

## Quick Setup Guide

### AMG Skywave III AMG8870F series Wireless Radios

#### Products

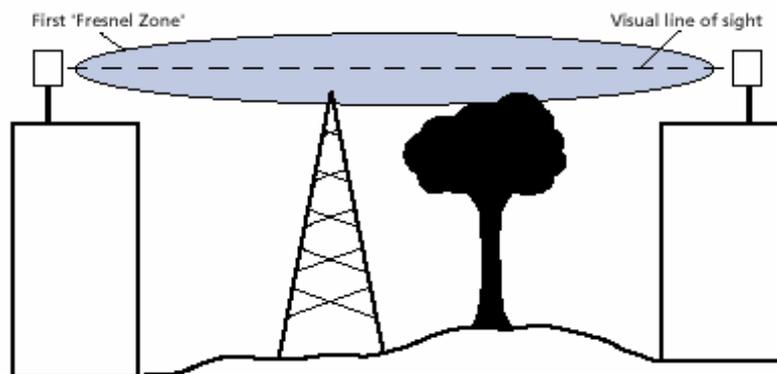
The guide is applicable for the following AMG Wireless IP radios:

AMG8870F-06	6km 500Mbps (Remote End)
AMG8870F-06-2	6km 500Mbps (Pair)
AMG8870F-03-90	3km 500Mbps (Base Collector)
AMG8870F-M-E	External Antenna 500Mbps (Base Collector)

#### Installation Guidelines

##### 1. Line Of Sight – **IMPORTANT: radios require clear line-of-sight.**

If the radios do not have line-of-sight, then the signal strength will be too weak for continuous, reliable operation. Avoid obstructions along and around the line of sight, especially metal structures, with particular consideration for obstructions such as trees which could compromise the signal over time.



2. Alignment: If the radios are not aligned correctly, the signal quality and bandwidth of the radios will be reduced. Access web GUI of the radios (mainly base unit). The web GUI provide more detail about link performance.
3. Cable: External grade Shielded CAT5e Cable is highly recommended to avoid extraneous interference.

#### Pre-Installation Checklist

1. Do not connect the wireless radio to a live network before assigning an unique IP address, completing radio configuration and bench testing the product.
2. It is highly recommended that each link is configured and tested in a controlled environment to ensure correct configurations and operation prior to on site installation.
3. Confirm that you have two AMG8870 units and two passive PoE sources to create a point-to-point link.
4. Confirm that you have four Ethernet (Cat5 as minimum) patch cables for connecting radios to power and PC/laptop for bench configuration and testing.
5. ESD (Electrostatic discharge) can cause failure, permanent degradation, or temporary erratic behaviour or electronic devices or system due to I.E. direct lightning. Therefore, it is recommended to follow best ground practices when installing the unit in an outdoor environment I.E. to a metal pole and use the recommended cable type with ground shielding.

## Configuration and Setup

**Login Prompt** - The default login credentials of the AMG8870F radio are:

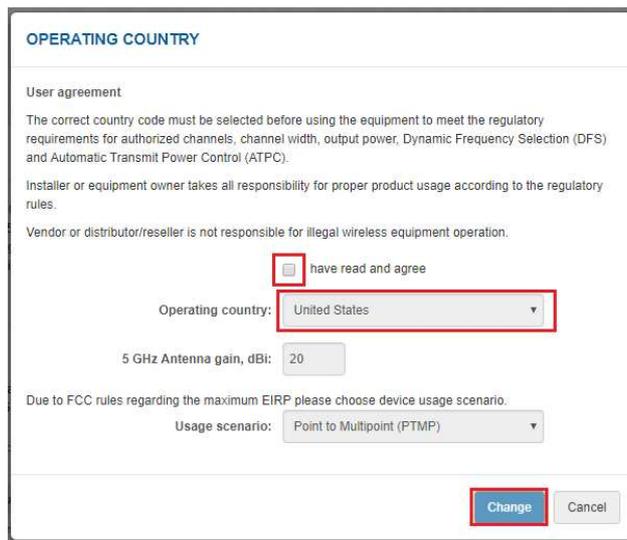
Username: **admin**  
 Password: **password**



You will be presented with the page below. Tick agreement, choose country, set gain and press Change.

### Antenna Gain

- AMG8870F-06                      20dBi
- AMG8870F-03-90                18dBi
- AMG8870F-M-E                  depends on external antenna



The radios with external antenna require gain setting. The gain depends on the type of the external antenna. The radios with internal antennas have got gain set up from the default and it is not possible to change it. They will use always the same antenna.

**With different gain than an external antenna requires, the wireless radios could work incorrect.**

The 5Ghz Antenna gain could be also changed in section **Settings->Wireless configuration->Operating country**.

You will be presented with the Information page.

The screenshot shows the web interface for the AMG8870F device. At the top, the 'Simple mode' button is highlighted with a red box. The interface includes a navigation bar with icons for information, settings, tools, and status. The main content area is titled 'INFORMATION' and displays the following details:

- Product name:** AMG8870F-M-E
- Device serial No.:** 0F2A182000000881
- Network mode:** Bridge
- Wireless mode:** Access point (iPoll 3)
- Operating country:** GB
- Friendly device name:** AMG8870F-M-E
- Device location:** Device location
- Latitude/Longitude:** 0 / 0

**Radio**

- Channel:** 149 (5745 MHz)
- Channel width, MHz:** 80
- Tx power, dBm:** 3
- Noise level, dBm:** -105
- Protocol:** iPoll 3
- Radio mode:** MIMO 2x2
- Antenna gain, dBi:** 15

**Wireless Access point (iPoll 3)**

Network SSID	Security	Broadcast SSID	VLAN	Stations
AMGlink	WPA2 Personal	Yes	--	1

**Network**

- IP method:** Static
- IP address:** 192.168.0.228
- Subnet mask:** 255.255.255.0
- Default gateway:** 192.168.0.254
- IPv6 method:** Disabled

Press Simple mode

This will give you Wireless Configuration. Change setting, example below.

APCFE\_QA-2.v7.02.05794\_AMG (Update)
Advanced mode 
Save changes

### STATUS

Radio status: Scanning

Signal level, dBm: -100

Ethernet status: eth0: 1000BaseT/full

*Wireless Station*

Network SSID	Security	Peer MAC	Tx/Rx rate, Mbps	Tx/Rx CCQ, %	Protocol	Link uptime
Wireless	Open	--	--/--	--/--	--	--

### SETTINGS

Operating mode:

Channel:

SSID:

Password:

IP method:

IP address:

Subnet mask:

Default gateway:

Operating country:

Friendly name:

Location:

DNS server 1:

DNS server 2:

Secondary IP:

*Advanced settings*

Enable Cloud Controller:

System password:

Firmware update:

Troubleshooting file:

**Example configuration:**

Set Operating mode – **Station**. Set Channel Width – **20** (150Mbs). Set SSID – **Test**. Set IP method – **Static**. Set IP address – **192.168.10.10**. Set Subnet mask – **255.255.255.0**. Set Default Gateway – **192.168.10.1**. Set Friendly name – **Control**.

Press Save Changes



You will be presented with

**CHANGES**

<b>SYSTEM</b>	
Simple mode	Enabled
Friendly name	Control
<b>WIRELESS / 5 GHz</b>	
Channel width (MHz)	20
<b>WIRELESS / 5 GHz / STA: Test</b>	
SSID	Test
<b>NETWORK</b>	
Bridge IP address	192.168.10.10
Bridge gateway	192.168.10.1
Bridge IP method	Static

Save Cancel

Press Save

You will see.



Click on the IP address.

Log back in, then connect second radio and repeat with the following steps.  
The second radios should have unique IP address. For example 192.168.10.11 as shown below.

**SETTINGS**

---

Operating mode: <input type="text" value="Access point"/>	Operating country: <input type="text" value="GB"/>
Channel: <input type="text" value="Auto / 20 MHz"/>	Friendly name: <input type="text" value="Camera"/>
SSID: <input type="text" value="Test"/>	Location: <input type="text" value="Device location"/>
Security: Open ⓘ	
IP method: <input type="text" value="Static"/>	DNS server 1: <input type="text"/>
IP address: <input type="text" value="192.168.10.11"/>	DNS server 2: <input type="text"/>
Subnet mask: <input type="text" value="255.255.255.0"/>	Secondary IP: <input type="text"/>
Default gateway: <input type="text" value="192.168.10.1"/>	

When you save this and log back in, you should see.

**STATUS**

---

Radio status: Connected ✓

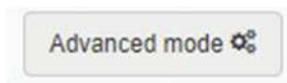
Ethernet status: eth0: 1000BaseT/full

Signal level, dBm: -38

*Wireless Access point*

Network SSID	Security	Broadcast SSID	VLAN	Stations
Test	Open	Yes	--	1

Click Advanced Mode



You will see.

APCPE QA-2 v7.62.65794.AMG (Update) Simple mode Save changes

Uptime: 11 min. 51 sec. CPU load (15 %)

eth0: Disconnected | -47/-47 dBm

### INFORMATION

Product name: AMG8870F-06  
 Device serial No.: 0F2A1847000000D1  
 Network mode: Bridge  
 Wireless mode: Station (WDS/SSCF3)

Operating country: GB  
 Friendly device name: AMG8870F-06  
 Device location: Device location  
 Latitude/Longitude: 0 / 0

**Radio**

Channel: 149 (5745 MHz)  
 Channel width, MHz: 80  
 Tx power, dBm: 3  
 Noise level, dBm: -103

Protocol: 802.11a/n/ac/SSCF3  
 Radio mode: MIMO 2x2  
 Antenna gain, dBi: 20

**Wireless Station (WDS/SSCF3)**

Network SSID	Security	Peer MAC	Tx/Rx rate, Mbps	Tx/Rx CCQ, %	Protocol	Link uptime
Wireless	WPA2 Personal	00:19:3B:16:F8:3E	886 / 886	100 / 100	SSCF3	0 min. 16 sec.



For Encryption click on the configuration symbol

APCPE QA-2 v7.62.65794.AMG (Update) Simple mode Logout

Uptime: 37 min. 47 sec. CPU load (42 %)

eth0: 1000BaseT/full | 1 stations

### WIRELESS CONFIGURATION

Enable radio:  Operating country: GB

Operating mode: Access point (iPoll 3)

**Radio settings**

Tx power, dBm: 3 Channel: Auto / 80 MHz

Enable ATPC:

**Advanced radio settings**

Network SSID	Security	Management	Broadcast SSID	VLAN
AMGlink	WPA2 Personal	Enabled	Yes	--

Then click to the Network SSID AMGlink.

You will see.

WIRELESS STATION SETTINGS

Primary SSID Fallover SSID

SSID: Test Q Lock AP by MAC address: 00:00:00:00:00:00

Security settings

Security: WPA/WPA2 Personal

Passphrase: 4444444444444444

Bandwidth limitation

Advanced settings

Done Cancel

Change Security – **WPA/WPA2 Personal** and type a password (minimum 8 characters). Press done and save changes.

**DO THIS FOR BOTH RADIOS.**

The same encryption password must be used at both ends.



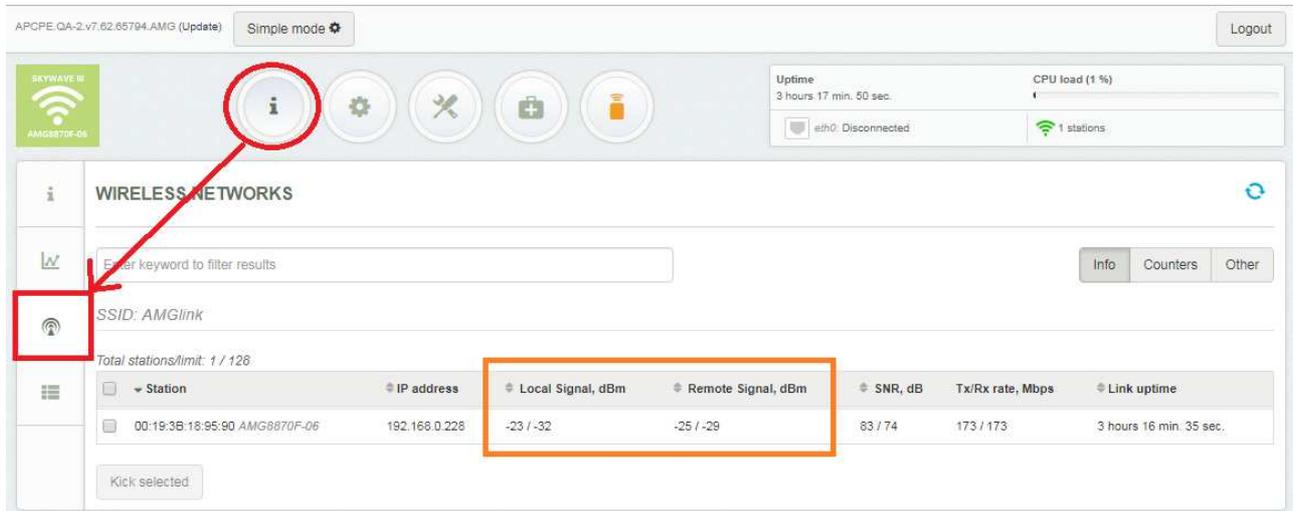
Press  for Spectrum Analyser, Antenna Alignment, Link Test and Ping.

You now have an encrypted link.

## Wireless Link Performance

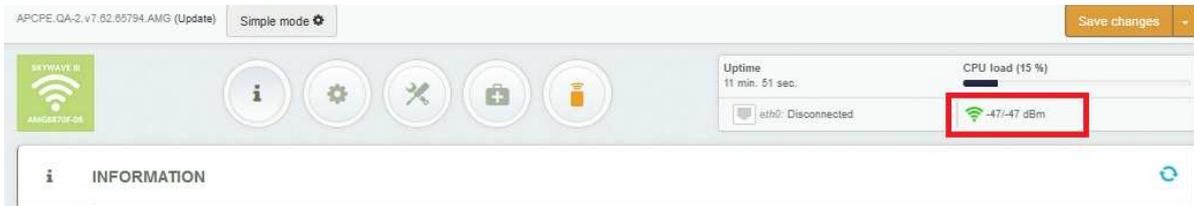
### Base unit.

Link Performance you can find in section **Status->Wireless network**. You will see wireless performance for both local and remote radios.



### Satellite unit

Link performance of the station you can find in right top corner of the web GUI.



When you point at the field with link performance, it will show the link performance status.

See possible performances below:

- Too strong



- Excellent



- Good



- Fair



As you can see the **Excellent RSSI is around -35/-35.**

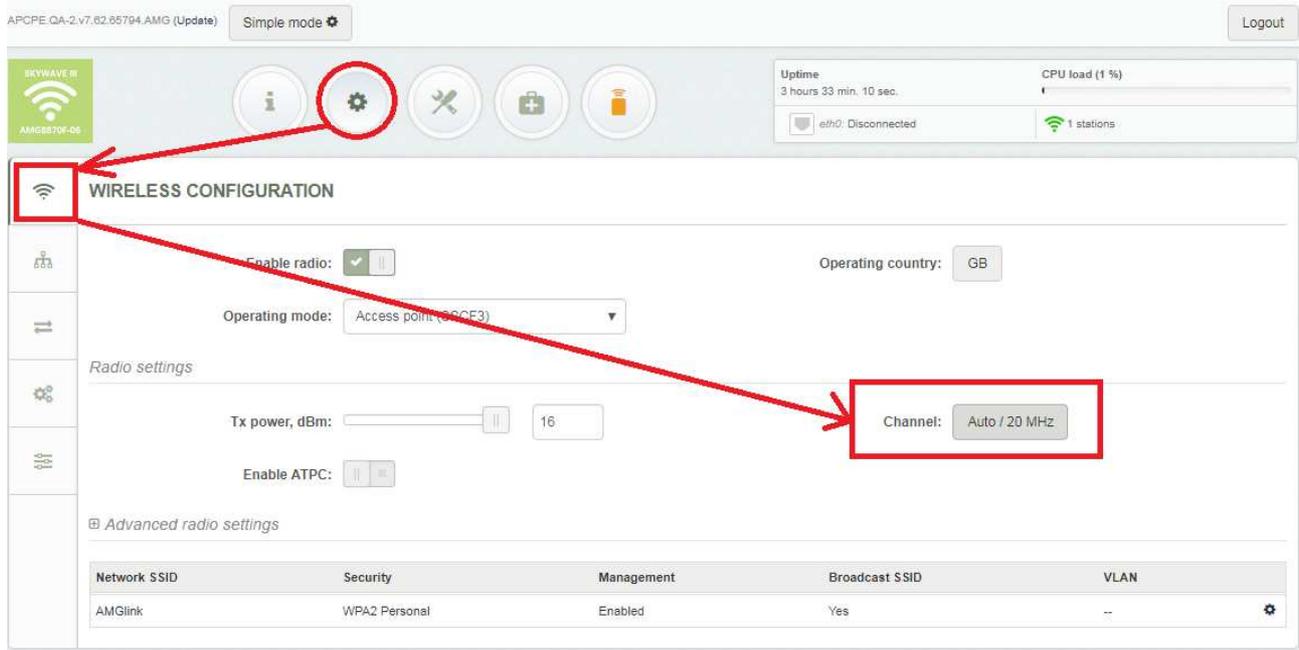
## Throughput

Wireless radios AMG8870F can deliver throughput up to 500Mbps of compressed video with frequency channel width 80 MHz.

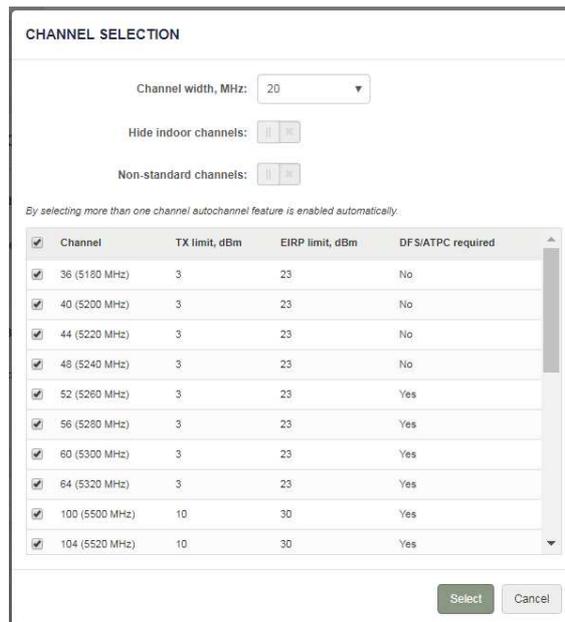
The default configuration of the channel width is 20 Mhz which provide throughput up to 90 Mbps of compressed video.

### To change channel width.

Access Base unit web GUI and go to section **Settings->Wireless configuration->Channel**.



You will see.



Select required channel width.

**CHANNEL SELECTION**

Channel width, MHz:

Hide indoor channels:

Non-standard channels:

By selecting more than one channel autochannel feature is enabled automatically.

<input checked="" type="checkbox"/>	Channel	TX limit, dBm	EIRP limit, dBm	DFS/ATPC required
<input checked="" type="checkbox"/>	36 (5180 MHz)	3	-23	No
<input checked="" type="checkbox"/>	40 (5200 MHz)	3	-23	No
<input checked="" type="checkbox"/>	44 (5220 MHz)	3	-23	No
<input checked="" type="checkbox"/>	48 (5240 MHz)	3	-23	No
<input checked="" type="checkbox"/>	52 (5260 MHz)	3	-23	Yes
<input checked="" type="checkbox"/>	56 (5280 MHz)	3	-23	Yes
<input checked="" type="checkbox"/>	60 (5300 MHz)	3	-23	Yes
<input checked="" type="checkbox"/>	64 (5320 MHz)	3	-23	Yes
<input checked="" type="checkbox"/>	100 (5500 MHz)	10	-30	Yes
<input checked="" type="checkbox"/>	104 (5520 MHz)	10	-30	Yes

## Channel selection

Auto channel selection is in the factory default. You can select specific channel in the same section as you select channel width.

**CHANNEL SELECTION**

Channel width, MHz:

Hide indoor channels:

Non-standard channels:

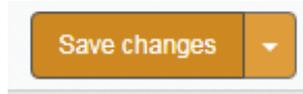
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<input type="checkbox"/>	64 (5320 MHz)	3	-23	Yes
<input type="checkbox"/>	100 (5500 MHz)	10	-30	Yes
<input type="checkbox"/>	104 (5520 MHz)	10	-30	Yes

The fixed channel is required when there is more wireless links on the site or if there is a local interference.

## Save configuration changes

When you do any change, you have to save the configuration. The button Save changes you can find in the right top corner in the web GUI.



After factory default reboot the radios will have IP address 192.168.0.1 (mask 255.255.255).  
With "admin" as username and "password" as password.

## Configuration summary

**SSID** – The SSID should be the same in all radios that directly communicate. When using multiple links, make sure that each link has its own unique SSID. This can be checked with our Network Monitoring Software – Default SSID is ‘AMGlink’.

**Security Key** – The security key should be the same in all radios that directly communicate. If anyone tries to connect to the equipment wirelessly then they will be asked for this security key.

**IP Addresses** – Default IP addresses are **192.168.0.228** (Base) and **229** (Client). Change the IP address of each radio to suit the site. A factory reset will default the radios to 192.168.0.1

**Login & Password** – The default is set to **admin** and **password**. For security reasons, this must be changed for all radios. Following a Factory Reset this will change to **admin** and **password**.

**Config files** – When configured, save the config files for each radio (e.g. onto a USB drive, under a folder with the date and job number). It can be helpful to rename the saved config files to match the IP address of the radios. Saved settings can be easily uploaded to each of the radios.

## Troubleshooting

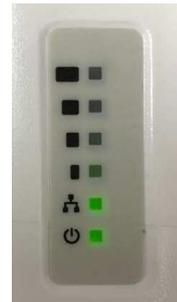
**No power at the antenna** – the radio links use **passive PoE** for their power.

- Test the cat5 cable and re-terminate it if required.
- Make sure the downlink cable is made as a straight through cable.
- Please also check that the PSU is plugged in, turned on and that the green LED is on.

**Interference** – AMG radios use auto-channel select and will avoid channels with interference. Rebooting the radios will allow a re-scan. If further problems persist with interference, then manually select channels while checking signal quality via web GUI.

**LEDs** – The LEDs on the radios show basic information at a glance about the status of the link:

- Power LED
  - o Off – unit is not powered
  - o On (green) – unit is powered by passive PoE
- Ethernet
  - o Off – No Ethernet device (IP Camera, NVR, etc) connected
  - o On (green) – Ethernet device connected
  - o Flashing – Ethernet traffic detected on port
- Signal
  - o Off – No wireless link
  - o On (orange) – shows strength of the signal



**For support and assistance during normal working hours, please contact AMG Systems Ltd on +44 (0)1767 600 777 or email: [technical@amgsystems.com](mailto:technical@amgsystems.com)**

## Configuration Record

Please keep this information about your devices in a safe place.

Site/radio link name: \_\_\_\_\_

	<u>Factory Default</u>	<u>This site</u>
<b>Wireless SSID</b>	AMGlink	
<b>IP Address of radio 1 :</b>	192.168.0.228	
<b>IP Address of radio 2 :</b>	192.168.0.229	
<b>Wireless Encryption key:</b>	wireless	
<b>Wireless Encryption type:</b>	AES	
<b>Subnet Mask of Devices :</b>	255.255.255.0	
<b>Admin Username :</b>	admin	
<b>Admin Password :</b>	password	