuration Links: set as default, un-ticking this box will hide the links and links information in the layout, (links exported into the *Link Quality* table will remain shown as dotted lines).

Show Grid: ticking this box will add a grid to the layout diagram.

Mesh Wizard, Link and Lock options

To access the Mesh Wizard and associated options, double-click in a clear area of the layout diagram in the **Configuration Management – Design** tab; a new set of options will appear on the screen. These are the **Mesh Generator Tool**, **Clear All Configuration Links**, **Survey Links Generator Tool**, **Lock Configuration**, **Edit Map** and **Add Current Screen to Images**.
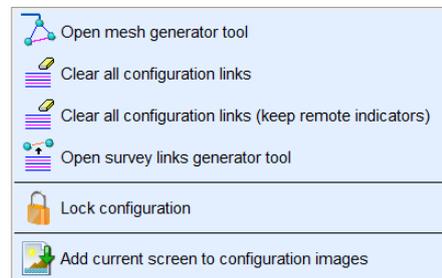
The **Mesh Generator Tool** is a powerful tool that will automatically create (when possible) an optimised mesh network for a given layout of devices.

The **Clear All Configuration Links** option will do just that – remove all the links from the network layout. (Individual links can be removed using the *Erase* button.) Note that any links that have been exported to the *Survey Link* table **are not deleted** from the table; that has to be done separately.

Clear All Configuration Links (Keep Remote Indicators): leaves all remote indicator links in place when Primary/Secondary links are deleted from the mesh devices.

The **Survey Links Generator Tool** provides the option to export links to the *Area Survey – Links Quality* table. The user can choose what links are included in the list (**All Links**, **Only Primary Links** or **Only Critical Links**) and put them into the links data table. This table is where links quality survey data will be saved.

When a network design is complete, this is confirmed using the **Lock Configuration** option.

The **Add Current Screen to Images** option will take a snapshot of the network design as it appears on the screen (with links, information etc.) and add it to the project report.

RF Barriers - Walls and Floors

It is possible to draw solid entities such as walls and floors onto the design diagram. The wall and floor icons are available in the left pane of the **Configuration Management – Design** tab (click on the arrow button at the bottom of the device icon pane to reveal the floor icon).

Walls are drawn as straight sections and different wall materials can be selected.

Normally, separate floors would be handled as different locations within a site area. However different floor levels can be incorporated

into the layout of a single location if required. To achieve this, the floors are considered side by side in the plan diagram, either on a simple grid or an imported JPEG drawing. Be sure to have provided a 2D layout with all the relevant floors shown in the JPEG image used. A floor outline must be a rectangular shape.

Adding Walls

To insert a wall:

1) Click on the **Add wall** icon.

2) Left click where the wall will start and then click again where the wall will finish. A numbered wall will be inserted on the diagram.

3) Double left click on the wall and the **Wall Edit** screen will appear.
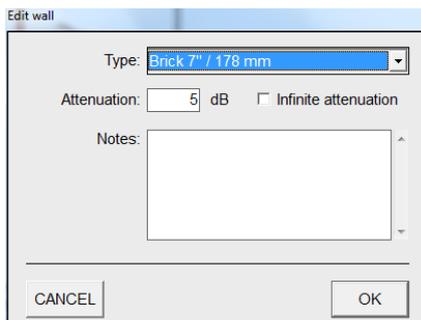
4) Change the material type as required, this will automatically set the attenuation factor.

5) Insert any notes relating to the wall as appropriate.

Consider how to handle door openings in the design. In normal use doors will probably be shut, so a simple starting point would be to make them part of the wall.

6) It is possible to set the wall attenuation to 'infinite' to simulate the effects of metal walls, metal racking and large water tanks etc.

7) Add further walls to the layout as necessary.

Adding Floors

1) To add an extra floor, first reveal the **Floor** icon by clicking on the arrow at the bottom of the device icon pane.

2) Select the **Floor** icon.

3) Left click on one corner of the floor and then click on the floor corner diagonally opposite. A box appears which represents the floor area. Define additional floors in the same way.
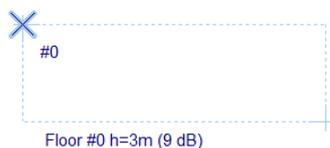
4) When a floor is created, a small blue cross is shown positioned at the top left corner of each floor. The blue cross represents a reference point to align the floors, one above the other. It can be moved around the floor box as required by highlighting the **Move** icon, selecting the blue cross and clicking on its new position.

Although the rectangles do not move on the plan, the floors are aligned and related to one another by the blue crosses. They are considered to be vertically above one another in the diagram. Position the cross on other floors to define the correct vertical alignment between all floors.

By default the floors are numbered as they are created, starting at 0, this must be the lowest floor. Subsequent floors are numbered 1, 2 etc. The increasing number indicates a higher floor. The floor numbering can be changed manually, but the lowest floor is always 0, and the numbers must be contiguous upwards.

5) The default value for floor/ceiling height is 3m and the default floor attenuation is set at 9dB. Changing floor information is achieved by double left clicking on the small blue cross to open the **Edit Floor Information** window; make the necessary alterations and close the window.

Note: When positioning RF devices in a layout with floors, all the RF devices must be placed within the floor outline, indicated by the blue rectangle.

6) Floors and walls are considered as part of the layout picture and can be hidden, along with any JPEG image, by un-ticking the **Show Picture** check box.

When all the devices have been positioned in the network and relevant site characteristics (walls, floors etc.) have been added, the mesh links can be added.

Other Options Available in the Configuration Management – Design Tab

Device information

Double clicking on a device will open its information window, which can then be edited.

Link Quality Recording

Double clicking on a link will open the *Link Quality Record* window for any link recorded in the *Link Quality* table. The link information can be edited or updated and a new link quality measurement can be done directly from this screen. Use the *Survey Tool* button to go directly to the measurement window, or the *Survey Wizard* button for step-by-step instructions.

If the link has not been exported to the *Link Quality* table, double clicking on it will present the message *Do you want to create a survey record?* Selecting **Yes** will create a new record window; use the *Survey Tool* button to go to the measurement window, or the *Survey Wizard* button for step-by-step instructions.

Remember, never use a link that has been categorised by AgileIQ™ as having **Unsuitable** quality.

Hiding Device Information

Design information on the screen can become cluttered. Use the *Device Edit* window to move the positions of the device information, or turn the device information display off by un-ticking the **Show Device Information** box; see also *More Design Area Options* section.

Adding Links to Create a Mesh Network

Linking devices to create a mesh can be done manually or by using the *Mesh Creation Wizard* (recommended - see next section). To do it manually:

1) Read the section *The Concept of Mesh Hierarchy* in the RF Basics chapter to understand how the links in the network must be organised.
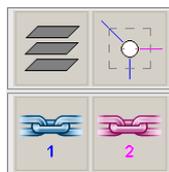
2) Reveal a new set of function buttons by clicking on the arrow button at the bottom of the *Device Icon* pane.

3) Choose the type of link by highlighting the primary (**#1- Blue**) or secondary (**#2 - Pink**) link button.

4) Click on the device in the layout to link **from** and then click on the device to link **to**; the link between the two nodes will be created with a directional arrow.

5) To view links associated with a specific device use the **Show Device Links Only** button. Highlight this button then click on the centre of required device in the layout diagram. Only the specific device links will be shown. To return all links, click on the device again.

6) To delete a link, select the **Delete** button and click on the line of the unwanted link in the layout diagram.

Completing a design

To finalise a design it has to be locked. At this point the AgileIQ™ tool will check the authenticity of the hand-crafted design. If the layout satisfies all the mesh protocol criteria in terms of hierarchy and timings, and there are no duplicate addresses, the AgileIQ™ software will continue and lock the file. (See *Saving and Locking a Mesh Network*)

If the mesh design is unacceptable, then the message *Invalid configuration layout* appears and the file will not lock. In this case the layout will have to be revised, paying attention to the mesh rules and the Network Hierarchy description in the *RF Basics* section of the *Agile Application and Installation Guidelines*. Alternatively, delete all the links and use the *Mesh Creation Wizard* described below. (Be sure to delete any exported links from the *Links Quality* table as well, see *Exporting Links* section.)

The AgileIQ™ software tool contains an adaptive mesh generation algorithm (Wizard) to simplify the creation of an RF network. In order to generate a network, the *Mesh Creation Wizard* uses information about the site, distances, wall types, floor thicknesses etc. to estimate signal attenuations and develop a suitable mesh layout. The algorithm can be set by the user to optimize the mesh calculations towards either lowest power consumption or best communications reliability.

1) To run the *Mesh Creation Wizard*, double-click in the area of the layout diagram in the **Configuration Management – Design tab**, a new set of options will appear.

2) Click on the **Mesh Generation Tool** and the **Mesh Management** window appears:
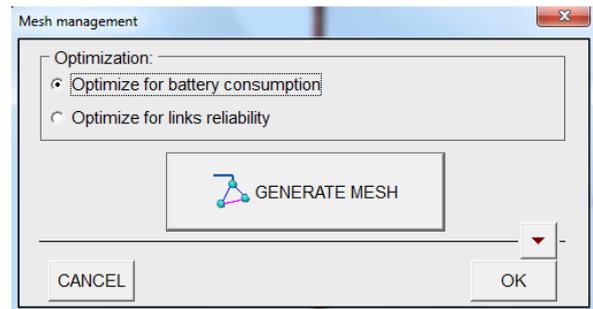
3) Select the required optimization criterion (links reliability or battery consumption; see below for details) and click on the **GENERATE MESH** button. The wizard will compute the best possible theoretical mesh network for the data provided and display the result on the layout diagram.

Optimization

There are two primary optimization settings to bias the mesh generating algorithm towards the user's preference.

Optimize for Battery Consumption: Choosing a mesh with optimum battery consumption will bias the algorithm towards a star type network, where the links are likely to be longer than with the links reliability optimization. Chain links are only used when a single link's quality would be marginal with respect to the site design data. A network topology based predominantly on a star configuration will have the lowest battery consumption overall.

Optimize for Links Reliability: Choosing the links reliability option causes the algorithm to propose a network where robust communications is paramount. The network integrity is enhanced by using short links whenever possible, tending to create a mainly chain type topology. Beginning with a simulation of a 'noisy' environment, it tries to make a mesh. If no reliable mesh is found, the algorithm continues to reduce the background noise and tries again until it finds the first acceptable mesh within the site design data. This should have the most robust link communication.

Other Options Available in the Mesh Management Window

There are additional advanced mesh generation features available to experienced users to vary and constrain the design conditions further. In the *Mesh Management* window these additional options can be found by clicking on the **Down Arrow** on the right-hand side. A drop down menu allows the choice of a number of different scenarios:

These can be enabled/disabled using the tick boxes.

Quick Search: **–** speeds up the mesh generation process by limiting the 'tries'. Useful with large networks or when many walls are present, but may not create a network or find the best optimization.
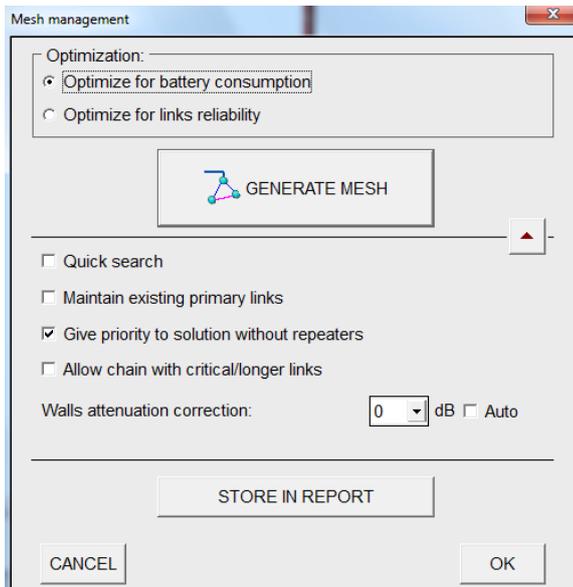
Maintain Existing Primary Links: – this will keep all manually entered links if possible.

Give Priority to a Design Without Repeaters: – the wizard tries not to add repeaters.

Allow Chain with Critical/Longer Links: – this will let the wizard create a chain even if one or more links might appear marginal or unsuitable.

Walls Attenuation Correction: – this allows the current wall attenuations to be varied by a correction factor for design modification and stress testing. All walls are subject to the same correction factor. A positive factor will shorten acceptable links; a negative factor will lengthen them. Using the **Auto** setting when a negative attenuation correction factor has been set enables a series of progressive tests at -1dB intervals to be performed, up to the actual value set. This is useful to find the smallest attenuation change that will give an acceptable mesh design.

Store in Report: - clicking on this button shows the Mesh Management settings; clicking **OK** will save the settings in the project report.

Unable to Create a Network

Based on the data provided in the layout diagram and the Mesh Management table, the mesh wizard tries to find a suitable set of links to create a reliable RF network. If it is unable to do so, the *Not possible to create a mesh* message appears, together with possible reasons for the problem, where relevant.

Based on the problem(s) reported the design layout and/or RF criteria will need amending to realise an acceptable system. Possible alterations or variations that may be effective in finding a suitable network include:

● Move the gateway to provide wider connectivity with RF devices

● Re-arrange RF devices to minimise link lengths

● Allow longer links or repeaters to be used

● Add a repeater (or another RF device) to a marginal or poor link

● Consider if the wall attenuation is set too high and can be reduced

How to Resolve a Poor Link Quality in General

If possible, re-position RF devices to improve the line-of-sight between two linked devices which have a poor link signal. If this is not possible consider the use of a repeater.

How to Resolve a Poor Link Quality in a Long Corridor

To enable a resilient RF system the mesh is designed to have multiple communication paths back to the gateway. Each device must have at least two links to other devices. In a long corridor this is sometimes difficult to achieve and some long links may suffer from poor signal strength. The solution may be to include one or more repeaters (or extra devices) in the corridor.

How to Resolve a Poor Link Quality Through Walls

Walls can significantly reduce RF signal strength and hence the link quality between nodes. If the link quality through a wall is poor, the solution may be to include one or two repeaters on either or both sides of the wall between the nodes in question. (See also *Measuring Wall Attenuation*.)

In all these examples, any RF device could be substituted to act as a repeater.

Modifying a Mesh Design

To change a design after a mesh has been generated (to add, move or delete a device, for example) it is necessary to delete all the links and recreate the mesh. Consider making a copy of the design before deleting the mesh links permanently. (See *Other Options Available* in the *Site Tab* section.)

To remove the links, see: *Other Options Available in the Configuration Management Tab* section. Make any changes to the layout as required. When complete, return to the *Mesh Management* window, set the optimisation and link constraints as necessary, and click the **GENERATE MESH** button to create a new mesh.

Exporting links

When a suitable mesh network has been created, it is preferable to record the link information in a link table in the *Area Survey* tab. This is useful to check predicted RF power against known data, or to form the basis of a site survey.

Use the **Links Generator Tool** to transfer links data from the mesh diagram to the *Link Quality* table in the **Area Survey** tab. (see: *Other Options Available in the Configuration Management Tab* section). There are three transfer options available: **Export All Links**, **Export Primary Links Only** or **Export Critical Links Only**. The choice will depend on what use the designer intends to make of the information in the table.
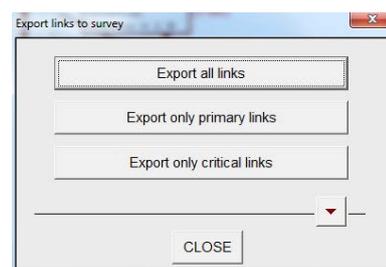
Clicking on the down arrow in the *Links Generator* tool window will reveal two further options:
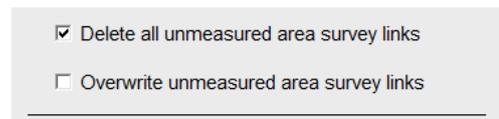
Delete all unmeasured area survey links: set as default; if unticked, unmeasured links in the *Area Survey* table will be left in the table.

Overwrite unmeasured area survey links: when ticked, links exported from the mesh will replace any unmeasured links in the *Area Survey* table.

Important Note: The *Area Survey* data tables (*RF Energy Scan* and *Links Quality*) relate to a specific Site Area and only one of each table per Area can exist. It is not possible to have data tables for multiple configurations in an area. Therefore be sure that the data tables that are saved in the *Area Survey/ RF Energy* and *Links Quality* tabs are the latest ones for the configuration before it is locked.

The Link data can only be exported from an un-locked configuration. Always ensure that the *Links table has all the required Link information in it before locking the file.*

Saving and Locking a Mesh Network Design

When the mesh design is complete, with suitable site fire coverage and acceptable RF link values, the design can be permanently frozen. When this is done no further changes are possible. *Make sure that all site information , including link data, is up to date and any pictures and images (including a copy of the layout screen) that may be required in the site report have been inserted prior to locking*.

Click on the *Lock Configuration* option and click *YES*. The configuration will be shown as locked in the *Site-Area Configurations* window, indicated by the padlock against it.

Be sure to save the project before exiting the AgileIQ™ application.

An area configuration is related to a specific gateway network. The locked configuration file will be used to create the parameter data to set up the gateway and commission its associated RF system on site.

When the *Lock Configuration* button is used, the AgileIQ™ software reviews the design for errors. For example, it will identify any duplicate device addresses and checks the links for correct application of the mesh rules (only relevant when manual links have been introduced). The user will be provided with informative messages concerning any errors and is expected to correct them. The configuration file will not lock until this has been done.

When an area configuration file has been locked, the design is frozen. The design facility in the *Configuration Management* tab is removed and replaced by two new options: *Commissioning* and *Diagnostics*, which will be used when the RF system is installed and put into operation.

SYSTEM COMMISSIONING AND INSTALLATION

IMPORTANT NOTE
Never commission more than one gateway at a time in an area. Do not run the site survey tool in the area while commissioning is in progress.

Associating a Configuration with a Gateway

At commissioning time the network data is downloaded into the gateway using the RF USB interface. During the commissioning process, the unique serial number of the gateway will be associated with the area configuration file. At the start of the download, the gateway serial number is read and combined with the configuration data. The configuration file thus becomes associated with that gateway. (A copy of the original configuration file can still be associated with another gateway.)

When the gateway association has happened, a flag will be set in the *Syn* column of the respective file location in the *Site* tab, *Area Configuration* window.

N.	loc	syn	jpg	Date	Name
2				2015/05/06 09:44:37	Copy (1) of Whiteboard
1	🔒	✓		2014/12/02 13:33:58	Whiteboard

Pre-Commissioning and Commissioning the RF Network

When the network design is complete and the area configuration file has been created and locked, there are two further stages to the set-up process to enable the operation of the complete network, namely pre-commissioning (the gateway) followed by downloading parameters into the RF devices and commissioning (the network).

In the *Configuration Management - Commissioning* tab, the AgileIQ™ application has two buttons available at the top left corner of the screen to facilitate the gateway pre-commission process. Gateway pre-commissioning can be done by the direct manual pre-commissioning command or by invoking the aid of a pre-commissioning wizard (recommended for first time use). Gateway pre-commissioning is where all the network data is downloaded from a PC via the USB interface (dongle) into the gateway, and then distributed to the network devices by the gateway itself.

Saving the Project File in the Gateway

Before actually running the pre-commissioning process, AgileIQ™ will ask the user if a copy of the configuration file should be stored in the gateway. This is a precaution in the event that the original configuration file on the PC is lost. Without a configuration file, it will not be possible to maintain or alter a system in the future. Depending on the size of the file, it will take several minutes to download and save the file into the gateway, prior to starting the pre-commissioning process. Note also that any images in the original configuration file will not be saved in the gateway version, to help limit the file size.

Reading back a configuration stored in the gateway is achieved using the *Retrieve Log From Gateway Wizard*, available in the *Device Direct Command* tab; double click in the main window to reveal the command button.

Pre-Commissioning Wizard

The wizard provides two possible scenarios:

(A) where all the devices to be commissioned are new (factory default state), or:

(B) where one or more of the devices has been previously used or configured. If more than one of the devices are configured, they must have been in the same network.

To use option (B) it is necessary to know the original configuration codes for the previously used devices; these should be available

in the original project file or site report. Without this information, or if the configured devices are from more than one different network, it will not be possible to complete the new commissioning without additional work and powering off all the previously configured devices.

Using the Gateway Pre-Commissioning Wizard

Typically, but not necessarily, all the bases and devices will have been fitted around the site at their final positions prior to pre-commissioning:

1) Make sure that all the batteries have been inserted into the RF devices, each device is fitted into an RF base with the correct loop address set, and the gateway is powered on.

2) Ensure that the USB Interface is no more than a few metres from the gateway.

3) Select the correct area configuration file in the **Site** tab, move to the **Configuration Management-Commissioning** tab and click on the **Wizard** button at the top of the left pane.

4) Choose the correct option (A or B) for the situation and follow the instructions on the screen carefully to completion.
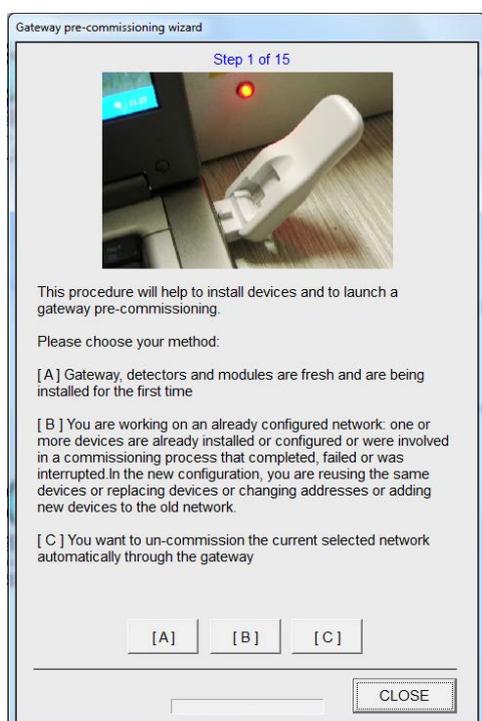
Option (A)
This option is the shortest because the devices are already un-commissioned. The un-commissioning tool is made available to check this. There is also an option to check link communication prior to starting the gateway pre-commissioning.

Option (B)
This option can re-configure a running network without ever powering it off. It is possible to un-commission the gateway and the backup node without removing them from their bases and changing addresses.

The channel sync word and addresses of gateway and backup node will be required (AgileIQ™ will propose the information from the current selected configuration). It will be necessary for the USB Interface to be in the range of the gateway and the backup node.

While the network is running the dongle interface sends the un-commission command to the gateway (a check is run to see that the gateway is indeed un-commissioned).

The program waits for 2 minutes and the interface then sends the un-commission command to the backup node (again, the operation is checked).

If the interface cannot communicate with the back-up node, a message is displayed requesting that the user gets nearer to the back-up node. The user has 5 minutes to un-commission the back-up node. If after this 5 minute period, the back-up node has not been un-commissioned, the mesh devices go into *Idle* mode and it will no longer be possible to communicate with it through the interface.

At this point it will be necessary to use the manual recovery method to un-commission the back-up node.

Having successfully un-commissioned the gateway and backup node, the Wizard will prompt the user to un-commission the other mesh devices using the un-commission tool. This may require several iterations with the user moving around the building to ensure that the interface gets to communicate with each device directly.

When all devices have been un-commissioned, the final step, gateway pre-commissioning, can start to configure the new network.
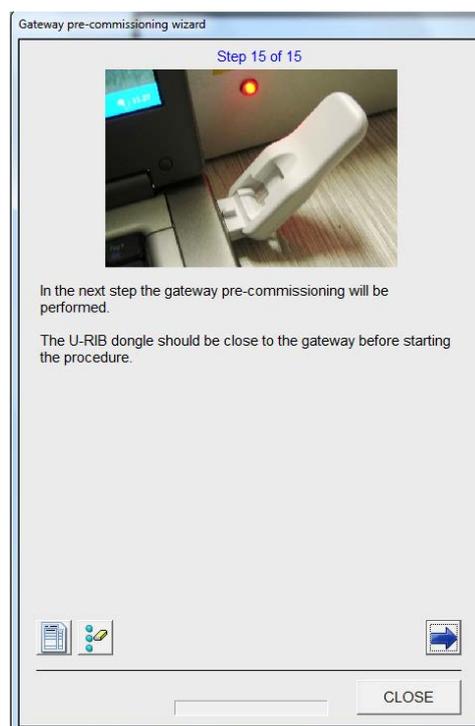
The wizard will initially associate the configuration file with the gateway (see *Associating a Configuration with a Gateway* above) and then send the configuration data into the gateway. The progress of the commissioning operation is displayed in the left window of the screen. Following a successful upload, the gateway will take over and send the relevant data to each RF device in turn and then orchestrate the synchronisation of the network to form the working RF mesh.

5) The final synchronisation phase of a large network will take several minutes to complete; the gateway will then start to blink with a single blue flash every 14s when the mesh is set-up and running.

Using the Gateway Pre-Commissioning Command

The gateway pre-commissioning command requires that the installer has prepared the network devices correctly prior to the commissioning process.

Typically, but not necessarily, all the bases and devices will have been fitted around the site at their final positions prior to pre-commissioning:

1) Make sure that all the batteries have been inserted into the RF devices, each device is un-commissioned, fitted into an RF base with the correct loop address set and the gateway is powered on.

2) Ensure that the USB interface is no more than a few metres from the gateway.

3) Select the correct area configuration file in the **Site** tab, move to the **Configuration Management-Commissioning** tab and click on the **Gateway Pre-Commissioning** button at the top of the left pane to open the *Gateway Pre-Commissioning* window.

4) The progress of the commissioning operation is displayed in the left pane. Following a successful download from the USB interface, the gateway will send the relevant data to each RF device in turn and then orchestrate the synchronisation of the network to form the working RF mesh.

5) The final synchronisation phase of a large network will take several minutes to complete; the gateway will then start to blink with a single blue flash every 14s when the mesh is set-up and running.

Time and Date

During the commissioning process the current time and date will be written into the Gateway. This information will be taken from the PC used to upload the data into the Gateway and will be used to reference events in logs etc.

Accessing Network Activity Information

Obtaining network performance data can be achieved using the AgileIQ™ application. There are two sets of information that can be obtained from a running mesh network.

These are:

1) The *Gateway Historical Event log*.

2) A network performance diagnostic readout.

Both can be accessed from a working network by running a diagnostic report from the *Configuration Management/ Diagnostic* tab.

It is also possible to download the historical event log from a gateway that is not part of a network by using a wizard in the *Device Direct Command* tab.

The **Gateway Log** runs automatically and records lost link events with a time and date stamp. The time and date will have been set into the gateway at commissioning time using the PC time/date values. There can be up to 1000 possible events going back in time; when the log is full the oldest log events will be overwritten with new ones. The gateway log can be downloaded and saved as a text file.

A **Diagnostic Report** will give link, device and gateway status information relating to link Quality/RSSI, battery condition, faults etc. This is a snap-shot of the running system containing the latest information that the gateway has collected. For a newly commissioned system it will take a short while for the gateway to assemble all the data. Wait for at least 20 minutes after the end of commissioning before trying to download a diagnostic report.

To run a diagnostic report:

1) Ensure the dongle is in range of the gateway.

2) Having opened the site project, select the required area configuration in the **Site - Area Configurations** tab.

3) In the **Configuration Management – Diagnostics** tab, download the network information from the radio gateway by clicking on the **Start** arrow at the top left corner of the screen. The progress of the diagnostic operation is displayed in the left window of the screen and the completed log is listed in the table below this pane, annotated by time and date.
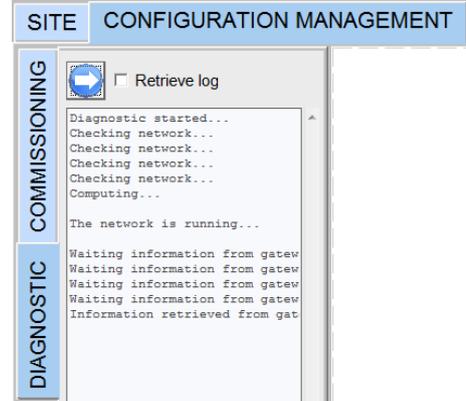
4) To download the gateway log, tick the **Retrieve Log** box. The results in the log can be inspected on the screen or in the diagnostic report.

5) Double click on the report time/date field to reveal the open, edit or delete options:
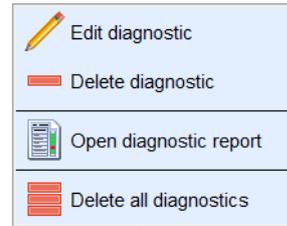
6) From **Open Diagnostic Report** it is possible to print the record or create a PDF.

Retrieve Log box – extra function
If the **Retrieve Log** box is still ticked when a diagnostic report is opened, it will display additional internal register data concerning each of the individual RF devices. This data is for detailed device analysis and is not normally required for general network diagnostics and system maintenance. To reduce the length of a diagnostic report, turn off these unwanted tables by un-ticking the *Retrieve Log* box before opening the report.

7) The gateway logs and the diagnostic reports will be saved in the project file (when that is saved).

It is also possible to download the Gateway Event log from a gateway that is not running in a working mesh. This is performed using the Gateway Log Retrieval Wizard in the *Device Direct Command* screen. Double click on a blank area of the screen, click on the *Retrieve Log From Gateway* wizard and follow the on-screen instructions.

The **Continuous Diagnostic** option provides a test facility to display the complete network status continuously on the screen. This shows a tabulated version of the diagnostic log being regularly updated and can be used to test or investigate a running network. No logs are downloaded with this tool, it is just for 'live' viewing of the network activity.

In the *Configuration Management/Diagnostic* tab, click on the continuous diagnostic button. The *Devices* and *Links* information tables are updated every few seconds and are shown following.

Device	Device address	Reed switch	Battery	Anti-tamper	Register #2
#A Photo	1 S	OK	OK 100% 100% 100% 100%	OK	50 Normal
#B PTIR	2 S	OK	OK 100% 96% 100% 100%	OK	50 Normal
#C Thermal S	3 S	OK	OK 100% 96% 100% 100%	OK	65 Normal
#D Thermal ROR	4 S	OK	OK 100% 92% 100% 100%	OK	65 Normal
#E MCP	2 M	OK	OK 100% 92% 96% 100%	OK	62 Normal
#F Sounder	3 M	/	OK 100% 100% 100% 100%	OK	50 Normal
#G I/O Mod.Uns.	4 M	/	OK 100% 100% 100% 100%	OK	50 Input: Normal ; Out

Device parent:	Device child:	Link type	Quality	Attenuation
#GW Device address: 1 Gateway	#A Device address: 1 Photo	PRIMARY	GOOD	27.5
#GW Device address: 1 Gateway	#B Device address: 2 PTIR	PRIMARY	GOOD	29.5
#GW Device address: 1 Gateway	#C Device address: 3 Thermal S	PRIMARY	GOOD	29.5
#GW Device address: 1 Gateway	#D Device address: 4 Thermal ROR	PRIMARY	GOOD	15.5
#GW Device address: 1 Gateway	#E Device address: 2 MCP	PRIMARY	GOOD	25.5
#A Device address: 1 Photo	#F Device address: 3 Sounder	SECONDARY	GOOD	29.5
#B Device address: 2 PTIR	#F Device address: 3 Sounder	PRIMARY	GOOD	43.5
#C Device address: 3 Thermal S	#B Device address: 2 PTIR	SECONDARY	GOOD	25.5
#C Device address: 3 Thermal S	#D Device address: 4 Thermal ROR	SECONDARY	GOOD	39.5
#D Device address: 4 Thermal ROR	#G Device address: 4 I/O Mod.Uns.	PRIMARY	GOOD	29.5
#D Device address: 4 Thermal ROR	#A Device address: 1 Photo	SECONDARY	GOOD	21.5
#E Device address: 2 MCP	#C Device address: 3 Thermal S	SECONDARY	GOOD	31.5
#F Device address: 3 Sounder	#G Device address: 4 I/O Mod.Uns.	SECONDARY	GOOD	29.5

Creating a Site Report

The AgileIQ™ software has the facility to automatically generate a complete configuration report containing all the information relating to the design layout, area surveys and device configuration data. It is possible to include additional information, photos, screen-shots and images into the report, which can be exported as a PDF or printed out in hard copy if required. The report information is saved for reference and review in the site project file.

The *Open Configuration Report* button can be accessed from several views.

This report should form part of the overall fire system documentation set provided at system hand-over to the end user for reference and future site maintenance.

Handing Over the Installation

Before leaving a site, it is recommended that an installer checks that both Fire and Fault signals are communicated back to the fire panel correctly, by carrying out relevant tests (see RF device installation manuals for information on possible alarm test methods). A fault message can be signalled by removing a working device from its RF base (tamper fault).

It is advisable to print off a copy of the final site report and store it safely with other relevant documents for future system maintenance. (An option to generate a PDF is also available.) It is recommended to save an electronic copy of the project file on a convenient form of storage media for archiving and future reference.

THE DEVICE DIRECT COMMAND TAB

The Device Direct Command tab is available to the user when the AgileIQ™ application starts running on a PC. It allows a number of direct operations to be carried out on individual RF devices for configuration, test and maintenance purposes.

1) Click on the **Device Direct Command** tab; the main window will be empty.

2) Double click in the main window to reveal the command options:
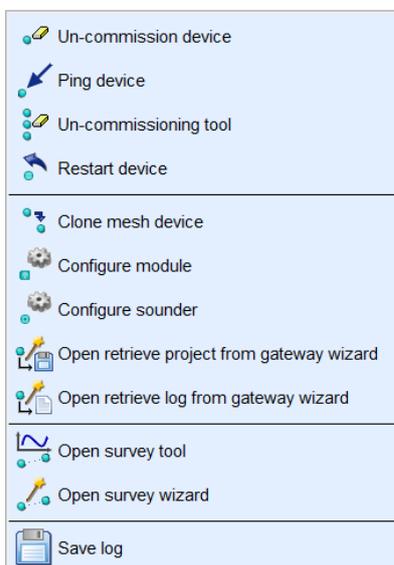
These include functions to: ping and restart devices, clone a device, un-commission devices, retrieve logs and project data, save a log and start an RF survey.

To use any of these options, ensure that the USB dongle interface is within a few metres of the relevant device (but not closer than 1m).

Remember to set the correct device type in the left-hand window when required.

The specific actions performed by these functions are:

Ping a Device*: - To check that an RF device is communicating properly. Typically used to check device to USB dongle interface communication prior to a download/upload. (With un-commissioned devices, use the default channel and sync word).

Restart a Device*: - The same effect as powering a device off and on. Typically used after a USB dongle interface upload.

Un-Commission a Device*: - Returns a device to its factory default (un-programmed) state.

* The operation requires the device type and address to be set, plus correct RF channel and sync word. Cannot be used on a device in a network that is running under the control of a gateway (or back-up node).

Un-Commissioning Tool: - A wizard to aid returning a number of devices to their factory default (un-programmed) state; follow the onscreen instructions.

Clone a Device: - A wizard to guide the user when replacing a device like-for-like in a running mesh system; follow the onscreen instructions.

Retrieve a Project From a Gateway: - A help sequence to get the stored project information back from the gateway; follow the onscreen instructions.

Retrieve a Log From a Gateway: - A help sequence to get the stored network history log back from the gateway; follow the onscreen instructions.

Open Survey Tool: - Opens the link quality measurement window to run a link survey with a ping-pong pair. (See: *How to Take a Link Quality Measurement in Area Survey Tab* section for detailed operation.)

Open Survey Wizard: - Helps to prepare a Ping-Pong pair before running a link quality measurement; follow the onscreen instructions.

Configure Module: - Enables the output function on an output module to be set as either supervised or relay only. See section below.

Configure Sounder: - Enables the volume and tone settings on a sounder to be changed. See section below.

Save a Log: - Opens the PC Save window to store the log as a text file.

Configuring the Output Module Mode

The output of a module can be set up as being either supervised or relay mode (Form C - volt-free changeover contacts). The factory default setting is **Supervised Output Module**. To change the output mode requires a programming operation using the **Device Direct Command**.

1) Starting with an I/O module, remove it from its back box.

2) Ensure that the address is set to 00.

3) Insert a battery in position #2.

4) Select the *Device Direct Command* tab; set default sync word, Channel = 0, Address = 00 and Device type = Module.

5) Ensure that the I/O module is within range of the dongle (but not < 1m).

6) Double click on the command screen to reveal the list of options and click on **Configure Module** to reveal the configuration screen:
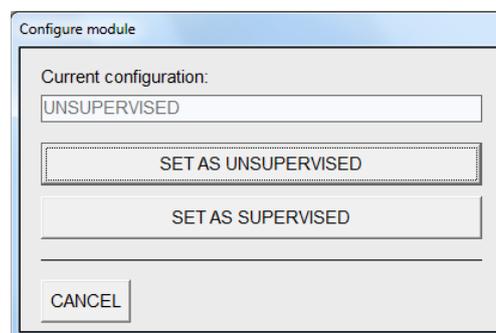
7) The current output module configuration is displayed. Click on the relevant button to re-configure the output module mode, or click *Cancel*.

Note: Always power the device off to set the correct system address prior to use.

Configuring the Sounder settings

The volume and tone settings on a sounder can be set to a wide range of operating modes. The factory default settings are **Tone 8** (with the second stage tone as **2**) and **High** volume. To change the tone and/or volume setting requires a programming operation using the **Device Direct Command**.

1) Take the sounder, ensure that the address is set to 00.

2) Insert a battery in position #2.

3) Select the *Device Direct Command* tab; ; set default sync word, Channel = 0, Address = 00 and Device type = Module.

4) Ensure that the sounder is within range of the dongle (but not < 1m)

5) Double click on the command screen to reveal the list of options and click on **Configure Sounder** to reveal the configuration screen.

```
Configure sounder
Volume ( 1 - low, 2 - mid , 3 - high ):
  [3]
Tone (1-38):
  [2]
  ├─ 2  800/970
     3  Alternating tone telecoms (800/970)
     4  Alternating High Frequency (2400/2900)
     5  Security Alarm (2500/3100)
     6  988/645
     7  All Clear (660)
     8  970
     9  1200
    10  HF Continuous (2850)
    11  GasAlarm Tone (150-1000)
    13  AS2220 evacuate tone (500/1200)
    14  Swedish alarm tone (660)
    15  Intermittent tone (970)
    16  Backup alarm LF & BS5839 pt 1 (660)
    17  Backup alarm HF & BS5839 pt 1 - second tone (2850)
    18  LF BS5839 pt 1 (970)

        SET VOLUME AND TONE

      TEST CURRENT SETTING (3,2)

  [CANCEL]
```

6) The current sounder configuration is displayed.

Volume setting

The sounder has 3 possible volume settings: Low, Medium, High.

Type in the correct number to configure the sounder volume to the required setting.

Tone setting

An explanatory table, detailing the range of sounder tone settings can be found within the RF Sounder installation manual.

Type in the correct number to configure the sounder tone to the required setting.

Use the *TEST CURRENT SETTING* button to hear the sounder output.

When the Tone and/or Volume settings are correct, click on the *SET VOLUME AND TONE* button. The *Sounder Configured* message will appear.

Note: Always power the device off to set the correct system address prior to use.

Receive Mode (Rx) and the Role of Address 00

A new device starts out as un-commissioned (factory default) and moves to the commissioned state when it has been programmed.

To check the state of a device, insert a battery (into any position, address not 00) and watch the LED blinks (1 long green for un-commissioned; 3 short blinks for commissioned).

Address 00 in the radio product has a special function. Setting address 00 in any device and inserting a battery in position #2 will force it to power on in constant Rx mode, using the default channel (0) and sync word 11 22 33. In this mode AgileIQ™ can communicate with the device using the Direct Commands.

Once a device has been commissioned, it powers on in Rx mode using its proper address, configured channel and configured sync word.

ITo use the Device Direct Commands, AgileIQ™ must either use the configured channel, sync word and the correct address to communicate with a commissioned device (but not when it is part of a working network), or use the 'back-door' settings (Default sync word, Channel = 0, Address = 00 and correct Device type). The latter method can be used in the vicinity of the device's running network.

The Device Commands cannot be used directly with a running network. To interrogate a working mesh it is necessary to use the diagnostic tools.

Changing a Working Installation

IMPORTANT NOTE

Should it ever be necessary to change or modify the final RF system configuration ***IN ANY WAY***, the project file used to commission the system will be required. Therefore an electronic copy of the 'as-built' project file should be made by the installer and stored in a safe place for use in the future. **Without a network configuration file it will be impossible to make any alterations to the network.**

At commissioning time, a back-up project file will be saved in the gateway. This back-up will have all the necessary commissioning data, but will not contain the images, pictures and long notes that were included in the original project file. (See: *Save/Retrieve Project From Gateway* section).

It is not recommended to rely on this back-up file as the only copy of the project. Should the gateway become damaged or faulty such that this file cannot be retrieved, **the whole system will have to be un-commissioned and a new project will have to be redesigned again from the beginning unless the original 'as-built' file is available**.

Instructions on altering a working system can be found in the *System Maintenance* section of this manual.

SYSTEM MAINTENANCE

Unknown Device Status

The commissioned/un-commissioned status of a device can be identified when it is powered on.

Device with LED indicator (including Remote Indicator)

With the address not set to 00, insert a battery. An un-commissioned device will give a single long green pulse, three quick green blinks indicates that the device is commissioned.

Sounder

The status of a sounder can be identified audibly when it is powered on. Insert a battery (address not set to 00); an un-commissioned device will give a single tone beep, two sounder chirps indicate the device is commissioned.

Monitoring the System

See *Accessing Network Activity Information* in the *System Commissioning and Installation* section to download the gateway log.

Switching Off a Gateway

When carrying out work on the fire system it may be necessary to disconnect or power off the RF gateway. When a gateway is removed from the loop, connection between the fire panel and the RF network will be lost. To prevent excessive battery usage by the RF devices, control of the RF network is handed over to the special *back-up node* device, identified in the mesh diagram by a **Red** device information box. This special node is important and should not be powered off unless all the RF devices are to have all their batteries removed. It can take up to 12 minutes for a backup node to assume control of the network, after the gateway has been switched off.

It is recommended that both the gateway and the back-up node device should be located in easily accessible postions to help with maintenance activities.

At the time the gateway is re-powered on the loop, it takes back control of the RF devices from the back-up node and re-synchronises the mesh network. The fire panel will then be able to access all the RF devices again and poll them to read their status.

Note: As well as running the system in 'idle mode' when a gateway is powered off, the back-up node maintains the time and date information for the configured system. Powering off the back-up node together with the gateway will lose the timing reference for the network. And re-powering the back-up node will not resume the battery saving idle mode.

Powering down a system

When decommissioning a system, there should be no significant drain on the batteries of RF devices operating on a particular gateway, provided all the batteries are removed from devices within an hour or so. However, to minimise battery power usage when powering down a system, start with the devices farthest from the gateway and work back to the back-up node; this should be the last battery operated device to be powered off.

UN-COMMISSIONING

Un-Commissioning a Device

Device with Known Configuration Coding

To un-commission a device where the configuration information is known:

1) Power on the device

2) Select the *Device Direct Command* tab and enter the device information (sync word, channel, address and type) in the settings box on the left.(This device information can be found in the configuration report.) The RF device should be within range of the USB interface, probably in the same room (but not closer than 1m).

3) Click on the *Un- Commission* button to un-program the device.

4) When complete, power the device off (or restart it).

Device with Unknown Configuration Coding [Recovery method]

To un-commission an RF device (not a Gateway) where the configuration information is not known:

1) Power off the device.

2) Select the *Device Direct Command* tab and enter the default device information (sync word = 11-22-33, channel = 0, address = 0 and device type = sensor/module) in the settings box.

3) Remove all batteries from the device and wait 10s.

4) Set the address switches to 00.

5) Place one battery in position 2 and check for a long green blink. The RF device should be within range of the USB interface,

6) Double left click in the right-hand pane and then click on the *Un-Commission* button to un-program the device.

7) When complete, power the device off again.

Gateway with Unknown Configuration Coding

To un-commission a gateway where the configuration information is not known:

1) Power off the gateway.

2) Select the *Device Direct Command* tab and enter the default device information (sync word = 11-22-33, channel = 0, address = 00 and device type = module) in the settings box.

3) Set the gateway address switches to 00.

4) Power the gateway on and check for a long green blink. Ensure that the device is within range of the USB dongle interface (but not less than 1m).

5) Double left click in the right-hand pane and then click on the *Un-Commission* button to un-program the gateway.

6) When complete, power the gateway off again.

Un-Commissioning a System

Un-Commissioning Tool

To un-commission a series of powered devices where the configuration information is known (and the same for all):

1) Select the *Device Direct Command* tab, double left click in the main area of the tab and open the *Un-Commission Tool*. It is best to be running the relevant configuration file because then all the necessary device information is available.

2) Ensure that the gateway and backup node are powered off.

3) Enter the device scan information (sync word and RF channel) in the settings box on the left; if using the relevant configuration file, set as current configuration.

4) Click on the *Scan Addresses* button (see screen shot overleaf). The tool will determine the status of all the devices within range. Because the RF devices need to be within range of the USB interface, it may be necessary to move around the building to communicate with all the unknown devices, using several scans.

5) To un-commission the devices, click on the *Un-Commission Configured Devices* button (see screen shot below). It may be necessary to move around the building again to communicate with all the devices, using several scans to un-program them. When complete, all the devices will be un-commissioned, ready for re-programming.

Using the *Un-Commissioning Tool*, it is possible to scan and then un-commission just one device at a time by double clicking on a specific address value in the table.
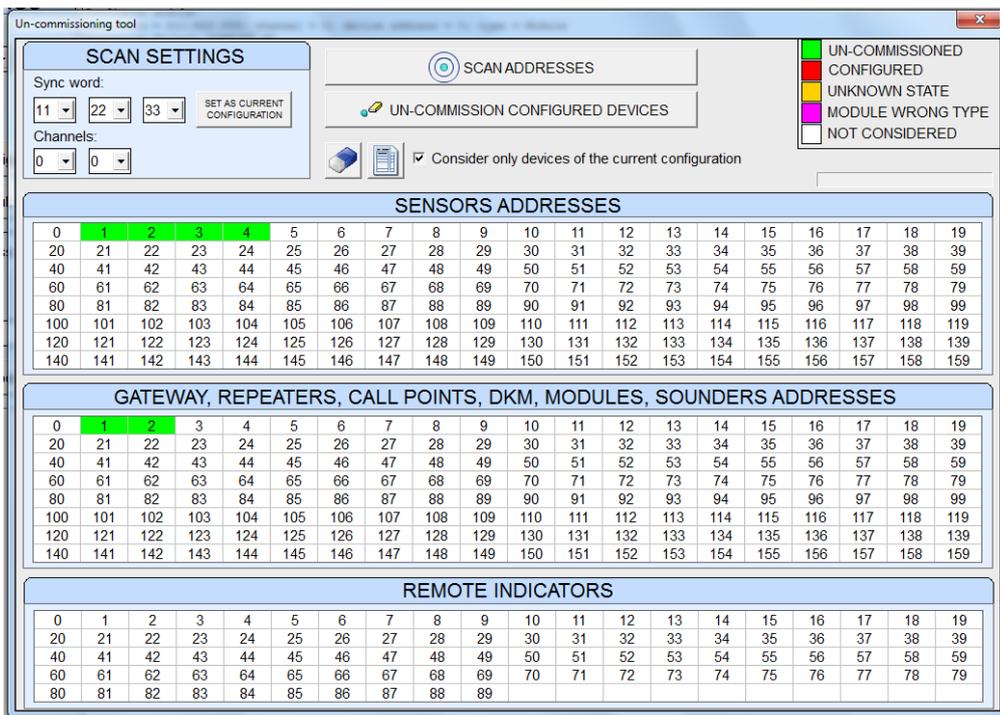
Note: Using the Pre-commissioning Wizard, it is possible to start to un-commission a system without removing the gateway and back-up node (See *SYSTEM COMMISSIONING AND INSTALLATION*, *Pre-Commissioning Wizard Method*, and use steps 1 to 3 of *Option B.*)

Un-Commissioning Wizard using the Gateway

This powerful tool allows a user to remove a mesh configuration from an entire working system with one command.

1) The running network's locked and sync'd configuration, used to originally commission the mesh, must be selected in the *Site* tab.

2) Go to the **Commissioning Management/ Commissioning** tab and click on the **Gateway Pre-commissioning Wizard** button to reveal the wizard screen:
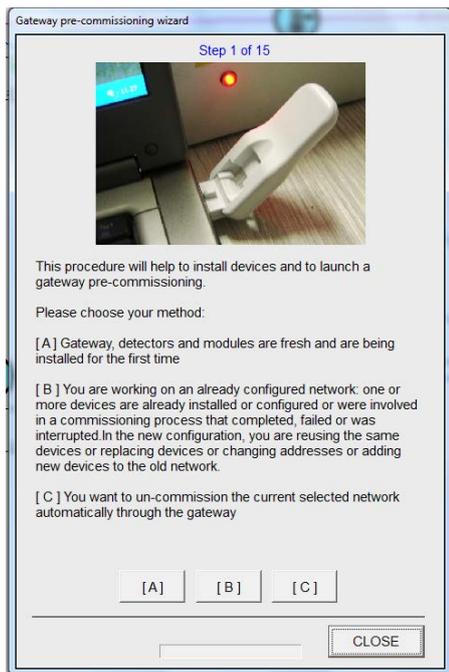
3) Select **Option C**

4) The necessary network information will be pre-entered in the screen. Make sure that the dongle is within range of the gateway (but not < 1m) and click on the **Un-Commission All Nodes** button.
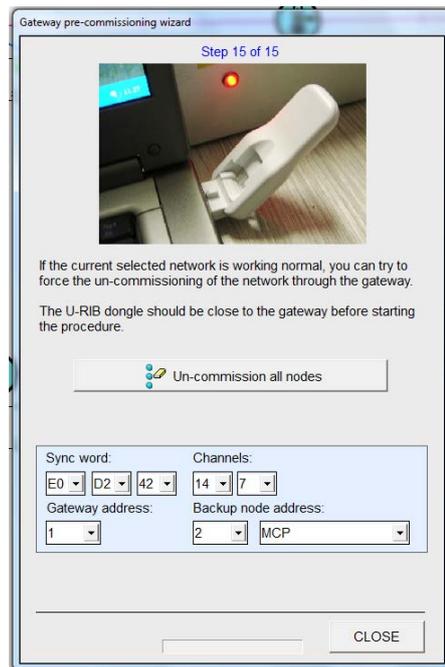
The wizard will run a Diagnostic check that the network is working properly and then start to uncommission the RF devices, finishing with the Gateway.

Gateway pre-commissioning wizard — Step 15 of 15
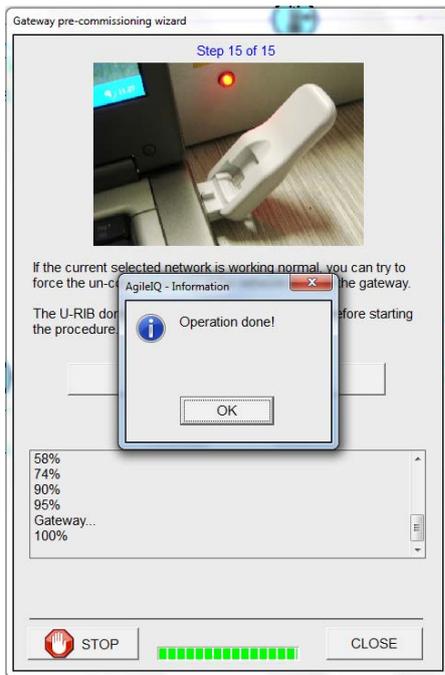
5) As a final check, the **Un-Commissioning Tool** can be used to verify the status of all the RF devices that were in the network (see previous *Un-Commissioning Tool* section).

Devices with Unknown Configuration Coding

To un-commission any devices where the configuration information is not known, it will be necessary to power them off and un-commission them individually (use the **Recovery Method** described above).

How to Replace a Device in an Existing Network

To replace a device (like for like, but not a gateway) running in an existing mesh network, use one of the following methods.

Clone Mesh Device Tool

If the RF function of the device to be changed is operational, use this tool available in the **Device Direct Command** tab. This tool will replicate a device without the need for a project file.

1) Double left click in the main area of the **Device Direct Command** tab and open the clone tool.

Clone mesh device — Step 1 of 14

This procedure will help you to replace a device (A) in a working mesh with a new one (B) of the same type.

Note that this procedure is not applicable to the gateway.
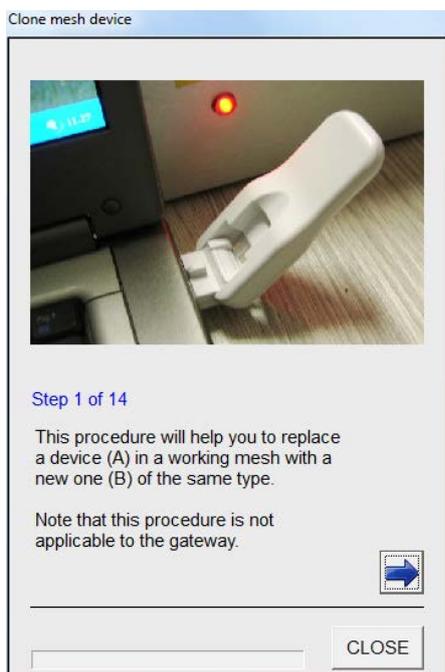
2) Follow the series of steps to download the old device parameters and then upload them into a new device.

Dongle (USB Interface) Direct Upload

Alternatively, if the RF communications with the device to be changed has been lost, use the **Dongle Direct Upload** command; the original project file will be required. To replicate a device, proceed as follows:

1) Remove the old device from its base and remove the batteries.

2) Take a new (or un-commissioned) device, set the loop address to the same number as the original one and power on the device with all batteries.

3) In the AgileIQ™ application, load the project file of the current network, choose the correct area and configuration.

4) Go to the **Commissioning Management - Commissioning** tab, double click on the centre of the device that is being replaced and the **Manual Upload** window appears:

5) Check that the USB Interface (dongle) can communicate with the device by running the **TEST DONGLE – DEVICE COMMUNICATION** (status is reported in the left pane). If there is poor communication, try repositioning the USB Interface.

6) Default settings for communication will be set automatically and the device will be restarted at the end of the process, so that it can be used immediately after the upload.

7) Click on the **UPLOAD** button to send the correct configuration to the new device. When complete it should sync with the network.

8) If not already installed, fit the new device into its base.

Replacing an Existing Gateway

To substitute a gateway with a new one, it is not necessary to re-commission the entire network; simply reprogram a new gateway using the manual upload option as follows:

1) Run the relevant project and select the correct configuration (i.e. gateway) in the **Site** tab.

2) When working on site, remove the old gateway from its base, if not already unplugged (the backup node will orchestrate the network in **Idle** mode). Set the address of the new gateway to same address as the old one (as defined in the configuration file).

3) Power up the gateway.

4) In the **Configuration Management – Commissioning** tab, double click on the centre of the gateway symbol and the **Manual Upload** window will appear (see overleaf):
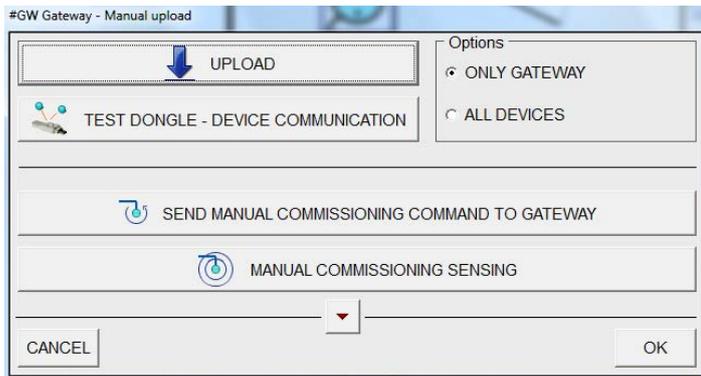
5) Check the communication between the USB Interface and the gateway using the **Test Dongle – Device Communication** button (status is reported in the left pane). If there is poor communication, try repositioning the interface.

6) Send the configuration to the new gateway using the **Upload** button. The following message will appear:

The gateway serial number does not match with the configuration sync word!

Do you want to reuse the current configuration sync word?

Answer **Yes**.

At the end of operation the gateway will start to look for the network devices to connect to the mesh. This will take some minutes.

If the upload was performed off-site, take the new gateway to site, remove the old gateway and install the new one; the gateway will start automatically and search for the network.

Moving a Device in an Existing Network

Should it be necessary to move one or more devices in a working network, this should be done with some care. If the required new position is a few metres from the original location, this may be possible without any other changes, but check the resulting RSSI readings are acceptable using a diagnostic scan, and that they compare favourably with the original survey readings. If the new position of any device is more than a few metres away, or involves a change of room or a radical alteration to the layout, then a new network should be designed and the procedure detailed in *How to Add or Delete a Device from an Existing Network* (below) should be carried out.

Modifying an Installed Network

How to Add a Device to an Existing Network without Changing the Existing Links - Add Links to Node Wizard

Within AgileIQ™ there is a wizard that will add a node into an existing network with just two extra links, leaving all the other links between the original devices the same. This is useful when an existing RF mesh has been running properly and the installer does not want to change any of the established links. Only the two new links will need to be checked for good link quality.

It should be noted that the additional links will not be integrated into the mesh for best link reliability or for conserving battery life. To optimise the complete mesh with one of these criteria, it will be necessary to re-use the mesh generator, but then other links might change requiring a more detailed survey. However the wizard will choose the best possible two links to connect the extra device into the design.

To add an extra device into an existing design:

1) As the configuration for the running network will have been locked, it cannot be modified. Make a copy of the configuration file; this copy will appear unlocked so that changes can be made to the network design.

2) In the **Configuration Management/Design** tab, add in the new device.

3) With none of the design buttons to the left of the screen active, double click on the centre of the new device icon to reveal the **Device Information** window. Click on the **Add Links to Node Wizard** button at the bottom of this window and two new links will be created to couple the device into the design.

4) Clear the old links from the **Area Survey/Links** tab and export the new design links as required (All/Primary/Critical). Save the project.

On the site:

5) Check the quality of the two new links and when satisfied with the performance, **Lock** the new configuration.

6) Uncommission the old network. This can be done in one of the following ways; by using the **Un-Commissioning Wizard using the Gateway**, the **Gateway Pre-Commissioning Wizard** using option **(B)** or with the **Un Commissioning Tool** (see relevant sections in this manual). If using the *Un-Commissioning Tool* or the *Un-Commissioning Wizard using the Gateway*, the old network configuration will need to be active in AgileIQ™. If using the *Gateway Pre-Commissioning Wizard* (option *B*) the new network configuration should be selected.

7) When the old network has been un-commissioned, set the address on the new device, power it on and physically position it on the site.

8) In AgileIQ™ select the new network configuration application if not already active. Continue with the preferred method of commissioning the network (see *System Commissioning* in this manual).

To Add or Delete a Number of Devices within an Existing Network

To add several new devices, or remove existing devices from a commissioned and working mesh network, the following procedure should be used:

1) Print a report of the current configuration or make a note of the current configuration file sync word, channels and back-up node. These will be required later during the re-commissioning step.

2) The configuration file for the working network will be locked, so it cannot be modified. Make a copy of the current configuration file; this copy will appear unlocked so that changes can be made to the network design.

3) Make the changes that are required to the copy of the design (for example add/delete/move devices).

4) Select the required mesh optimisation criteria and regenerate the network, creating a new set of mesh links.

5) Clear the old links from the table in the **Area Survey/Links** tab and **Export** the new links as required (All/Primary/Critical) to allow adequate checking of the new design in a site survey. When satisfied with the redesigned network performance, lock the new configuration.

6) Uncommission the devices in the old network. This can be done in one of the following ways; by using the **Un-Commissioning Wizard using the Gateway**, the **Gateway Pre-Commissioning Wizard** using option **(B)** or with the **Un-Commissioning Tool** (see relevant sections in this manual). If using the *Un-Commissioning Tool* or the *Un-Commissioning Wizard using the Gateway*, the old network configuration will need to be active in AgileIQ™. If using option *B* of the *Gateway Pre-Commissioning Wizard* the new network configuration should be selected.

7) When the old network has been un-commissioned, physically add or remove the devices relevant to the changes, remembering to set any new address prior to powering a device on.

8) In AgileIQ™ select the new network configuration application if not already active. Continue with the preferred method of commissioning the network (see *System Commissioning* in this manual).

Remember: if using the un-commissioning tool on a commissioned working system, the gateway and the back-up node must be turned off/un-commissioned first. The *Gateway Pre-Commissioning Wizard* (option *B*) method helps the user to do this.

REFERENCE INFORMATION

List of Guiding Tools and *Wizards* Available in AgileIQ™

The following step-by-step Wizards and tool aids can be found in the AgileIQ™ application software:

Mesh Generator Tool

In *Configuration Management – Design* tab. Enables the optimization and automatic creation of a mesh network.

Un-Commissioning Tool

In *Device Direct Command* tab. Helps to identify and un-commission a number of powered devices.

Clone RF Device Tool

In *Device Direct Command* tab. Gives instructions to replace a device in a working mesh with a new one.

Retrieve Project From Gateway Wizard

In *Device Direct Command* tab. Assists with the retrieval of a project file that has been stored in a gateway.

Retrieve Log From Gateway Wizard

In *Device Direct Command* tab. Helps retrieve the network activity log that has been created in a working gateway.

Link Q Survey Tool

In *Device Direct Command* tab. Activates the link quality measurement function. This command button is also available in the *Link Quality Record* box.

Link Q Survey Wizard

In *Device Direct Command* tab. Gives sequential instructions to create a Ping-Pong pair to carry out a link quality survey. This command button is also available in the *Link Quality Record* box.

Gateway Pre-commissioning Wizard

In the *Configuration Management/Commissioning* tab. Provides instructions to prepare to commission a network of RF devices and completes the commissioning process.

Add Links to Node Wizard

In the *Configuration Management/Design* tab. Adds a device into an existing network with just two extra links.

Un-Commissioning Wizard using the Gateway

Part of the *Gateway Pre-commissioning Wizard* (Option *C*). Helps the user uncommission all the devices in a running RF network remotely.

Diagnostic Tool

In the *Configuration Management/Diagnostic* tab. A tool to download current performance information about a running network. There is also an option to download an historical event log.

Continuous Diagnostic Tool

In the *Configuration Management/Diagnostic* tab. A test facility to display the complete network status continuously on the screen.

DEVICE STATUS ICONS

Device symbols and status definitions shown in the *Configuration Management* pane:

Device Configured

Device Type in Configuration

Correct	Incorrect	Unknown

Device Status

Normal	Fault	Warning	Alarm Event	Magnet Test

Device Reed Switch Status

Unknown	Normal	Activated

Battery Status

OK	Low Warning	Unknown

Tamper Status (Device in Base)

OK	Tamper	Unknown

IDENTITY OF (MAIN) BUTTONS AVAILABLE IN AgileIQ™

AgileIQ™ Main Button Functions

General Buttons

Icon	Function
	AgileIQ™ Desktop Icon
	New...
	Open...
	Help
	Information
	Quick Start Guide
	Dongle (USB Interface) Manager
	Save As ...
	Save

Icon	Function
	Edit
	Clear...
	Delete All...
	Delete Selection
	Next
	Start
	Stop
	Undo Last Action
	Skip
	Open Configuration Report
	Start Gateway Pre-Commissioning
	Start Gateway Pre-Commissioning Wizard
	Open Survey Wizard
	Start Add Links to Node Wizard
	Start Continuous Diagnostic

Design Buttons

Icon	Function
	Gateway
	Photo-Optical Sensor
	Photo-Thermal Sensor
	Thermal Sensor - Fixed Temperature
	Thermal Sensor - Rate-of-Rise
	Repeater
	Manual Call Point
	DKM Call Point

◎	Sounder
▣	I/O Module. Supervised Output
▣	I/O Module. Unsupervised Output
▣	Remote indicator
▶	Move
◈	Delete
▦	Add Wall
┼┼┼┼	Add Scale Reference
▤	Add Floor
⊕	Links Focus
⛓	Add Primary Link
⛓	Add Secondary Link

Other Icons

?	Unknown
●	Error Rate Unacceptable
○	Error Rate Marginal
●	Error Rate Low
✖	Quality Unsuitable
⚠	Quality Marginal
✔	Quality Acceptable
🔒	Configuration Locked
🏷	Configuration Associated with Gateway

GLOSSARY OF TERMS

Basic Network Parameters	Minimum data necessary to define a mesh network topology; i.e. a set of network parameters with no link redundancy
Chain Network	A number of nodes connected in a series of concatenated RF links communicating with a gateway
Channel	Narrow frequency range used for network communication
Commissioned	State of a device when loaded with mesh parameters
Configured	State of a device which has been loaded with mesh parameters and integrated into a working RF network
Dongle	USB interface allowing PC communications with System Sensor RF devices
Full Network Parameters	All the data necessary to completely define the mesh network topology (including any link redundancy)
Link	An RF connection between two nodes
Link Redundancy	RF connection between 2 nodes which has (at least) one alternative RF path
Mesh Network	A number of nodes with combined RF links and some link redundancy communicating with a gateway.
Network	A collection of linked nodes communicating together
Network Commissioning	Process whereby the gateway uses the network parameters and communicates with each of the nodes to enrol all the devices and create the network map
Network Configuring	Process whereby a mesh network is created (or modified).
Network Hierarchy	Organisation or order of the nodes running out from the gateway
Network Map	Data set that describes the network topology together with link performance information.
Network Synchronisation (Sync)	Process whereby the gateway orchestrates the network communication timings
Network Topology	Specific layout of nodes and links
Node	A RF device at the end of a link
Ping-Pong Pair	Two un-commissioned devices, set at addresses 1 and 2 respectively and used for link quality measurements
Primary Link	RF connection between 2 nodes which is the main communications path
Restart	Software command, equivalent to powering on a device
RF	Radio frequency
RSSI	Received signal strength indication
Secondary Link	RF connection between 2 nodes which provides an alternative communications path
Star Network	A number of nodes with all RF links direct to a gateway
Sync Word	Unique system number generated by the AgileIQ™ application software when a configuration is assigned to a gateway
Un-Commissioned	State of a device without RF network parameters (factory default)

APPENDIX A

AGILEIQ QUICK START GUIDE FOR THE 200 SERIES RADIO SYSTEM

INTRODUCTION

A radio network comprises one gateway (GW) and a maximum of 32 radio devices. The GW is the interface with the wired fire system and is the master for the radio communication. All the RF devices have rotary address switches and are seen by the control panel as if they were wired. Like wired devices, modules and detectors can have the same address number because they are seen as different at the control panel. It is important to set the correct loop addresses on each device because these are used during the radio network configuration phase.

Multiple networks can coexist in the same area, depending on the availability of RF channels.

To build a working system, it is necessary to configure the devices and the GW into a mesh network. Each device has to be programmed with its own network parameters, defining how it will communicate with the other network devices. This configuration data are automatically generated by the AgileIQ software. The user creates a model of the installation site with the software, starting from a plan of the area and adding information about RF device type and position, dimensions, wall thicknesses etc. The better the model, the better the simulation, increasing the likelihood that the network will work reliably in the real environment.

Before uploading the configuration into the RF devices, a site survey is recommended to verify that the simulated results correspond to reality. After the configuration is downloaded into the GW from AgileIQ, the GW forms the mesh network and the system starts to work. It is possible to check the real time status of the working network at any time, by running diagnostic procedures.

Planning
- Create project
- Model Area
- Automatically generate a valid network

Survey
- RF Energy Scan
- Link quality
- Lock configuration

Commissioning
- Install devices
- Upload device configurations
- Network commissioning

Maintenance
- Diagnostic
- Automatically generate report
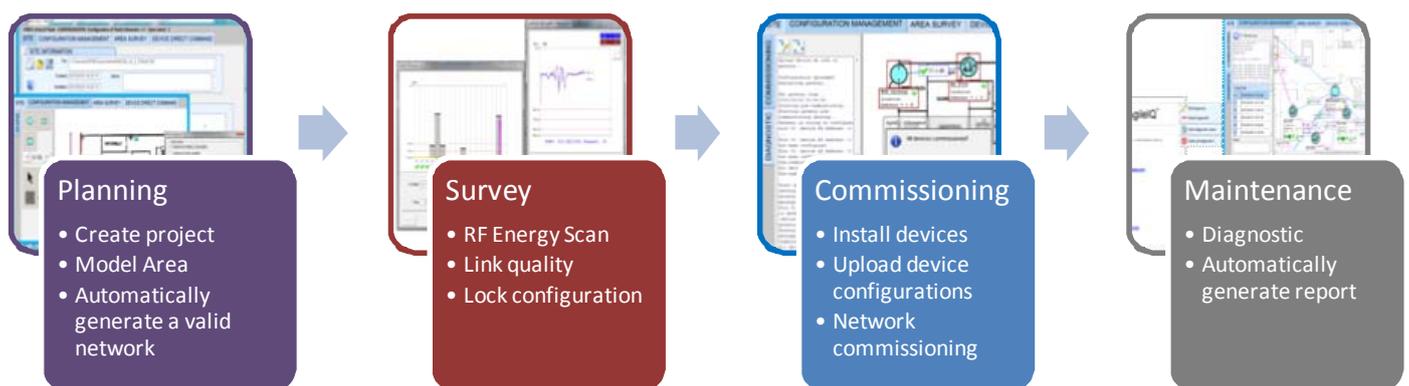
Planning

To build an RF network model, open the SITE tab.

Start a new project, using ⬚ in the SITE INFORMATION box space and give the project a name; to open a saved project use ⬚.
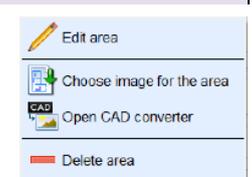
In the SITE AREAS box, use ⬚ to create an area. Adding a plan drawing to the area is possible; double-click on the area name to reveal the command menu and choose an image for the area.

When an area has been created, a new tab AREA SURVEY appears. This allows RF Energy and Links Quality measurements to be carried out.

On a site, there can be more than one area where an RF GW will be installed. For each gateway it is necessary to define a new area and an area configuration.

To start a new GW configuration, use ⬚ in the Area Configuration box. When a configuration is defined, a new tab CONFIGURATION MANAGEMENT appears. This provides the functions needed to generate an area model and the mesh network design. For each area (GW) it is possible to try out several different area configurations.
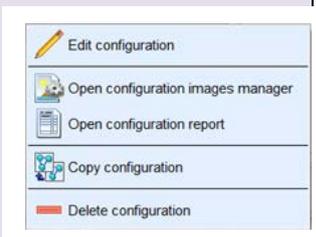
To show additional commands in the area or configuration boxes, double –click on a specific name field.

Start modelling the RF environment in the CONFIGURATION MANAGEMENT tab.
(Note: the software uses a click-point-click method to move and position items, not drag and drop.)
By default, the area GW appears at the top left of the planning map. Move the GW to its required position on the plan. To move, highlight ⬚, select the GW symbol and then click again at the point where it is to be relocated.

Place all the RF devices, selecting the type from the device menu and then clicking the desired position on the planning area. They can be moved as previously described for the gateway. Any object in the planning area can be deleted using ⬚ and clicking on the object.

Define a scale dimension on the plan: use the ruler ⬚, click on the start point and then click the dimension end point; add a value in metres to the measurement box.

Include walls, if required, by using ⬚ and proceeding like adding a ruler. Double click on the wall to open the Wall Edit Screen.
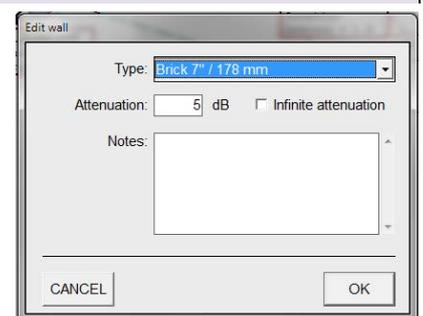
When the layout is complete, reveal more configuration tools by double-clicking on a clear part of the planning area, then open the Mesh Generator Tool. The program
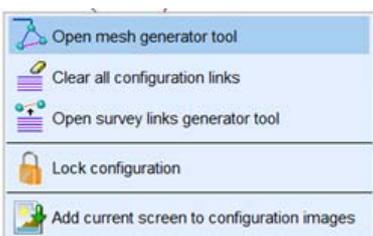
algorithm can be set to optimize the mesh calculation for either best power consumption or strongest links communications (recommended). Click Generate Mesh to auto-create the mesh network.
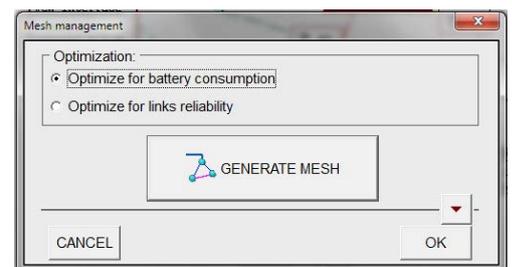
When the network links have been generated, the Survey links generator tool provides options to export link information to a data table in the AREA SURVEY/ LINKS QUALITY tab. This table is where survey data on links quality will be saved.

Survey

Before locking the network and configuring devices, a survey in the real environment is recommended. Tools to conduct a survey are available in the SURVEY tab. There are two possible measurements.

RF ENERGY SCAN

An RF energy scan will identify if any RF channels should be avoided. This measurement is done in the area where the radio system will be operating. To run a scan use and reference the scan location; start the scan with . Set the scan period for each channel from the drop-down menu "seconds/ch". When complete, all the channels are rated as acceptable, marginal or unsuitable. Click to record the results in the Area Survey-RF Energy table.
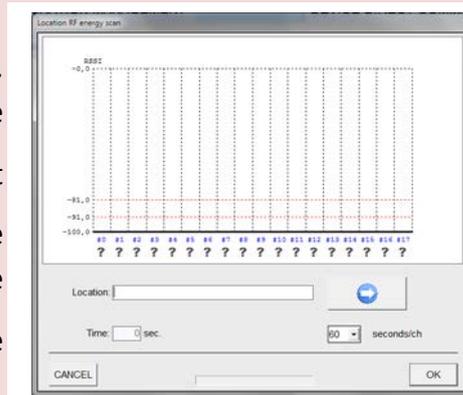
LINKS QUALITY

A pair of un-commissioned devices (set to addresses 1 and 2) is used to perform a link quality measurement. A wizard button is available in the Link Quality Record Box to help to create the link measurement pair.

The Link Quality Record Box can be opened in 3 different ways:

From the AREA SURVEY – LINKS QUALITY tab:

Double-click on an existing link in the LINKS QUALITY table then click Edit; or click on new .

From the CONFIGURATION MANAGEMENT – DESIGN tab:

Double-click on a link in the planning area.

To conduct a link survey:

Position the devices on the site at each end of the link to be measured.

Use the Dongle close to the address #1 device.

In the Link Quality Record Box select and then click in the Graphs window. The signal strength reading is updated and displayed as a graph against time, together with the error rate and the link quality.

When the measurement is stable, Stop the recording.

To accept the measurement, use .

DO NOT USE a link in a configuration that Agile IQ categorises as Unsuitable quality .

The Energy Scan results can be used to select suitable communications channels for the network.

Before using the network configuration, it must be locked; after this step the file cannot be changed. (Use 'Copy configuration' in SITE tab to create a new, unlocked version.)

Now the DESIGN facility in the Configuration Management tab is removed and replaced by two new options: Commissioning and Diagnostic

A3
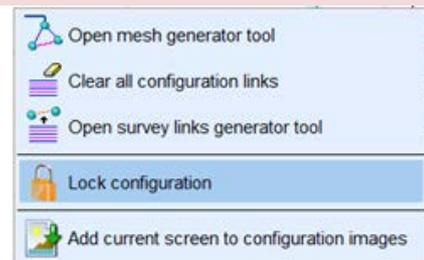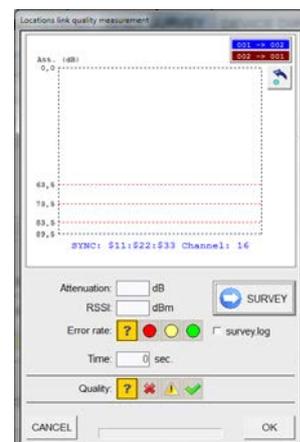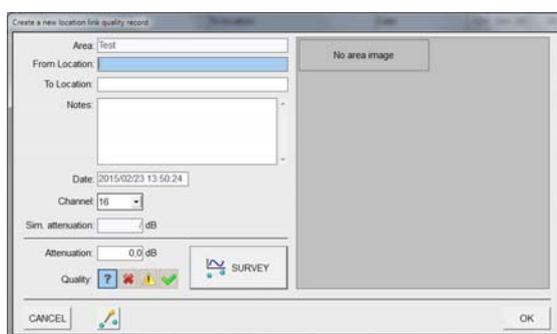
Commissioning

The network data must be uploaded to all the devices using the RF Dongle. The simplest way to do this is to run the complete commissioning process through the gateway. This procedure is called gateway based pre commission and is particularly helpful when the devices are ready and installed in their final position on the site. Only the gateway needs to be in the range of the USB dongle.

To run gateway based pre commissioning, either use the wizard (recommended for first time use), or , the direct command.

Maintenance

While a network is running, it is possible to download data about the RF links and the devices from the GW. Ensure the correct area configuration file is selected in the SITE tab and the dongle is in range of the gateway. Use start to download the network information. It is possible to download a events history log by ticking the box near the start arrow. Download progress is reported in the left-hand panel and the complete log files, annotated with date and time, will be listed in a table below this panel. Double-click a record to show the options menu. From an open report it is possible to print the record or create a PDF.

Depending on the parameters stored and to the network condition, the gateway can be in one of the following states:

- *Uncommissioned:* network parameters not downloaded; waiting to be programmed.
- *Pre-commissioned:* network parameters downloaded; network not yet commissioned, waiting to receive the command to start network commissioning.
- *Commissioning:* after receiving the start commissioning command or after power up (if the gateway detects that it has already formed a network), the gateway starts commissioning the network (download network parameters to each device and synchronization).
- *Normal:* normal communication within the established network
- *Internal Fault:* wireless/internal circuit initialization troubles.
- *Network Fault:* missing node
- *Synch:* network parameters downloaded, trying to re synchronize with the network when in Idle status.
- *Recovery:* network in normal mode but missing one or more links, trying to re configure the network.

To each status a different LED blinking mode corresponds:
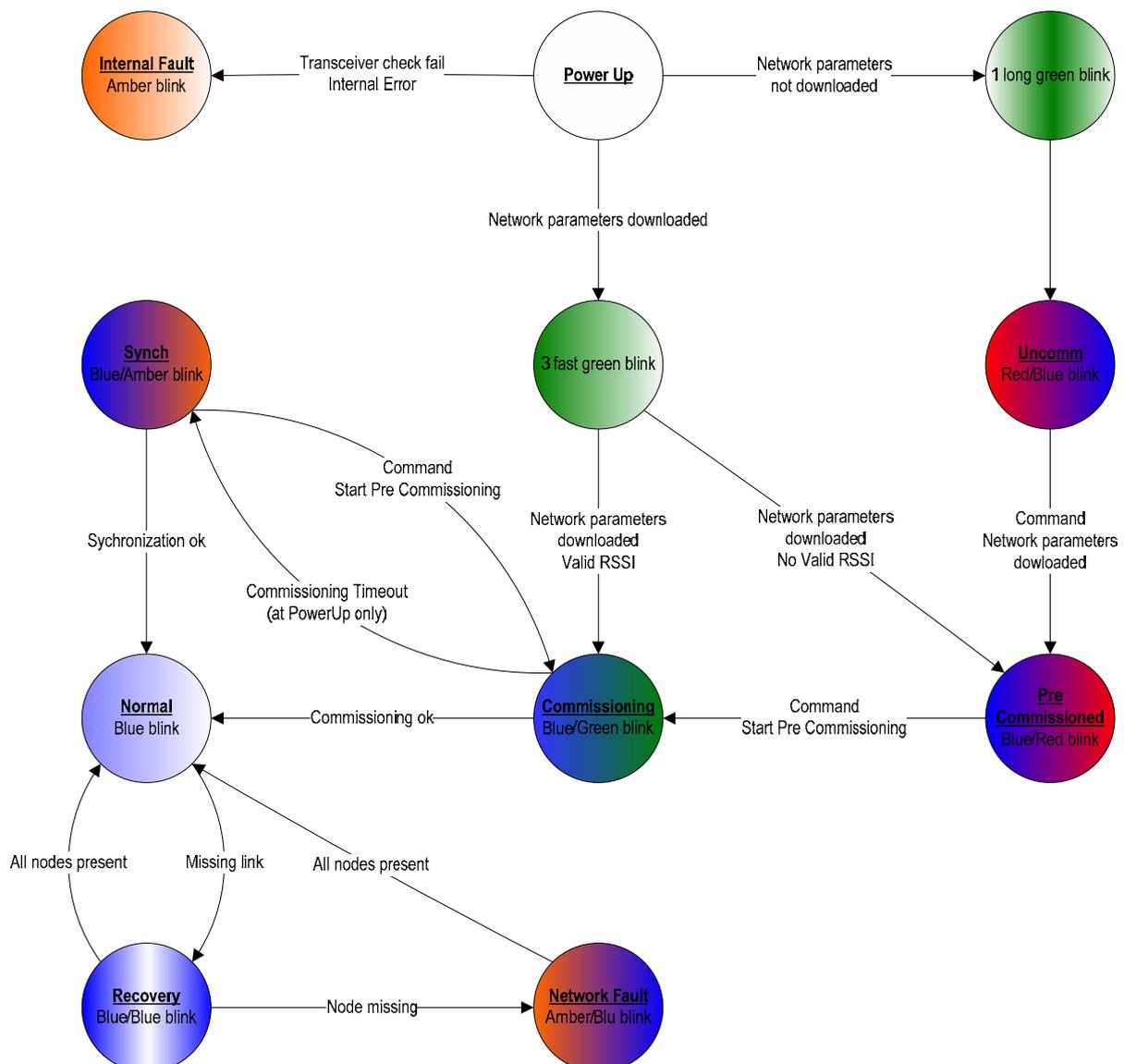
Appendix A-(ii): Radio Node LED blinking scheme

Depending on the parameters stored and to the network condition, the RF device can be in one of the following states:

- *Uncommissioned:* network parameters not downloaded; waiting to be programmed.
- *Sync:* network parameters downloaded, trying to synchronize with the network and join it.
- *Idle:* this status is entered when the gateway is disconnected from the loop for maintenance or for troubles. The RF device will stay in sync with the neighbours.
- *Normal:* normal communication within the established network
- *Internal Fault:* wireless/internal circuit initialization troubles.

To each status, a different LED blinking mode corresponds:
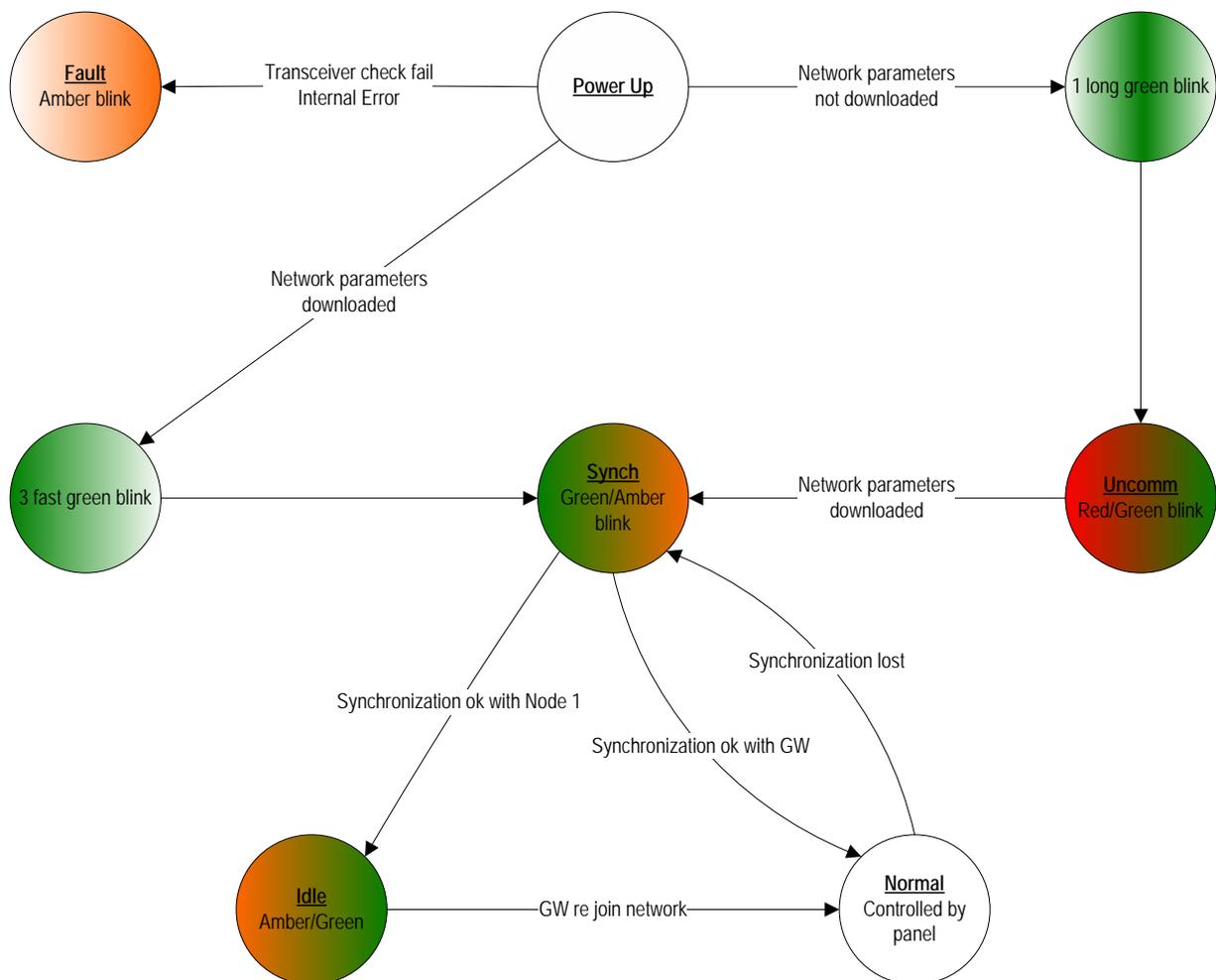
APPENDIX B   <u>TROUBLESHOOTING</u>

Error messages explained together with suggested solutions to try.

MESSAGE	MEANING AND POSSIBLE ACTION
...Missing link information:	The data recevied from the gateway are invalid or the configuration is not the one used to commission the system. Wrong configuration file or Dongle may be too far from , or too close to the gateway. Check and retry the operation.
...Missing slot information:	The data recevied from the gateway are invalid or the configuration is not the one used to commission the system. Wrong configuration file or Dongle may be too far from , or too close to the gateway. Check and retry the operation.
A device is outside all floors: device	One or more devices have been positioned outside the floor boundaries
A wall is outside all floors: wall	One or more walls have been positioned outside the floor boundaries
All channels are disabled.	Select 1 or more channels for an RF energy scan
CADImage.dll not loaded!	The installed AGILE IQ software is not complete. Re-install the software application from the beginning.
Calculation stopped by user!	The operation to generate a mesh has been aborted
Cannot have two links between the same two nodes!	Only one link allowed between 2 nodes.
Channel and backup channel should be different.	Choosing different main and back-up channels will give a more reliable system
COM Error	USB communications error. Try 'restart dongle' from Dongle Manager
Data not written correctly.	The data was not written correctly into a device. Check that the Dongle is not too close or too far from the device and retry operation
Database error!	Project file is not accessible or corrupted. There may be a file system problem, perhaps a protection issue. Try to copy the project file to the desktop, re-open the project from there and retry.
Devices are not descendants of the gateway:	Mesh hierachy rules require all devices to be linked back to the gateway.
Devices have different OEM code or are not the same type.	Not possible to clone a device with a different device type, or a different branded product. Use correct device.
Diagnostic stopped by user.	Operation stopped
Do you want to choose them anyway?	Answer Yes/No
Dongle disconnected...	Dongle has been removed from the USB socket
Dongle is not connected	Plug dongle into USB socket or use 'restart dongle' from Dongle Manager. (After clicking "restart dongle" the software may ask unplug/plug-in dongle)
Dongle is not found! Please attach the dongle to any USB port and click OK.	AGILE IQ will not run on a PC without a Dongle connected to its USB port
Duplicated device address:	Two similar device types (modules or sensors) have the same loop address
Error compressing project file into gateway EEPROM!	Copy of project file not saved into the gateway. Retry the operation.
Error decoding information. Retry operation or proceed with manual un-commissioning.	Dongle is not able to uncomission the gateway or backup node. Retry with dongle closer (but not >1 m), or use manual uncommissioning (recovery method).
Error during operation. Please see log for details.	Not possible to complete the operation; refer to the log. Retry the operation.
Error reading dongle data!	Unable to read data from the Dongle during a firmware upgrade. Retry operation
Error retrieving log from gateway:	Operation failed. Retry operation with dongle nearer gateway (but >1m).
Error retrieving project from gateway:	Operation failed. Retry operation with dongle nearer gateway (but >1m).
Error saving log file!	Operation failed
Error saving project file!	Operation failed
Error saving project file.	Unable to complete the save operation, or the disc is full.
Error setting gateway time!	Unable to set the date/time into the gateway at commissioning. Retry operation with dongle nearer gateway (but >1m).
Error writing dongle data!	Unable to write data to the dongle during a firmware upgrade. Retry operation
ERROR! Slot not present in configuration:	The data recevied from the gateway are invalid or the configuration is not the one used to commissioning the system. Check configuration and retry operation.
ERROR! The project configuration doesn't match with the gateway configuration!	The configuration is not the one used to originally commission the system.
Failed to erase reset vector	Dongle upgrade problem - retry operation.
Failed to read data from RAM BSL	Dongle upgrade problem - retry operation.
Failed to unlock info memory!	Dongle upgrade problem - retry operation.
File BLANK._DIS not found!	Installation of Agile IQ is incomplete. Repeat the software installation from the beginning.
File not found!	During Dongle upgrade, the new firmware file was not available. Repeat the AGILE IQ software installation from the beginning, selecting an installation folder on the desktop.
Floors cannot have common areas in the map!	The floor boundaries cannot overlap in a 2D plan.
Floors cannot have common areas!	The floor boundaries cannot overlap in a 2D plan.
Gateway cannot be a child in a link!	Mesh hierachy rules do not allow this attempted link
Gateway cannot be a parent of a secondary link!	All gateway links must be primary links
Gateway cannot be deleted!	There must be a gateway in a configuration

MESSAGE	MEANING AND POSSIBLE ACTION
Gateway has problems configuring a device	Not possible to complete the gateway pre-commissioning operation. Possible reasons are: a device is off or was powered on with the wrong address; it has a weak signal (long link or attenuation issue) or it is a different brand of the product. Check and retry.
Help file not available!	Installation of AGILE IQ is incomplete. Repeat the software installation from the beginning.
Help is not available!	Installation of AGILE IQ is incomplete. Repeat the software installation from the beginning.
INI file error: file not found or bad parameters	Installation of AGILE IQ is incomplete. Repeat the software installation from the beginning.
INI file not found!	Installation of AGILE IQ is incomplete. Repeat the software installation from the beginning.
Invalid area name!	Specify a valid area name using alpha-numeric characters
Invalid attenuation!	Select attenuation in the correct range (0 - 99).
Invalid configuration layout:	The mesh is not valid and will not be locked. Mesh hierachy rules have been violated in a manual design.
Invalid data checksum.	Error reading logs from gateway. Retry operation with dongle nearer gateway
Invalid data.	Data retrieved from device are not valid; possible communications problem. Retry operation with dongle nearer gateway (but >1m).
Invalid floor number!	Must be in the range 0 - 9, and contiguous atarting at 0.
Invalid height!	Must be in the range 0.1m - 99m
Invalid image	Image must be a JPG
Invalid image dimensions!	JPG image can have a maximum size of 4096 x 4096 pixels.
Invalid link: the selected child already has a parent that is descendant of the selected parent.	Mesh hierachy rules do not allow this attempted link connection.
Invalid location name!	Specify a valid location name using alpha-numeric characters
Invalid mesh!	Mesh design rules do not allow this attempted configuration.
Invalid mesh: backup node is not present!	Mesh design rules do not allow a configuration without a back-up node.
Invalid name!	Specify a valid configuration name using alpha-numeric characters
Invalid sync word and channel!	Sync word and channel should be the ones used in the device configuration
Invalid Sync word!	Specify a valid sync word
Invalid value!	Insert a value in the correct range.
It is possible that some parts of the report are not	The report has become fragmented. Try reducing the number of images.
Link already exists!	Mesh hierachy rules do not allow this attempted link. Only one primary link and one secondary link allowed to a node's "parents".
Log information not available.	Gateway has no log information inside; the commissioned radio system has not been running for long enough.
Maximum number of images reached!	Up to 64 images are allowed to be stored.
Missing floor information: floor	Specify all the parameters of this floor.
Missing nodes!	At least one node (plus the gateway) should be present to perform this operation.
Missing primary parent!	Mesh hierachy rules require all nodes to have 2 'parents' (the exception is the special back-up node)
must be a secondary link.	Mesh hierachy rules do not allow this attempted link connection.
Network information not available.	Retry with dongle closer (but not >1 m)
No attenuation or quality data available!	If the survey was not completed properly it is not possible to stote the result. Retry the survey.
No project is stored in gateway EEPROM.	Trying to retrieve a stored project from a gateway which does not have one.
Nodes without primary and secondary parent:	Mesh design rules do not allow this attempted configuration. All nodes require 2 'parents' (the exception is the special back-up node)
Not possible to copy *(file etc)*	AGILE IQ installation has an issue with administration rights. Repeat the software installation from the beginning, selecting an installation folder on the desktop.
Not possible to create a mesh. Some devices are not reachable.	One or more links are too long or have too much attenuation for a reliable mesh design. Try to shorten the link (or add a repeater), or reduce the attenuation.
Not possible to create a primary path. A device is not reachable.	One or more primary links are too long or have too much attenuation for a reliable mesh design. Try to shorten the link (or add a repeater), or reduce the
Not possible to create a secondary path. Secondary parent not found for one or more devices.	One or more secondary links are too long or have too much attenuation for a reliable mesh design. Try to shorten the link (or add a repeater), or reduce the attenuation.
Not possible to find *(file etc)*	Installation of AGILE IQ is incomplete. Repeat the software installation from the beginning.
Not possible to have a parent as the descendant of a child!	Mesh hierachy rules do not allow this attempted link connection.
Not possible to have another child for the node!	A parent node can have up to 4 links to chidren.

MESSAGE	MEANING AND POSSIBLE ACTION
Not possible to make device un-commissioned!	Dongle cannot communicate with the device. Possible causes: device is OFF, device is configured with a different sync/channel than specified, or Dongle may be too far away. Check and retry operation.
Not possible to restart device:	Dongle is unable to restart a device. Retry operation with dongle nearer the device to be re-started (but >1m).
Not possible to retrieve device state!	When using the Uncommissioning tool, the Dongle cannot communicate with a device. Possible causes: device is OFF, device is configured with a different sync/channel than specified, or Dongle may be too far away. Check and retry operation.
Not possible to save sync word to the project file.	Unable to update project file on the PC. There is a problem of file system, perhaps a protection issue. Try to copy the project file to the desktop, re-open the project from there and retry.
OEM check failed!	The Dongle does not match with the gateway brand. Use correct brand of Dongle or contact supplier.
Operation failed or terminated by user!	Operation stopped or failed
Operation failed! Please see log on the left for details.	Not possible to complete the operation; refer to the log
Operation failed! Please see log on the left for more details.	Not possible to complete the operation
Operation failed:	Last operation was unsuccessful for the reason stated in the comment:
Operation failed: not possible to calculate a mesh.	Unexpected error during mesh generation. Try to repeat the last operation.
Operation interrupted by user	Operation stopped
Operation interrupted by user! Please see log on the left for details.	Operation stopped
Operation interrupted by user! Please see log on the left for more details.	Operation stopped
Operation interrupted by user.	Operation stopped
Password FAILED after sending RAM BSL!	Dongle upgrade problem - retry operation.
Please check the device!	Ensure that the device is powered on with the correct address
Please set the metric reference!	A scale dimension (in metres) is required
Pre-commissioning failed. Please see log on the left for details.	Not possible to complete the operation; refer to the log.
Process stopped by user!	Operation stopped
Project has a version higher than AgileIQ version.	Trying to use an old version of Agile IQ to open a newer project file.
REMOVE BATTERIES FROM DEVICES TO STOP SURVEYING!	Dongle is unable to stop the survey process. Retry operation with dongle nearer device address #1 (but >1m), or batteries should be removed from the devices to stop the survey process.
Start the program with administrator rights.	Set Windows permissions to Administrator before installing the AGILE IQ software.
Switch the two links.	Wizard offers help to maintain mesh rules.
Sync word and channel must be different from the default ones!	Do not use CH0 and/or 11-22-33. Sync word and channel should be the ones used in the device configuration
Sync word not assigned to configuration!	The configuration has not been associated with a gateway at the start of the upload process.
The configuration is already locked!	Cannot lock a previously locked configuration.
The gateway serial number does not match with the configuration sync word!	The configuration file has already been associated with another gateway.
The link between devices:	
The maximum number of floors is	Maximum number of floors is 10 (numbered 0 - 9).
The maximum number of nodes is 32!	Trying to add too many devices into a configuration.
The maximum number of walls is	Maximum number of walls is 256.
The network is in IDLE state. Proceed with manual un-commissioning.	Dongle is not able to uncomission the gateway or backup node. Use use manual uncommissioning (recovery method).
The network is in pre-commissioning state. Proceed with manual un-commissioning.	Dongle is not able to uncomission the gateway or backup node. Use use manual uncommissioning (recovery method).
The network is in scanning state. Proceed with manual un-commissioning.	Dongle is not able to uncomission the gateway or backup node. Use use manual uncommissioning (recovery method).
The network is not running. Retry operation or proceed with manual un-commissioning.	Dongle is not able to uncomission the gateway. Retry with dongle closer (but not >1 m), or use manual uncommissioning (recovery method).
The report requires more memory than is available.	Report store has reached its limit; try reducing the number of images.
The screenshot is too big for the report. Please reduce the zoom and retry.	Reduce the size of the screen image (zoom out).
The selected backup channel is already used in another area.	Using the same RF channel on two gateways in the same project may cause communication errors and make the system unreliable.

MESSAGE	MEANING AND POSSIBLE ACTION
The selected channel is already used in another area.	Using the same RF channel on two gateways in the same project may cause communication errors and make the system unreliable.
The sync word is not assigned yet.	The configuration has not been associated with a gateway at start of upload. To associate it, upload a configuration to the gateway.
There are no links to export!	Either no mesh has been created or there are no critical links to copy from the mesh design.
This version is not supported. Please upgrade the firmware of the dongle.	Dongle firmware too old. Open Dongle Manager and run dongle firmware upgrade.
This version of software is expired.	The software is time limited. Obtain a new version.
Timeout COM	The Dongle is not working. Try 'restart dongle' from Dongle Manager
Unable to start commissioning sensing.	Not possible to start commissioning the system. Retry operation with dongle nearer gateway (but >1m).
Un-commissioning of backup node failed:	Dongle is not able to uncomission the backup node. Retry with dongle closer (but not >1 m) or use manual uncommissioning (recovery method).
Un-commissioning of gateway failed:	Dongle is not able to uncomission the gateway. Retry with dongle closer (but not >1 m) or use manual uncommissioning (recovery method).
Unknown error	Unexpected error. Try to repeat last operation.
Unknown error: operation failed!	Unexpected error. Try to repeat last operation.
Unsuccessful in starting the BSL.	Dongle upgrade problem - retry operation.
WARNING! Error decoding information. Retry diagnostic.	The data recevied from the gateway are invalid. May be too far from , or too close to the gateway. Check and retry the operation.
Warning! Gateway is looking for wrong address!	The gateway is trying to communicate with an invalid address. Try reconfiguring the system; or the gateway may be faulty.
Warning! Gateway is looking for wrong slot!	Gateway is trying to communicate with an invalid address. Try reconfiguring the system; or the gateway may be faulty.
WARNING! Missing information, retry diagnostic!	The data recevied from the gateway are invalid or the configuration is not the one used to commission the system. Wrong configuration file or Dongle may be too far from , or too close to the gateway. Check and retry the operation.
WARNING: Memory verification error!	This message can be ignored.
WARNING: missing OEM dongle code!	Dongle is obsolete; it should be replaced by a newer one.
WARNING: Power OFF and ON devices to exit survey!	Dongle is unable to stop the survey process. Retry operation with dongle nearer device address #1 (but >1m), or batteries should be removed from the devices to stop the survey process.
WARNING: pre-commissioning sensing incomplete!	The Dongle cannot sense all the pre-commissioning messages being sent to the network by the gateway. Retry operation with dongle nearer gateway (but >1m).
WARNING: THIS LINK IS NOT PRESENT IN THE CURRENT DESIGN!	May occur during diagnostic for example. The installed set-up does not match the selected configuration. Check the configuration file and retry.
Without walls the links attenuation simulation will be not realistic.	A warning: always include realistic obstructions unless the configuration is 'open plan' or in free-air
Wrong data received	Data from the device are invalid. Retry operation
Wrong dongle OEM code!	The Dongle is the wrong brand for this version of AGILE IQ. Retry the connection with the correct dongle or contact the supplier.

APPENDIX C

HELP PAGES AVAILABLE IN AgileIQ™

2 CLICKS   **1 CLICK**
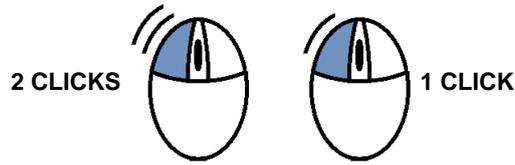
1 Site Tab – General Information

SITE and main window commands

Create new project: choose project file name. Blank site area tab, blank area configuration tab and a pop up asking for the map image appear

Open existing project

"Save As" command

Quick Start Guide

"About" window

USB dongle manager

Edit Notes

"In progress" bar

"Save" command

2 Site Tab – Areas Information

Create new area

Indicates that there is a plan associated with the area

Edit notes

Edit selected area

Name: Area Test with Map

Notes:

Surveyors:

CANCEL   OK

AREA commands

SITE AREAS

N.	jpg	Name
1		Area Test
2		Area Test with Map

Notes:
Notes of Area

Surveyors:
Surveyor of Area

Select

Show commands

Load CAD file

Save file as JPG

CAD

Scale: 100%   Show layers
Layouts: Model

Associate a JPG image (the plan) with the area

Edit area

Choose image for the area

CAD Open CAD converter

Delete area

Delete the selected area

3 Site Tab – Configurations Information

Create new configuration

Indicates that the configuration is locked

Indicates that a gateway has been associated with the configuration

Indicates that there are one or more pictures associated with the configuration and stored in the configuration report

CONFIGURATION commands

AREA CONFIGURATIONS

N.	loc	syn	jpg	Date	Name
4				2015/02/27 10:03:49	Locked and Commissioned Config
3				2015/03/03 11:30:13	Configuration Test with Image
2				2015/02/26 11:07:37	Locked Configuration Test
1				2015/03/02 14:41:5	Configuration Test

Notes:

Edit configuration

Show commands for selected configuration

Select configuration

Add, delete, manage pictures loaded in the configuration report

Edit selected configuration

Name: Configuration Test with Image   Frequencies (MHz)

Notes:

Edit configuration

Open configuration images manager

Open configuration report

Copy configuration

Delete configuration

Configuration images

Date: 2015/02/26 17:00:15

Notes:

CLOSE

Sync word:

Typical RF Channel Configuration

Channel: 16   16-9   14-7   12-5   16-9   8-17   6-15   2-11   4-13
Backup Channel: 9

CANCEL   OK

Open the report (automatically generated) that contains all the info about area and configuration (survey results included)

Delete selected configuration

Create an unlocked copy of a configuration. Useful to modify an existing network

Select channels, if configuration not locked, based on the results of RF Energy Scan

4 Area Survey Tab – Energy Scan

Select/Skip channel to be scanned

Acceptable channel

Marginal channel

Unsuitable channel

Energy scan commands

Generate new scan

Select scan record and edit

Set location on map where the scan has been done

Delete location

Start scan

Maximum (black line)

Average (yellow line)

Current (magenta line)

Abc

Set scan record name

Set single channel scan time

Store scan result

Stop scan

Elapsed time

Frequencies (MHz)
0 - 865,125
1 - 865,375
2 - 865,625
3 - 865,875
4 - 866,125
5 - 866,375
6 - 866,625
7 - 866,875

5 Area Survey tab – Link Q Scan

Link quality commands

Simulated attenuation

Measured attenuation

Measured link quality

Graph of attenuation over time

Create new link quality record

Select link quality record and edit

Select location and map into picture

Magnify box

Levels of acceptance (good, marginal, poor)

Current attenuation and signal strength

Current error rate

Elapsed time

Current link quality

Abc

Name locations

Set survey channel

Simulated attenuation

Measured attenuation

Delete locations configuration

Start survey

Stop survey

Enable survey log file

Open survey tool

Open wizard to prepare detectors for survey

Measured link quality

Save survey

Save and exit

C3

6 Configuration Management Tab – Design (x6)

Device menu

Configuration info

Planning area

Edit device info

Change device address

Abc

Edit notes

Location:

Information:

Device Address: 4

Info position BOTTOM

Orientation

CANCEL   OK

Number of placed devices

Show more devices

6 / 33

Selection tool

Delete tool

Wall tool

Ruler tool

ESC

"ESC" to un-select tool

Show advanced options

Planning area overview

AREA: Area Test   CONFIGURATION: Configuration Test (Channels: 16;9 - Sync ord: /)

SITE   CONFIGURATION MANAGEMENT   AREA SURVEY   DEVICE DIRECT COMMAND

DESIGN

RIPOSTIGLIO

PRESIDENZA CORTI

SEGRETERIA

UFFICIO INGLESI

10 m

#2 (5 dB)

UFFICIO PARIBELLI

MARKETING

UFFICIO GULLINI

SALETTA SEGRETERIA

#5 (5 dB)(5 dB)

#3 (5 dB)

Resize area

Show planning area commands

Edit wall info

Change device orientation

Change position of displayed info

Select wall type

Edit wall

Type: Brick 7" / 178 mm

Attenuation   5 dB   Infinite attenuation

Notes:

CANCEL   OK

Undo last action

Open mesh generator tool
Clear all configuration links
Open survey links generator tool
Lock configuration
Edit map
Add current screen to configuration images

Manually set wall attenuation

Abc

Set infinite attenuation for selected wall: useful to stop a link going through it

Abc

Edit notes

Selection tool

Activate Selection tool

Select Device to move

Select new position

6 / 33

PRESIDENZA CORTI

RIPOSTIGLIO

SEGRETERIA

UFFICIO INGLESI

10 m

#2 (5 dB)

Ruler tool

Activate ruler tool

Set first point of reference dimension

Set second point of reference dimension

Enter dimension of reference in metres

Abc

Set metri

Enter

1

CANCEL   OK

RIPOSTIGLIO

PRESIDENZA CORTI

#2 (5 d

UFFICIO PARIBELLI

GULLINI

#3 (5 dB)

C4

Wall

Activate Wall Tool

Set first edge of wall

6 / 33

PRESIDENZA CORTI

UFFICIO PARIBELLI

6 / 33

#3

Set second edge of wall

PRESIDENZA CORTI

UFFICIO PARIBELLI

Delete tool

Activate Delete Tool

Delete Object

6 / 33

PRESIDENZA CORTI

#3 (5 dB)

5 / 33

PRESIDENZA CORTI

#3 (5 dB)

UFFICIO PARIBELLI

Show map using grey scale

Increase/Decrease map brightness

Generate the network trying to maximize battery life (star like solution)

Edit map

Map brightness:

Gray scaled

CANCEL   OK

Mesh management

Optimization
Optimize for battery consumption
Optimize for links reliability

GENERATE MESH

CANCEL

Generate the network trying to maximize link strength (chain like solution)

Generate mesh

SITE | CONFIGURATION MANAGEMENT | AREA SURVEY | DEVICE DIREC

DESIGN

5 / 33

Open edit map image tool

Open network generation tool

Open mesh generator tool
Clear all configuration links
Open survey links generator tool
Lock configuration
Edit map
Add current screen to configuration images

Show advanced options

RIPOSTIGLIO

PRESIDENZA CORTI

SEGRETERIA

UFFICIO INGLES

10 m #3 (5 dB)

UFFICIO PARIBELLI

MARKETING

UFFICIO GULLINI

SALETTA SEGRETERI

Automatically generate valid network

Add the image of the current planning screen to the configuration report

Mesh management

Optimization:
Optimize for battery consumption
Optimize for links reliability

GENERATE MESH

Quick search
Maintain existing primary links
Give priority to solution without repeaters
Allow chain with critical/longer links
Wall attenuation correction: 0   dB

STORE IN REPORT

CANCEL   OK

Activate this option in complex models to save time

Use existing primary links in network generation

Try to find valid network without repeaters

Relax constraints in network generation

Increase/Decrease wall attenuation by a common factor

Automatically decrease the wall attenuation till the limit specified by the correction factor, trying to generate a valid network

Store options in the configuration report

C5

Lock configuration

Name: Configuration Test
Notes:
Frequencies (MHz)

Sync word:

Typical RF Channel configuration

Channel: 16
Backup Channel: 9

16-9 14-7 12-5 10-3 8-17 6-15 2-11 4-13

CANCEL   LOCK

Edit configuration notes

Abc

Use suggested pairs of communication channels

Lock the configuration.
The LOCK operation is mandatory prior to configuring the system.

Manually select communication channels

Display Lock configuration tool

Lock configuration and export

DESIGN
5 / 33
RIPOSTIGLIO
PRESIDENZA CORTI
SEGRETERIA
UFFICIO INGLESI
10 m   #3 (5 dB)
UFFICIO PARIBELLI
MARKETING
UFFICIO GUILLA
SALETTA SEGRETER

Open mesh generator tool
Clear all configuration links
Open survey links generator tool
Lock configuration
Edit map
Add current screen to configuration images

Open survey links generator tool

	N	From location:	To location:	Date	CH	Sim Att.	Att	Q
	1	(device #GW add.1)	(device #A add.2)	2015/03/02 14:25:09	16	53,0	0,0	?
	2	(device #GW add.1)	(device #B add.3)	2015/03/02 14:25:09	16	48,0	0,0	?
	3	(device #GW add.1)	(device #C add.4)	2015/03/02 14:25:09	16	49,0	0,0	?
	4	(device #GW add.1)	(device #D add.2)	2015/03/02 14:25:09	16	43,5	0,0	?
	5	(device #B add.3)	(device #A add.2)	2015/03/02 14:25:09	16	46,5	0,0	?
	6	(device #D add.2)	(device #B add.3)	2015/03/02 14:25:09	16	45,5	0,0	?
	7	(device #B add.3)	(device #C add.4)	2015/03/02 14:25:09	16	42,5	0,0	?

SITE CONFIGURATION MANAGEMENT AREA SURVEY DEVICE DIRECT COMMAND
RF ENERGY SCAN
LINKS QUALITY

Append desired links to links quality survey tool

Export links to survey

Export all links
Export only primary links
Export only critical links
CLOSE

Show advanced options

Export links to survey

Export all links
Export only primary links
Export only critical links

Delete all unmeasured area survey links
Overwrite unmeasured area survey links
CLOSE

Delete unmeasured links in survey file

Overwrite unmeasured links in survey file

Show only links of a selected node

Enable floors tool

Enable manual link drawing

Enable/Disable auto align function

When the distance metre option is enabled it is possible to evaluate the real distance of two points in the map. Click on desired points with no tools selected

AgileIQ - Informati...
3,95 m
OK

Advanced commands

SITE CONFIGURATION MANAGEMENT AREA SURVEY D
DESIGN
4 / 33
RIPOSTIGLIO
RDM Gateway
Location
Address = 1 M
SEGRETERIA
#A Photo
Location
Address = A
UFFICIO GUILLA
#B Photo
Location
Address = 2 B
#C Photo
Location
Address = 3 B

Enable advanced tools

Enable advanced tools

Enable/Disable distance meter tool

Hide/Show link quality survey

Hide/Show device info box

Hide/Show map

Show walls
Auto align walls / ref...
Enable distance meter
Show survey links Q
Show devices information
Show picture
Show configuration links
Show grid

Hide/Show modeled walls

Hide/Show communication links

Hide/Show planning area grid

Manually draw link

Select Parent

Select Child

Link points from Parent to Child

Enable manual link drawing

Define floor

Enable floor definition tool

Select floor first corner

Select floor opposite corner

Floor #0 h=3m (9 dB)

Edit floor information

Floor number:
Height:
Ceiling attenuation
Notes:

CANCEL   OK

Abc — Edit floor label

Abc — Edit floor height

Abc — Set ceiling attenuation

Edit floor info

Select floor cross

Move first reference point for floor alignment

Floor #1 h=3m (9 dB)

Align floors and edit floor options

Enable selection tool

Floor #0 h=3m (9 dB)

Floor #1 h=3m (9 dB)

Floor #0 h=3m (9 dB)

Move second reference point for floor alignment

Floor #1 h=3m (9 dB)

7 Configuration Management Tab – Commissioning (x2)

AgileIQ - Warning
Do you want to save a backup project into gateway?
Please note that this operation will take several minutes.

Yes | No

Option to store a copy of the configuration in the GW

SITE | CONFIGURATION MANAGEMENT | AREA SURVEY | DEVICE

Gateway pre-commissioning wizard
Step 1 of 15

This procedure will help to install devices and to launch a gateway pre-commissioning.

Please choose your method:

[A] Gateway, detectors and modules are fresh and are being installed for the first time

[B] You are working on an already configured network: one or more devices are already installed configured or were involved in a commissioning process that completed, failed or was interrupted. In the new configuration, you are reusing the same devices or replacing devices or changing addresses or adding new devices to the old network.

CLOSE

Activate wizard for step-by-step gateway based pre commissioning procedures

Start the gateway based pre commissioning. Use when the devices are UN-COMMISSIONED and already installed in their final position with correct loop address. This operation is divided in 3 phases:
- The network configuration is downloaded to GW
- The GW uploads the network information to each device
- The GW commissions the network and starts working

All devices commissioned!

OK

Open current configuration report to look at installation information

Step-by-step procedure to be followed when installing a new system

Step-by-step procedure to be followed when modifying an existing system

Gateway based pre commissioning

SITE | CONFIGURATION MANAGEMENT | AREA SURVEY | DEVICE DIRECT COMMAND

Cancel LOG window

Edit map
Add current screen to configuration images

Show planning area image commands

LOG window: all the run time operations are reported here in real time

---

AgileIQ - Warning
Do you want to save a backup project into gateway?
Please note that this operation will take several minutes.

Yes | No

Option to store a copy of the configuration into the GW

Operation successful! Please see on the left for details.

OK

Test communication between USB dongle and GW only/all devices

SITE | CONFIGURATION MANAGEMENT | AREA SURVEY | DEVICE DIRECT COMMAND

Upload network configuration to GW only/all devices

UPLOAD
TEST DONGLE - DEVICE COMMUNICATION

Options
ONLY GATEWAY
ALL DEVICES

Select Upload and Communication Test to be GW only or for all devices

SEND MANUAL COMMISSIONING COMMAND TO GATEWAY

MANUAL COMMISSIONING SENSING

Send command to GW to start network commissioning: necessary after manually uploading configuration to all devices

Communication settings
CH. 0 - DEFAULT SYNC
CUSTOM   Sync word: A4 | 2E | 68
          Channel: 15

RESTART GATEWAY
Restart node after upload
BOTTOM | Info position
Mark device as configured

Activate manual pre-commissioning commands for gateway

CANCEL

Manual pre commissioning

SITE | CONFIGURATION MANAGEMENT | AREA SURVEY | DEVICE DIRECT COMMAND

Activate/Deactivate advanced options window

Start monitoring commissioning messages (useful after commissioning command)

Activate manual pre- commissioning commands for radio devices

UPLOAD
TEST DONGLE - DEVICE COMMUNICATION

Communication settings
CH. 0 - DEFAULT SYNC
CUSTOM   Sync word: A4 | 2E | 68
          Channel: 15

RESTART DEVICE
Restart node after upload
BOTTOM | Info position
Mark device as configured

CANCEL   OK

Send restart device command. Necessary after data upload. Equivalent to power off/ on

Option to automatically send a restart message after upload operation (note: NOT GW)

Set communication parameters for test/restart messages from the dongle: Use default for new /un-commissioned devices, custom for already programmed devices where the communication parameters are known

Set device as configured in device info box

Decide info box position

C8

8 Configuration Management Tab – Diagnostics

Edit diagnostic notes

Edit diagnostic notes

Activate diagnostic

Retrieve event log (the diagnostic will take more time to run)

Link strength

Device info

LOG window: all the run time operations are reported here in real time

Diagnostic started...
Checking network...
Checking network...
Computing...

The network is running...

Waiting information from gatew
Waiting information from gatew
Waiting information from gatew
Waiting information from gatew
Information retrieved from gat

N. jpg	Date
	2015/03/04 15:52:02
	03/03 12:51:58
	03/03 12:49:35
	15/02/10 10:01:56
48	2015/02/10 10:00:04
47	2015/02/06 16:18:40

Diagnostic commands

SITE CONFIGURATION MANAGEMENT AREA SURVEY DEVICE DIRECT COMMAND

COMMISSIONING
DIAGNOSTIC

Retrieve log

Notes:

AgileIQ™

SITE INFORMATION
Database file:
C:\Users\e187565\Documents\DIS_2_1_8\CMPR LAMORLAYE FINAL.DIS
Last modified date:
2015/03/04 15:52:02

AREA INFORMATION
Description:
Mezanine SAM RCH13

CONFIGURATION INFORMATION
Name:
Copie (3) de GW adresse 6115
Last modified date:
2015/02/24 16:23:11
Notes:

Channel:
16 [809.525 MHz]
Backup channel:
09 [867.375 MHz]
Sync word:
$44 $EF $09

Gateway backup node: device #K

DIAGNOSTIC INFORMATION
Diagnostic date:
2015/03/04 15:52:02
Notes:

Operation log:

Edit diagnostic
Delete diagnostic
Open diagnostic report
Delete all diagnostics

Open diagnostic report

Configuration status

Alarm status

Fault indication

Battery status

Tamper status

41.5 dB
7.5 dB
31.5 dB
43.5 dB
31.5 dB
9.5 dB
7.5 dB
35.5 dB
33.5 dB
33.5 dB
25.5 dB

#C PTIR
Location
Address = 40 S

#D PTIR

#B PTIR
Location
Address = 39
Reg. #2 = 50

GW Gateway
Location
Address = 15 M

Location
Address = 49 S
Reg. #2 = 50

RCH3 RCH4 Office
RCH12
SAT10
Tableau élec
Monte charge

APPENDIX D

Dongle (USB Interface) Firmware Upgrade

The *Dongle Management* screen allows the current dongle (USB Interface) to be upgraded if necessary:

1) Click on the button at the bottom left corner of the screen to open the *Dongle Manager*.

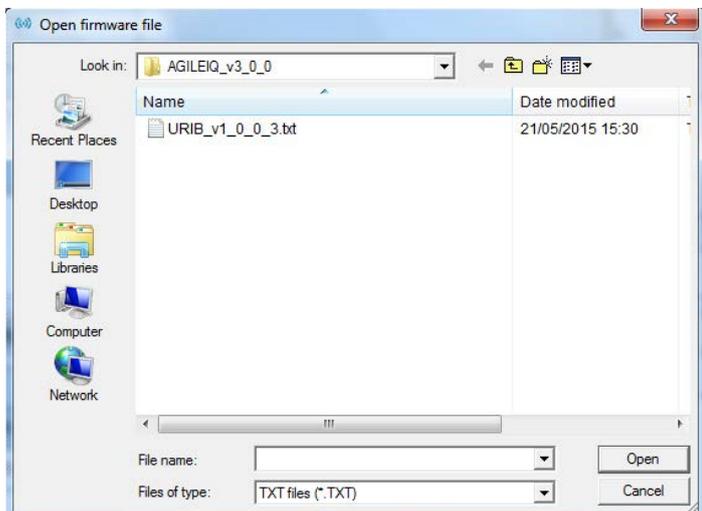If an old version of the dongle is used, the following message will appear and the dongle will need to be upgraded:

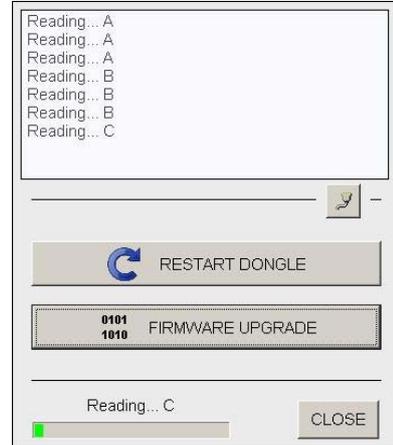Click *OK*, and then open the *Dongle Management* screen as described above.
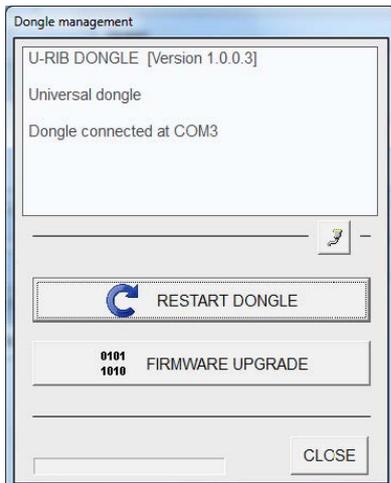
2) Select *Firmware Upgrade* and click *Yes*.

A Windows screen will show the available upgrade file (a *.TXT file) in the AgileIQ_v3.x directory.

3) Select this file and click *Open* to start the upgrade. The current dongle status and data will be read.
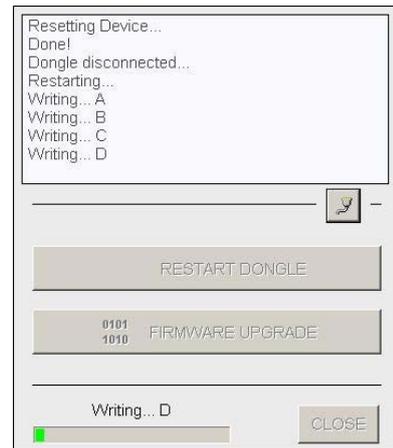

After about a minute this message will appear:

4) Following the instructions, remove and then reattach the dongle and click *OK*.

After another minute, the new firmware will be written to the dongle.

5) The upgrade completes with the message:

6) Click *OK* and restart the dongle using the *Restart Dongle* button in the *Dongle Management* screen.
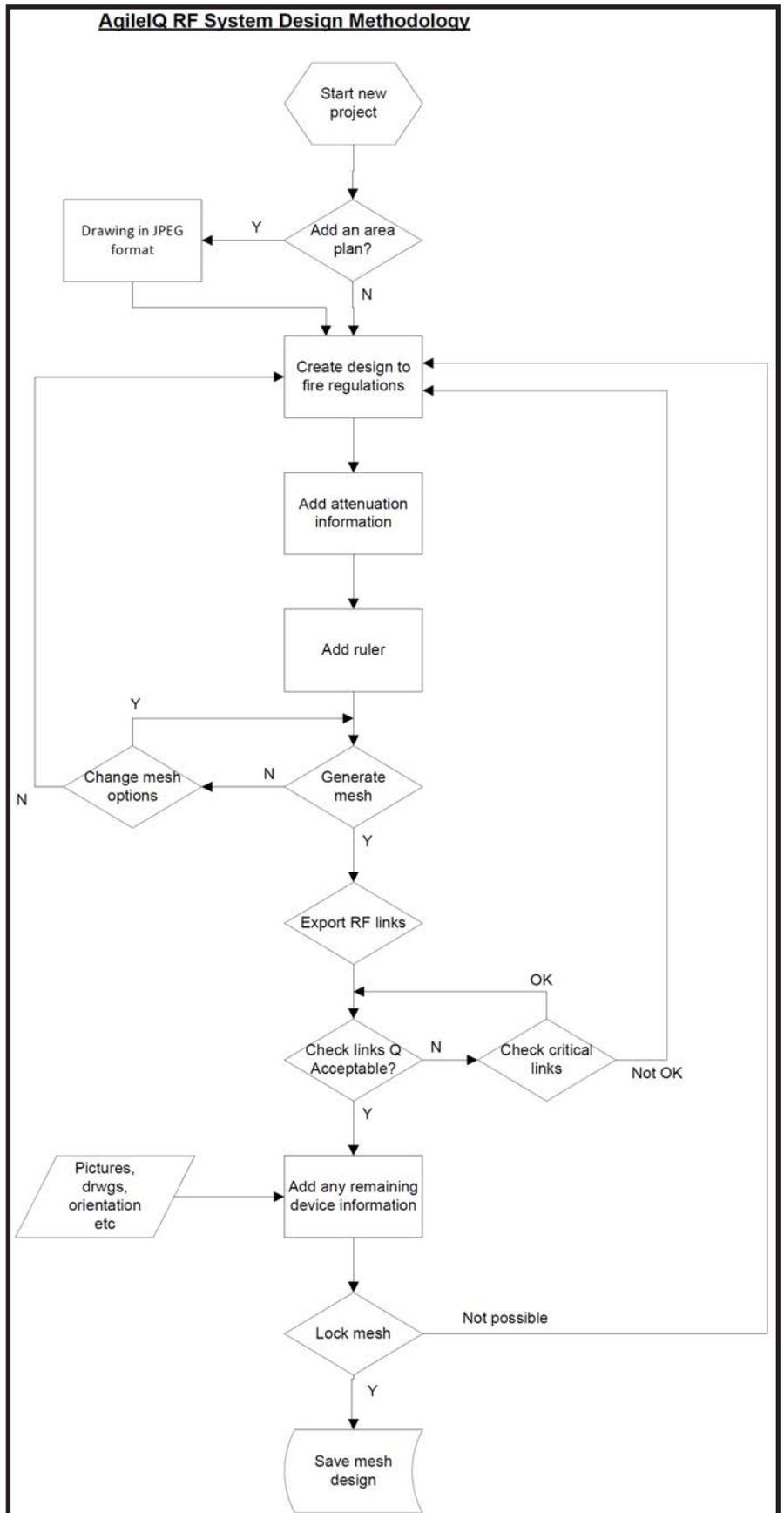
APPENDIX E

AgileIQ™ Radio System Design Methodology

The following methodology is recommended for designing a reliable radio mesh network.

1) Start a new project, creating a saved file name. A new area and a configuration will be generated automatically. The configuration relates to one gateway.

2) The user is asked if a plan of the area is required to be loaded into the design screen. This needs to be in .jpg format.

3) Now the user can add, move or delete devices on the plan drawing. The layout should be based on fire regulations current within the given territory.

4) Add any necessary attenuation information (wall, floors etc.) and calibrate the plan drawing by adding a ruler.

5) Open the mesh creation wizard and select any specific options that are required. Generate a mesh. If there is a workable mesh network, the message *Mesh created!* will appear. If it is not possible to create a mesh, the wizard will try to help identify the problem.

6) Change the mesh options or rework the device layout and try again.

7) Export network links to the area survey table. The estimated quality of the links will be displayed. They can be checked for accuracy on a site survey.

8) If the generated mesh link signals are acceptable, add any additional site of design information (pictures, device orientation etc.) to keep adequate records and then lock the configuration ready for commissioning.

   Note: after a configuration is locked, it cannot be changed.

This methodology is set out in diagrammatic form in the flow diagram shown here.

AgileIQ RF System Design Methodology

APPENDIX F

## How to download AgileIQ™ - The System Sensor Radio Tools Software

The latest version of the System Sensor AgileIQ™ radio system software can be found at:

www.systemsensoreurope.com

From the **Products** drop-down list, select **Agile Wireless** and then **Agile Software & Tools**:

Choose the required OEM version of the software from the list. Double click and choose to **Save** the **setup_agileiq** executable file.

The AgileIQ™ set-up files will be saved in the PC's *Downloads* folder.
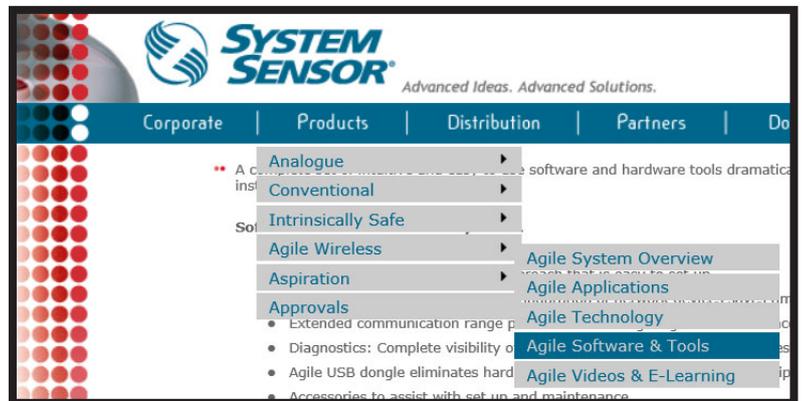
APPENDIX G

How to get an AgileIQ™ Pro Licence

To get a PRO licence for a dongle to use the advanced features of AgileIQ™ requires an activation code. This code will only work with one dongle. Each RF dongle has a unique serial number. This number is required to order a PRO licence for AgileIQ™.
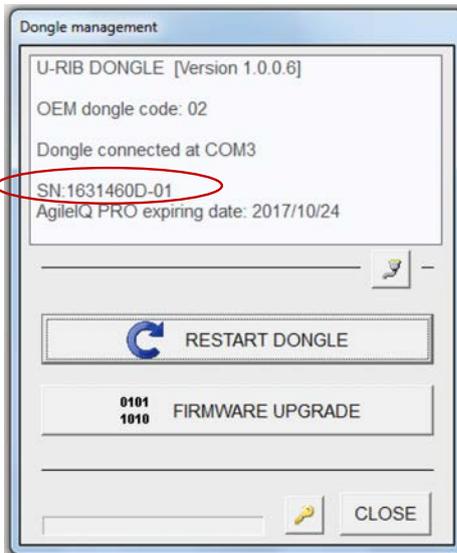
Please contact your Agile™ RF system supplier with your unique serial number to order a PRO licence.

**How to Retrieve the Dongle Serial Number / Activate your Code**

1) With AgileIQ™ running and the dongle connected, click on the **Dongle Manager** button:

   The *Dongle Management* window appears:

2) The dongle serial number is a ten digit alpha-numeric sequence in the form XXXXXXXX-YY. Record this number.

3) Contact your Agile™ RF system supplier and give this number to them.

4) Your supplier will send you the unique activation code for your device. On receiving the code, run AgileIQ™ with the same dongle connected and click on the **Dongle Manager** button again to show the *Dongle Management* window:
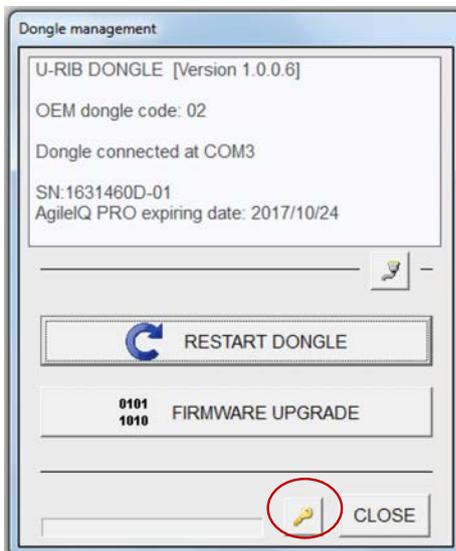
5) Click on the **Renew Dongle** button (as indicated in the screen shot) to display the following dialog box:
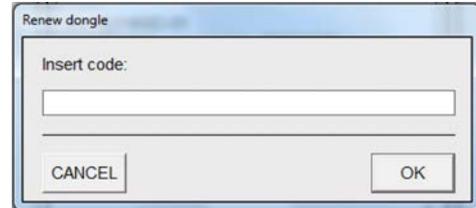
6) Enter the PRO activation code and click **OK**. The dongle will be upgraded to allow the advanced features of AgileIQ™ to be accessed.

Note: The PRO activation code will only work with this one dongle.

System Sensor Europe Partners

Customers who have a direct account with System Sensor Europe can order a PRO activation code by sending an e-mail to:

orders@systemsensor.com

and requesting the item RENEWCODE, together with supplying the dongle serial number.

The Dongle PRO activation code will be sent to the email address associated with customer invoicing. A paper copy will be sent to the customer's goods inwards department, as a backup.