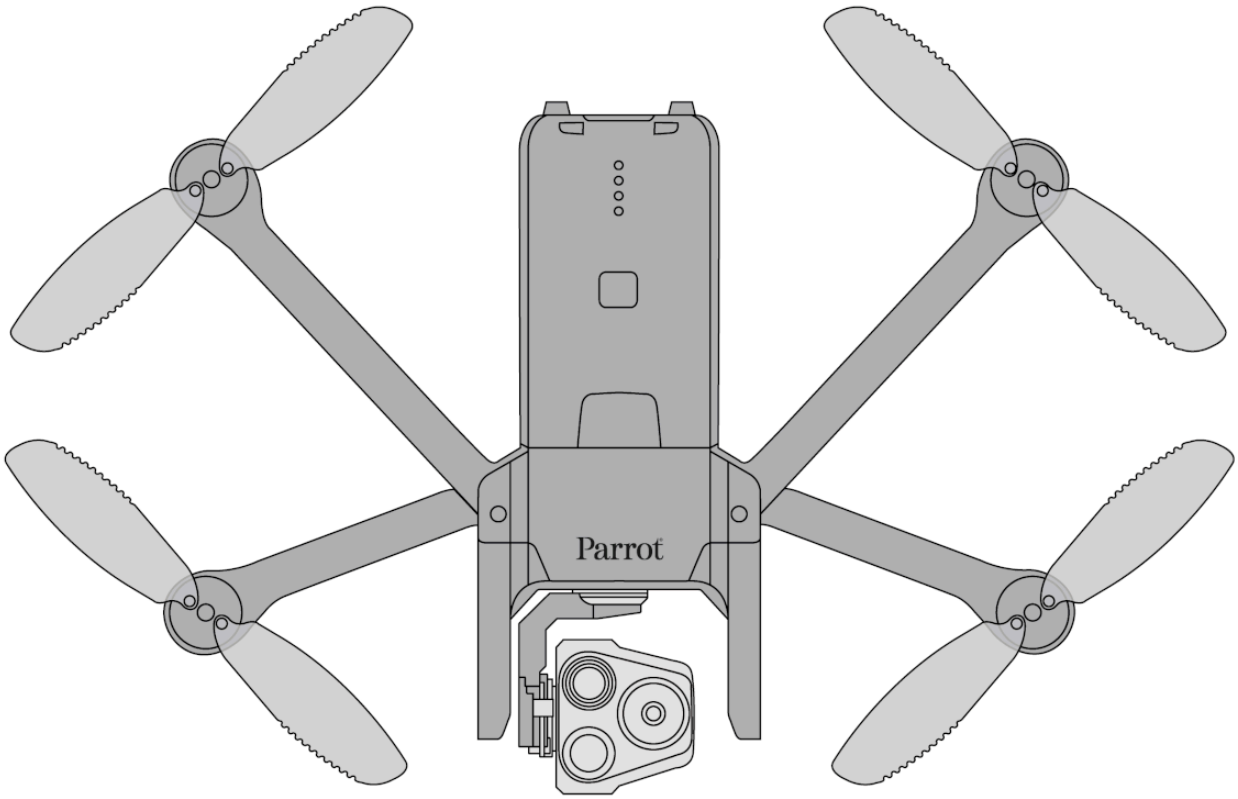
ANAFI USA

User Manual v6.8MIL



Parrot

Designed for the U.S. Army
Made for enterprise

WE ARE PARROT. WELCOME TO THE TEAM

With **ANAFI USA**, you have chosen the finest, quietest, and most portable aerial EO/IR system, you can use everywhere on the go, anytime.

We strongly recommend you read the following information and instructions thoroughly before you get **ANAFI USA** in the air, to make the most of your first 30-minute flight.

The indispensable prerequisites, on the next pages, will not occupy more than 5 minutes of your time: ANAFI USA requires the FreeFlight 6 app to fly, and to make sure your drone and controller are fully up to date with the latest features.

As you discover the world of possibilities that **ANAFI USA** opens to you, you will fully understand the importance of mission planning in your workflow.

Have a great read, and many productive hours flying **ANAFI USA**.

USING THIS GUIDE

This guide is specific to a single drone configuration: ANAFI USA coupled to a Microhard-equipped Parrot Skycontroller USA.

- **Read entirely at least once:** it answers most questions that most users encounter when they discover **ANAFI USA**.
- **Keep it for reference and stay alert for updates:** they will be advertised on all Parrot websites and social media.
- **The Table of contents, on page 7, is active.** Click a title to access the corresponding section.
- **This online user guide has no index: use [ctrl]-F (Windows) or [command]-F (Mac)** to browse all occurrences of any keyword (*flight*, *preferences*, *gimbal*, *GeoTIFF*, *Flir*, *Boson®*, *Microhard*, *photo*, *EV*, *ISO*, and so on).

ABOUT ANAFI USA DOCUMENTATION

The present guide completes the documentation of **ANAFI USA**, which also consists in:

- **ANAFI USA** Flight Safety Guide, available online - www.parrot.com;
- **ANAFI USA** and **FreeFlight 6** release notes, available online - www.parrot.com;
- **ANAFI USA** repair and maintenance tutorials available on Parrot's YouTube account.

Always stay alert for all documentation updates.

PREREQUISITES

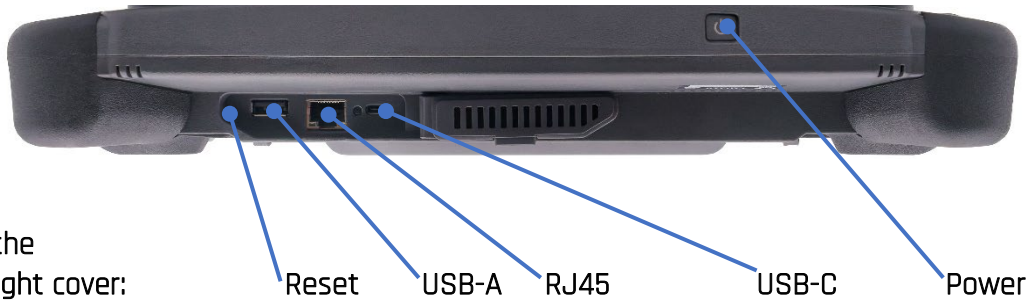
You want ANAFI USA up in the air as soon as possible, so do we.

1. **Wake your ANAFI USA's smart battery up.** Charge the battery using one of the enclosed USB-A to USB-C cable and the enclosed charger. The battery's LEDs start flashing: it is awake. Let it charge while you read. **Parrot recommends you always run a full charge of your smart battery before flying ANAFI USA.**

2. Press the power button of the **Parrot Skycontroller USA** for three seconds to power it on. Do not hesitate in recharging it, connecting its USB-C port to a power source, for the update of the device: **ANAFI USA**'s controller is also a powerful Android tablet, dedicated to your aerial missions – or those of your team.
   Thus, like with any other tablet, you can adapt the brightness of your screen to your flight conditions.

Parrot Skycontroller USA: bottom panel

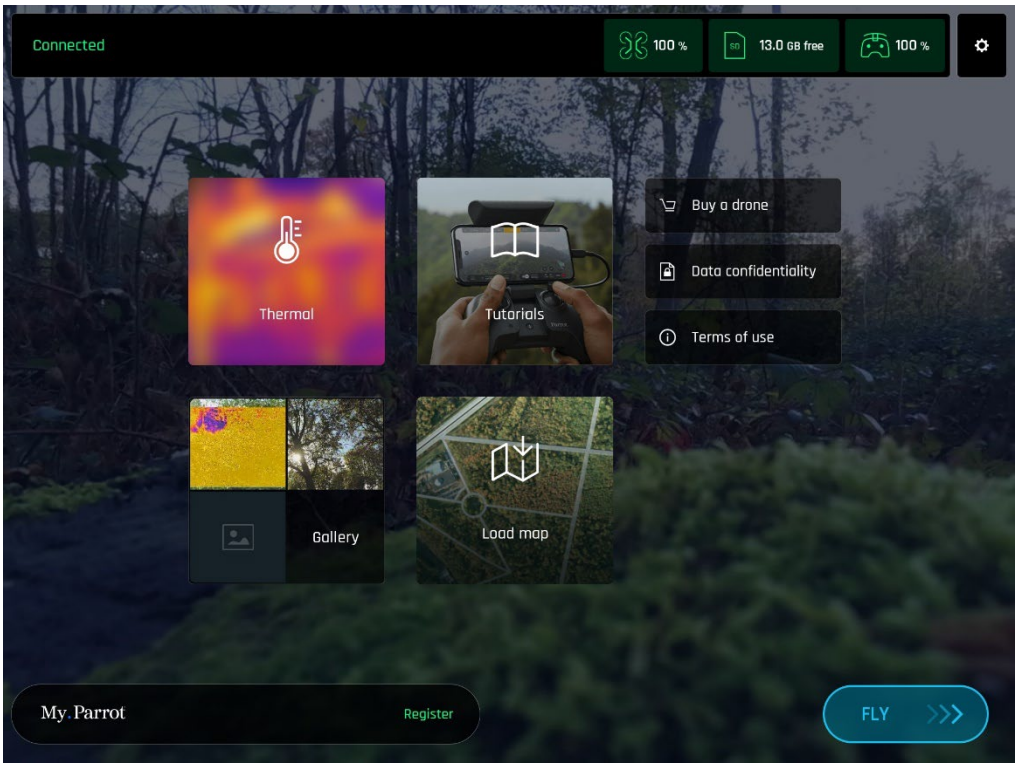
Refer to the "*Presentation of Parrot Skycontroller USA*" section of this guide additional information.



3. We recommend you connect your **Parrot Skycontroller USA** to a network (by Wi-Fi or through a RJ45 cable) to carry out the required updates (operating system, Android applications, etc.) and to begin personalizing it.

4. **FreeFlight 6**, **ANAFI USA**'s piloting software, is preinstalled on the **Parrot Skycontroller USA.**

5. Touch this logo on the screen of your **Parrot Skycontroller USA** to launch **FreeFlight 6.** The interface displays the homepage of **FreeFlight 6.**



6. **Tap the "FLY" box** on the homepage of **FreeFlight 6** to launch the initial updates. **FreeFlight 6** automatically updates the **Parrot Skycontroller USA** first, and **ANAFI USA** second.

7. **Parrot Skycontroller USA update: tap the green "CONTINUE" box to proceed. FreeFlight 6** displays an animation and a progress circle on a screen labelled "Preparing your controller". When the update is finished, the screen displays "Your controller is ready". Tap "CONTINUE" to access the update of **ANAFI USA.**

8. **ANAFI USA update: tap the green "CONTINUE" box to proceed. FreeFlight 6** displays an animation and a progress circle on a screen labelled "Preparing your drone". When the update is finished, the screen displays "Your drone is ready" and a "CONTINUE" box. Tap this "CONTINUE" box to come back to **FreeFlight 6** homepage.

9. **All systems are ready for flight.**

TABLE OF CONTENTS

FOREWORD

About ANAFI USA

ANAFI USA was designed and optimized to fly as is. Parrot generally discourages the use of any add-on or accessory which could be mounted on, or attached to ANAFI USA (feet extensions, buoys, etc.). In addition to the overweight they carry for the drone and its motors, they can indeed magnetically disturb ANAFI USA and impair its communications.

Should you want to equip your drone with an accessory, note it will drastically reduce its autonomy, and remember that the maximum take-off mass (MTOM) of **ANAFI USA** is 644 g / 1.42 lb.

Also bear in mind you should never alter the center of gravity of the drone.

About GPS

ANAFI USA does not need a satellite – GPS, Glonass, Galileo – synchronization (or fix) to take off. It can therefore be piloted indoor and through cluttered areas, stabilized by its onboard sensors.

However, automated and assisted flight modes require both **ANAFI USA** and **Parrot Skycontroller USA** synchronization to geocoordinate satellites.

For this reason, Parrot recommends **ANAFI USA** pilots to always set up, start and finish their automated and assisted flights from wide open areas, as a sports field.

About 4K video formats

4K video formats are professional grade media which may not be read natively by slower computers.

Furthermore, for software reasons, the stream broadcast by the Skycontroller USA is better defined in the 1080p video mode than in 4K (or any photo mode), especially when using the zoom. For this reason, Parrot recommends favoring default video settings (1080p, 30 fps) for direct observation.

4K video recording should be reserved for post-mission data exploitation.

About the smart battery

ANAFI USA's smart battery is preinstalled on your drone. Always install it the same way and never attempt to install it upside down as it could expose your battery and your drone to irrecoverable electrical damage. As you will find out by reading this guide, **ANAFI USA**'s battery is smart enough to enter a wintering mode when you are not using it for ten days in a row. This also means you need to wake it up and charge it completely before you fly **ANAFI USA** for the first time.

About auto-RTH (return home)

By design, when synchronized to GPS, Glonass and Galileo satellites and when short on power, **ANAFI USA** will always attempt to come back to its most recent take-off point, at a minimal height over this take-off point, which is configurable through **FreeFlight 6** (between 20 meters and 100 meters) and is set by default at 30 meters.

Refer to the *"Coordinates and advanced RTH settings"* and *"PREFERENCES – Safety – Advanced RTH settings"* section of this guide for further information on RTH.

About the screenshots in this guide

For clarity and brevity (size of interface on devices smaller than the **Parrot Skycontroller USA**), some screenshots in this guide, illustrating functions common to all the drones of the series, have been taken from earlier **ANAFI** series user guides.

However, all screenshots associated with specific ANAFI USA functions have been updated.

DISCLAIMER

Using **ANAFI USA** carries no particular health requirement.

HOWEVER:

1. **ANAFI USA** IS NOT A TOY and should not be used or handled by a person under the age of 18 years.

2. BEFORE USING **ANAFI USA**:

   (A) CAREFULLY READ the user manual and all information and documentation available on www.parrot.com, which is susceptible to be updated at any time and without prior notice (hereinafter referred to as "Parrot Documentation"). SPECIAL ATTENTION must be given to the paragraphs marked with the symbol ⚠;

   (B) ENSURE YOU ARE AWARE OF THE REGULATIONS APPLICABLE TO THE USE OF DRONES AND THEIR ACCESSORIES (hereinafter referred to as "Applicable Regulations");

   (C) REMEMBER that **ANAFI USA** may expose others and yourself to EQUIPMENT DAMAGE, PERSONAL INJURY, OR BOTH, which could result in serious harm or death.

3. Be aware that videos and photos that are promoted and advertised by Parrot Drones SAS and its affiliates have been made by and with experienced professionals and drone pilots. IN CASE OF DOUBT RELATING TO THE USE OF YOUR **ANAFI USA** DRONE AND ITS ACCESSORIES, ALWAYS REFER TO THE MOST RECENT VERSION OF THE PARROT DOCUMENTATION.

4. TO THE EXTENT PERMITTED BY APPLICABLE LAW, PARROT DRONES SAS, ITS SUBSIDIARIES, AND THEIR RESPECTIVE DISTRIBUTORS AND RETAILERS SHALL NOT BE LIABLE FOR ANY DAMAGES ARISING FROM, OR IN CONNECTION WITH THE NON-COMPLIANCE OF PARROT WITH THE DOCUMENTATION OR THE APPLICABLE REGULATIONS BY YOURSELF OR ANY PERSON USING YOUR **ANAFI USA**.

TECHNICAL SPECIFICATIONS

DRONE

- Mass: 496 g / 1 lb.
- Maximum take-off mass (MTOM): 644 g / 1.42 lb.
- Maximum transmission range: 4 km with the Parrot Skycontroller USA (5 km with the Microhard)
- Maximum flight time: 32 min (30 min with the Microhard)
- Maximum horizontal speed: 14.7 m/s (52.92 km/h or 32.88 mph)
- Maximum vertical speed: 6 m/s (21.60 km/h or 13.42 mph)
- Maximum wind resistance: 14.7 m/s (52.92 km/h or 32.88 mph)
- Maximum propeller speed: 11,000 rpm
- Sound power level at 1m (3ft): 84 dB
- Service ceiling: 5.000 m above MSL (Mean Sea Level)
- TOGA (Tactical Open Government Architecture) compatible
- TAA & NDAA compliant
- Optional geocaging
- Operating temperature: -32F (-35 °C) to 120F (49 °C)
- No take-off temperature limitation
- IP53: rain and dust resistant
- No NFZ (no-fly zone) limitation
- Takes off from / lands in the hand of the operator
- Manage your data privately between drone and controller OR share anonymous data on secured European servers

DIMENSIONS:

- Size folded: 252 x 104 x 82 mm
- Size unfolded: 282 x 373 x 84 mm
- Size unfolded with Microhard: 282 x 373 x 192 mm

SENSORS:

- Satellite navigation: GPS, GLONASS & GALILEO
- Barometer and magnetometer
- Vertical camera and ultra-sonar
- 2 x 6-axis IMU
- 2 x 3-axis accelerometers
- 2 x 3-axis gyroscopes

EO IMAGE CHAIN

- 2 Sensors: ½.4''
- Digital zoom: 32x
- Electronic shutter speed: 1 s to 1/10000 s
- ISO range: 100-3200
- Video resolution: 4k/FHD/HD
- Video format: MP4 (H264)
- Photo resolution: Wide: 21 MP (84° FOV); Rectilinear: up to 16 MP (up to 75.5° FOV)
- Photo formats: JPEG, DNG (Digital NeGative RAW)

IR IMAGE CHAIN

Sensor: FLIR BOSON

- 320x256 resolution
- -40 °C to +150 °C temperature range
- Thermal sensitivity: <60 mK
- Measured IR wavelength range: 7.5 to 13 micrometers
- Photo format: JPEG
- Video format: MP4 (H264)
- Video recording resolution: 1280x720, 15 fps

IMAGE STABILIZATION

- 3-camera IR/EO stabilized gimbal:
  - Hybrid: 3-axis
  - Mechanical: 2-axis roll / pitch
  - Electronics (EIS): 3-axis yaw / roll / pitch
- Controllable gimbal tilt range: -90° to +90°

FAST-CHARGING SMART BATTERY

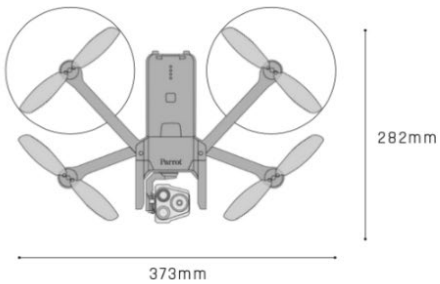
Type: High density LiPo (3 x 4.4 V cells)
Capacity: 3400 mAh
Battery life: 32 minutes
Charging port: USB-C
Charges in 2h with an USB-PD (Power Delivery) charger
Mass: 195 g / 0.43 lb.
Voltage: 11.55 V
Max charging power: 30 W

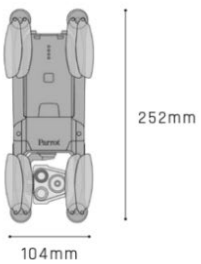
PARROT SKYCONTROLLER USA

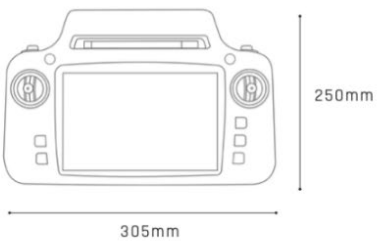
Size: 305 x 260 x 51 mm
Mass: 1,29 kg / 2.84 lbs.
Transmission system: Wi-Fi 802.11a/b/g/n (Wi-Fi beacon)
Operating frequencies: 2.4 – 5.8 GHz
Max. transmission distance: 5 km / 3.1 mi
Resolution of live video feed: HD 720p
Charges 2h for 4h30 use
Based on the Samsung Galaxy Tab A (2019) tablet
IP53: rain and dust resistant

pDDL1800 1.8 GHz MICROHARD

TOGA (Tactical Open Government Architecture) compatible
Foldable antennas
Range: 5 km (3.1 mi)
AES 256 encryption
Additional mass on the drone: 25 g







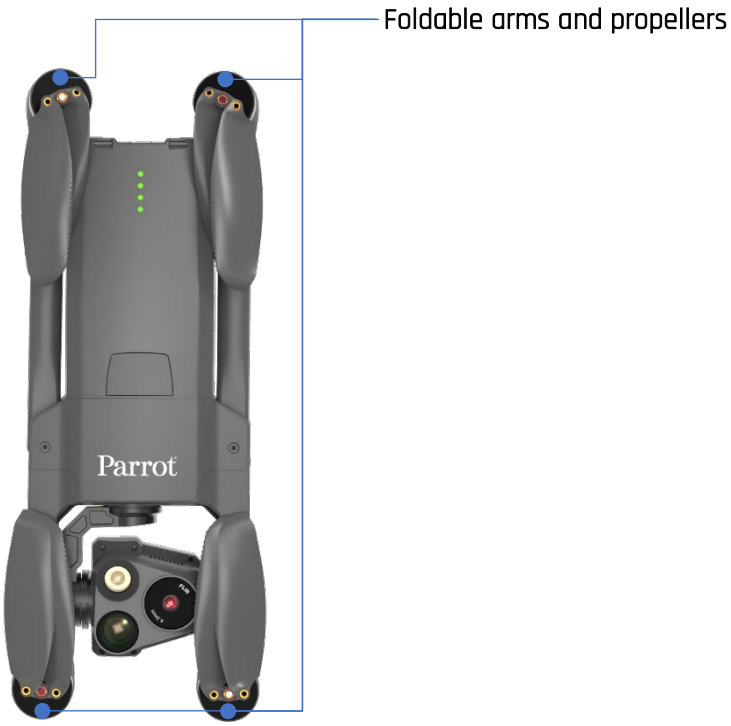
PACKAGE CONTENTS

Your **ANAFI USA** package contains:

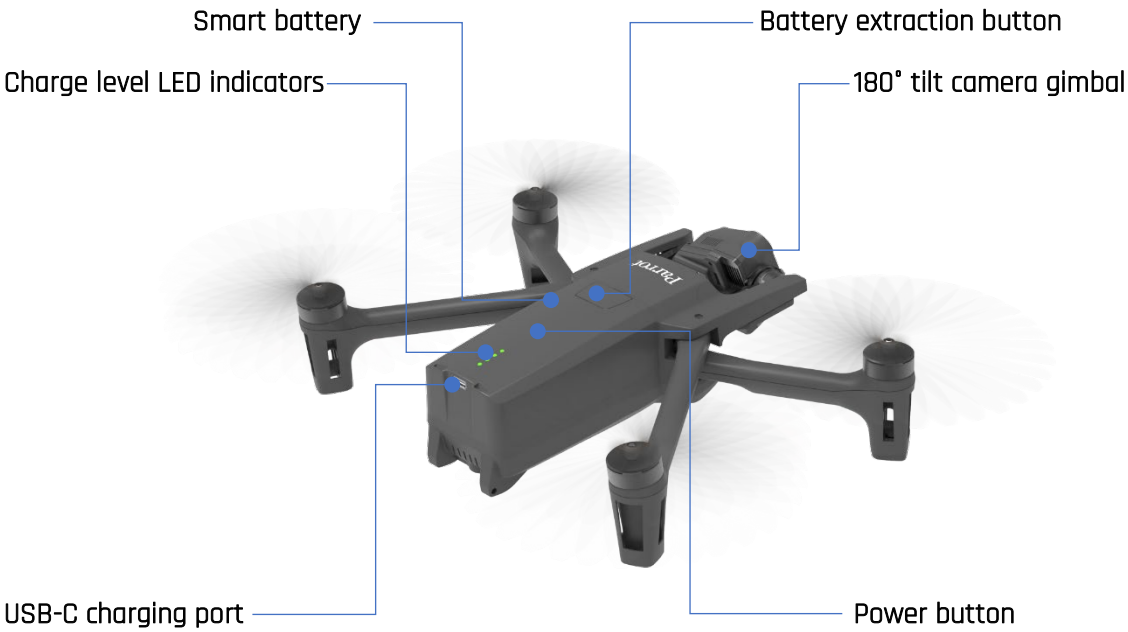
- 1 **ANAFI USA** drone
- 3 smart batteries (2 + 1 preinstalled on **ANAFI USA**)
- 1 **Parrot Skycontroller USA**
- 1 multi-port fast USB charger
- 1 Skycontroller USA charger
- 1 additional set of propeller blades
- 3 USB-A/USB-C cables
- 1 hard case
- 1 sunvisor
- 1 neck strap
- 1 AES encrypted Microhard radio communication system (installed on **ANAFI USA** and the **Skycontroller USA**)

PRESENTATION OF ANAFI USA

Ready to store or carry

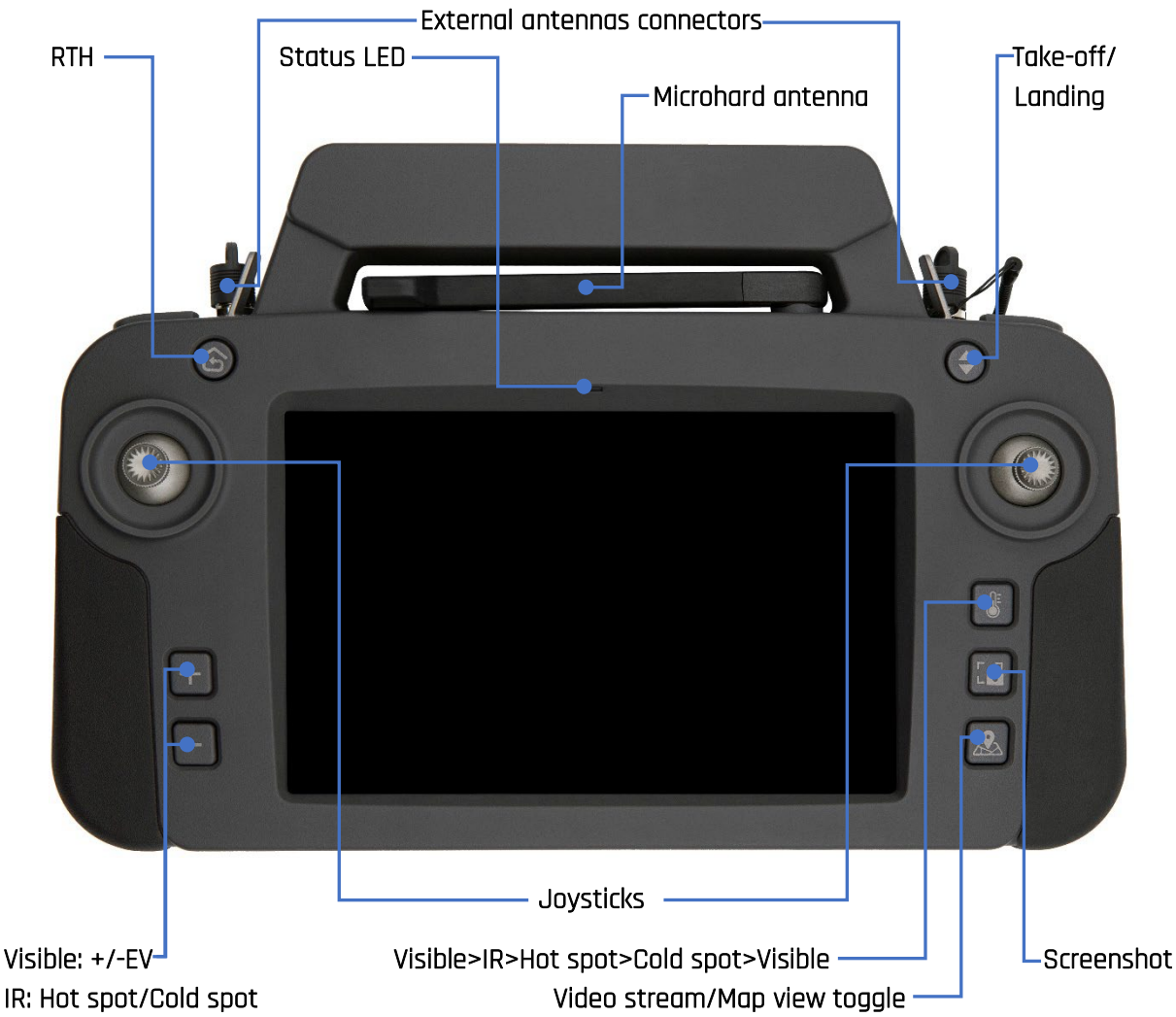


Ready to fly

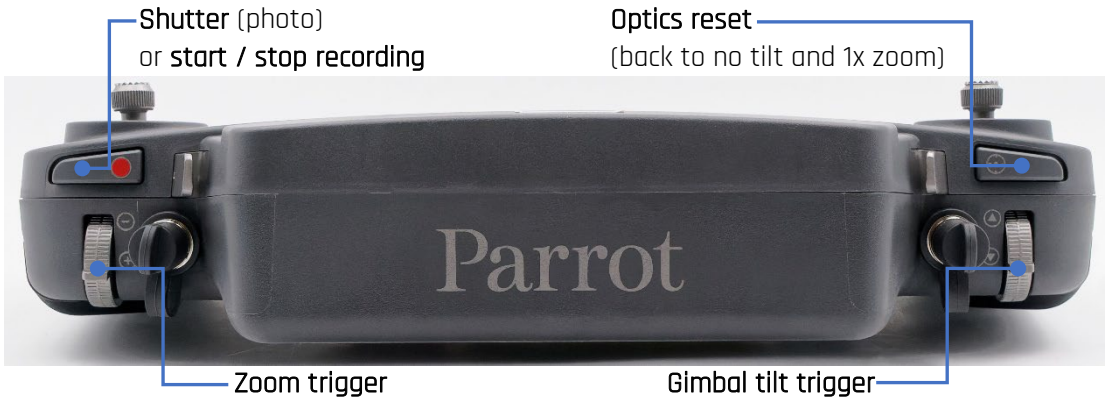


Note the Microhard antenna is not featured on this page. Refer to the illustration on the previous "Package contents" page for the aspect of the drone equipped with the antenna.

Presentation of Parrot Skycontroller USA



Top panel



Note the Microhard antenna is not featured on this page. Refer to the illustration on the earlier "Package contents" page for the aspect of the Skycontroller USA equipped with the antenna.

LED status indicator codes

When the **Parrot Skycontroller USA** is powered on, its LED status indicator gives you an instant visual indication:

- Steady green: **Skycontroller USA** Maintenance Mode;
- Flashing green: **Skycontroller USA** update in progress;
- Light blue/dark blue alternating: connecting to **ANAFI USA**;
- Flashing light blue: no drone configured or wrong WPA key;
- Steady dark blue: connected to **ANAFI USA**;
- Purple/dark blue alternating autonomous flight in progress;
- Red/any color alternating: low battery alert (**ANAFI USA**, **Skycontroller USA,** or both) or RTH alert.

Skycontroller USA Maintenance Mode

Setting the Skycontroller USA in Maintenance Mode is indispensable to access the tablet's data (screenshots, downloaded media) and to install maps (batches of PNG images, compressed together in a ZIP archive).

Equipment required:

- a laptop or tabletop computer equipped with an USB-A port;
- a USB-A to USB-C cable.

To activate the Maintenance Mode, power the Skycontroller USA on and connect its USB-C port to the computer's USB-A port.

Press and hold the RTH button of the Skycontroller USA, then activate its reset button with the tip of a paperclip or that of a pen.

The LED of the Skycontroller USA turns light blue, then, after approximately three seconds, it turns green.

When the LED is green, release the RTH button.

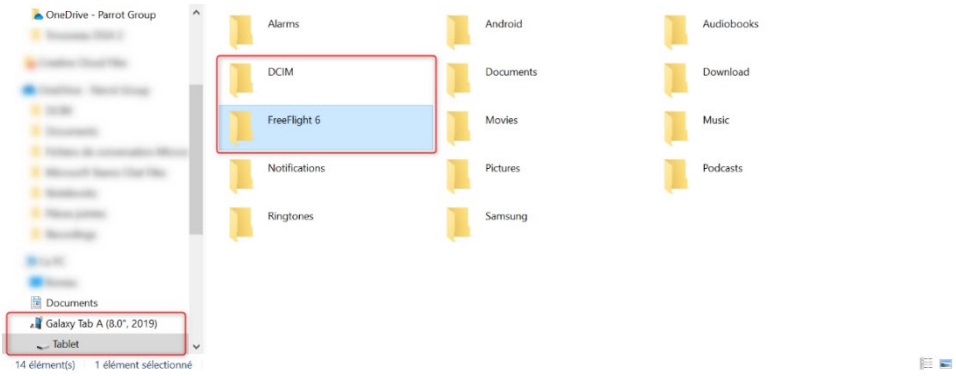
If a pop-up appears on the screen of the Skycontroller USA, accept the connection with the host computer.

After a few seconds, the internal memory of the tablet associated to the Skycontroller USA appears on the screen of your computer:

“Galaxy Tab A (8.0'', 2019)/Tablet”.

Find your media in the “DCIM” folder.

Install your maps in the “**FreeFlight 6/Custom maps**” folder.



If these folders do not exist, you can create them, using the exact above-mentioned names and cases.

Wi-Fi pairing ANAFI USA to a Parrot Skycontroller USA

This procedure is useful to pair vis Wi-Fi a drone and a controller which have never been paired, and to restore the lost Wi-Fi pairing between a drone and a controller.

1. Check a compatible microSD card is inserted into **ANAFI USA**.
2. Power **ANAFI USA** on.
3. Power the **Parrot Skycontroller USA** on.
4. Plug the drone and the controller together with an USB-A (controller) to USB-C (drone) cable.
5. The LED of the **Parrot Skycontroller USA** flashes briefly in green: it is acknowledging **ANAFI USA**.

PRE-FLIGHT CHECKLIST

Equipment

- ⚠ Make sure you have downloaded the latest version of FreeFlight 6 and that both your Parrot Skycontroller USA and your ANAFI USA have been updated with the latest versions of firmware.
- ⚠ Make sure ANAFI USA is fitted with a microSD card with enough free memory space.
- ⚠ Make sure all four foldable arms of **ANAFI USA** are unfolded.
- ⚠ Make sure its propellers are clean, intact and unobstructed.
- ⚠ Make sure both **ANAFI USA**'s and **Parrot Skycontroller USA**'s batteries are fully charged.
- ⚠ Make sure **ANAFI USA**'s battery is securely installed on the drone's body.
- ⚠ Make sure the gimbal cap has been removed from **ANAFI USA**.
- ⚠ Make sure **ANAFI USA**'s lenses are clean – if you need to clean them, hold the gimbal between two fingers so that you do not pressure its mechanism when you clean the lenses, and gently wipe the lenses with a microfiber cloth.

Regulations

- ⚠ Make sure the use of **ANAFI USA** is allowed where you are intending to fly.
- ⚠ Check for potential restrictions regarding the use of Wi-Fi frequencies in the area where you are intending to fly.

Flight conditions

- ⚠ Check that your flying zone is safe and clear.
- ⚠ Do not fly **ANAFI USA** over urban areas or over restricted airspaces such as airports, train stations, power plants, national reserves, and so on.
- ⚠ Check the weather: do not fly **ANAFI USA** in the fog or in a wind exceeding 15 meters per second or 50 km/h.
- ⚠ Due to the operating mode of its vertical camera and ultrasound sensor, Parrot recommends you do not fly ANAFI USA less than 10m (30 ft) over water and other reflective surfaces (mirrors, glass, and so on).

ANAFI USA has been designed to assist first responders at a second's notice, whatever the time, location and weather conditions. It has no inbuilt no-fly zone limitation, it can fly in the rain and can be very useful at night. Always deploy ANAFI USA responsibly.

GETTING STARTED

1. Charge the batteries using the enclosed USB-A to USB-C cables and charger. Refer to the *"Battery charging"* section of this guide for additional information. **Parrot recommends you always run a full charge of all your batteries before flying ANAFI USA.**
2. Check that your flying zone is safe and clear.
3. To start the drone, place it on a flat horizontal surface and press the power button.
4. Power your **Parrot Skycontroller USA** on.
5. Launch **FreeFlight 6,** which connects **ANAFI USA** to **Parrot Skycontroller USA**.
6. Check for controller and drone software updates.
7. Calibrate your **ANAFI USA**, your **Parrot Skycontroller USA**, or both, if required, following the instructions on the screen.
8. Check that your flying zone is still safe and clear, and that no one (people, animal) has approached or is approaching **ANAFI USA**.
9. Stay at least 2 m (6 ft) clear from the drone, press the ⇳ button: the mission starts.

TAKING OFF

Ground take-off

Position **ANAFI USA** on a flat, even, and clear surface.

Power it on, move at least 2 m (6 ft) away from **ANAFI USA** and check that the surroundings of the drone are absolutely clear.

Press the ⇳ button on your **Parrot Skycontroller USA**, or activate the green "TAKE-OFF" box, on the screen.

ANAFI USA takes off and stabilizes at 1 m (3 ft) from the ground, waiting for commands from the pilot.

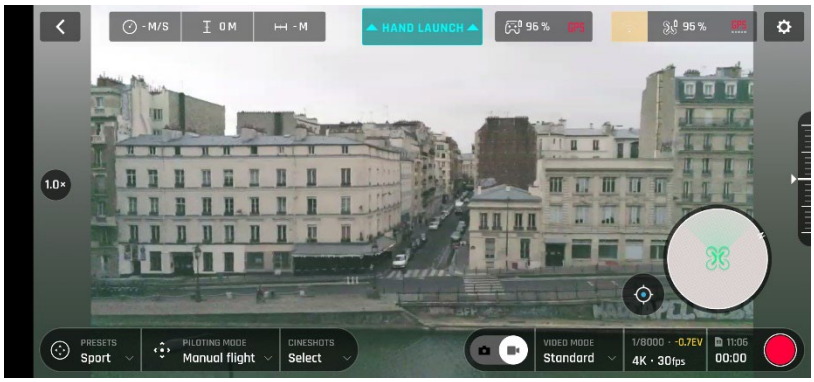
Hand launch

⚠ **Be especially careful when you hand launch ANAFI USA. This procedure is safe provided you are not distracted or startled by an outside event with a live drone in your hand: concentrate on what you are doing, but always stay aware of your surroundings.**

Upon first opening of FreeFlight 6, a hand launch tutorial reminds you the following procedure. You can activate hand launch from this tutorial page.

You can also activate the hand launch option from the *"Interface"* menu of **FreeFlight 6** *"PREFERENCES"* (refer to the *"PREFERENCES – Interface"* section of this guide for further information).

Power **ANAFI USA** on and position the drone on your flat, open hand. On the screen of the **Parrot Skycontroller USA**, the green "TAKE-OFF" box is replaced by a blue "HAND LAUNCH" box.



ANAFI USA: "Hand Launch" Screen

Press the ⇳ button on your **Parrot Skycontroller USA**, or tap the blue "HAND LAUNCH" box on the screen. The drone's blades start rotating slowly and the screen displays a hand-launch animation.

Wait until the propellers' rotation speed stabilizes, then briefly and briskly lift ANAFI USA up and forward with your open hand. ANAFI USA is airborne. It stabilizes, waiting for commands from the pilot.

DEPLOYMENT FROM A MOVING VEHICLE

Points of attention for the deployment of the drone from a moving vehicle

- ⚠ Whenever possible, mobilize two operators for the deployment of the drone from a moving vehicle.
- ⚠ If only one operator is available, favor the "Take-off from a moving vehicle" procedure.
- ⚠ If required by FreeFlight 6 and whenever possible, carry out the magnetometer calibration of the drone far away from any metallic mass.
- ⚠ When preparing a deployment from a ship or an armored vehicle, always keep your powered-on drone in your hand, away from the floor of the ship or the roof of the vehicle.
- ⚠ The GPS fix is not mandatory to deploy the drone from a moving vehicle, but it is always recommended.
- ⚠ In the unlikely situation where the drone would find itself disoriented after a launch or a take-off from a moving vehicle (uncontrolled rotation), quickly and firmly take back the commands of the drone in rotation and elevation (left joystick laterally and upward in default mode) to retrieve flight control.

Hand launch take-off from a moving vehicle

- ⚠ Be cautious when launching ANAFI USA from a moving vehicle. This procedure is safe provided you are not distracted or startled by an outside event with a live drone in your hand: concentrate on what you are doing, but always stay aware of your surroundings.
- ⚠ Parrot recommends mobilizing two operators for this procedure: one operator launches the drone while another operator controls the drone with both joysticks of the Skycontroller USA.

Activate the hand launch option from the "*Interface*" menu of **FreeFlight 6**'s "*PREFERENCES*" (for further details, refer to the "*PREFERENCES – Interface*" section of this guide).

Power **ANAFI USA** on and position the drone in the palm of the operator's hand. On the screen, the green "TAKE OFF" box has been replaced by a blue "HAND LAUNCH" box.

Stabilize as much as possible the speed and direction of the vehicle (up to 30 km/h, without wind or downwind, in a straight motion).

Press the ⦿ button of the **Parrot Skycontroller USA**, or activate the launch directly from the blue "HAND LAUNCH" box on the screen. Motors and propellers start rotating slowly and an animation on screen confirms the activation of a hand launch.

When the propellers' speed has stabilized:

1. **Briefly and briskly lift ANAFI USA upward and toward a direction free of all obstacles and forward with your open hand;**
2. immediately push the left joystick of the **Skycontroller USA** (elevation) upward (default control mode) to give altitude to the drone;
3. if possible, monitor the behavior of the hovering drone for 10 to 30 seconds before beginning the mission, to confirm the convergence of all sensors' estimates.

Standard take-off from a moving vehicle

⚠ **Be cautious when performing an ANAFI USA take-off from a moving vehicle. This procedure is safe provided you are not distracted or startled by an outside event with a live drone in your hand: concentrate on what you are doing, but always stay aware of your surroundings.**

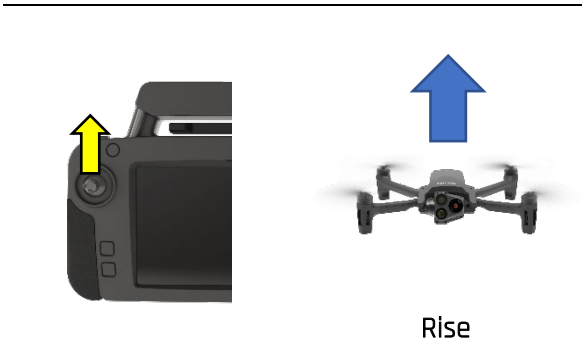
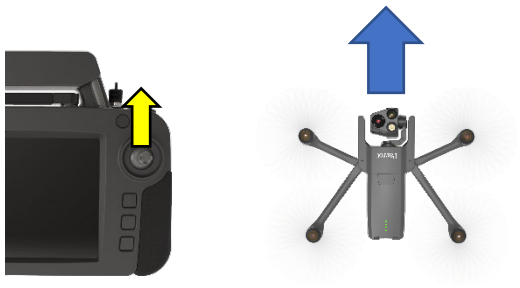
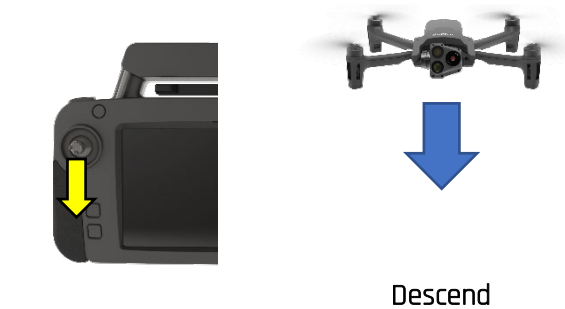
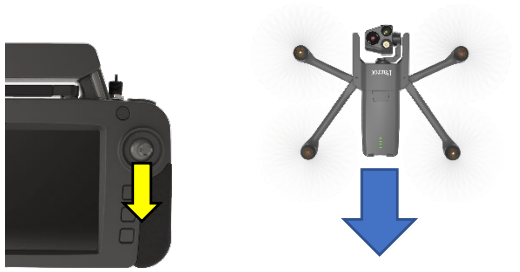
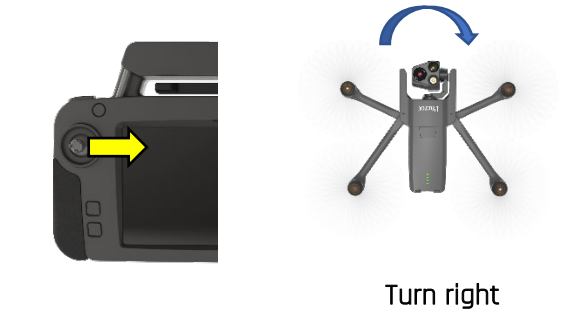
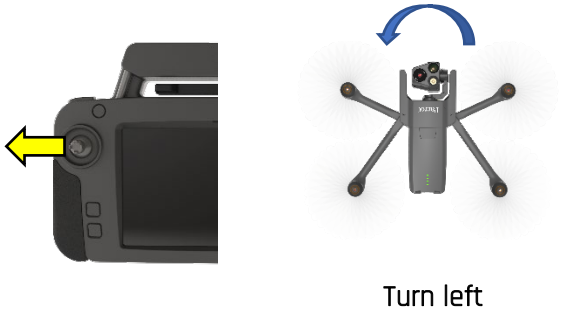
Deactivate the hand launch option from the "*Interface*" menu of **FreeFlight 6**'s "*PREFERENCES*" (for further details, refer to the "*PREFERENCES – Interface*" section of this guide).

Power **ANAFI USA** on and position the drone in the palm of your hand.

Stabilize as much as possible the speed and direction of the vehicle (up to 30 km/h, without wind or downwind, in a straight motion).

1. Press the ⇳ button of the **Parrot Skycontroller USA**, or activate the take-off directly from the green "TAKE OFF" box of the screen;
2. immediately push the left joystick of the **Skycontroller USA** (elevation) upward (default control mode) to give altitude to the drone;
3. if possible, monitor the behavior of the hovering drone for 10 to 30 seconds before beginning the mission, to confirm the convergence of all sensors' estimates.

FLYING

Left control stick (default mode)	Right control stick (default mode)
 Rise	 Forward
 Descend	 Reverse
 Turn right	 Move to the right
 Turn left	 Move to the left

- You can modify **ANAFI USA**'s controls through the PREFERENCES menu of **FreeFlight 6**. Refer to the *"PREFERENCES / Controls"* section of this guide for additional information.
- As a safeguard measure, **ANAFI USA** is programmed to instantly cut its motors in case of impact on one of its propeller blades: always control your drone carefully.

OPTIMAL SPEEDS

Refer to the *"PREFERENCES / Presets"* of this guide for additional information about the settings of the flight behavior of the drone. Among these settings, two precise values enable you to optimize either **ANAFI USA**'s flight time, or the distance it can cover on a single battery.

Optimal autonomy (flight time)

A 9° inclination angle (pitch) enables **ANAFI USA**, at full throttle, to keep a **6 m/s** horizontal speed. This speed, maintained on a full flight, guarantees the longest autonomy, for the drone.

Optimal elongation (distance)

A 22° inclination angle (pitch) enables **ANAFI USA**, at full throttle, to keep a **12 m/s** horizontal speed. This speed, maintained on a full flight, enables the drone to cover the longest distance, on a single battery.

WI-FI LINK OPTIMIZATION

ANAFI USA's ecosystem is designed to optimize, in real time, the Wi-Fi communications between the **Parrot Skycontroller USA** and the drone: by default, the ecosystem automatically selects the most efficient Wi-Fi channel available.

In urban environments, 5 GHz Wi-Fi channels suffer typically less interference than 2.4 GHz channels. Refer to the *"PREFERENCES / Network"* section of this guide for additional information on Wi-Fi channel management and allowing automatic switching to 5 GHz channels.

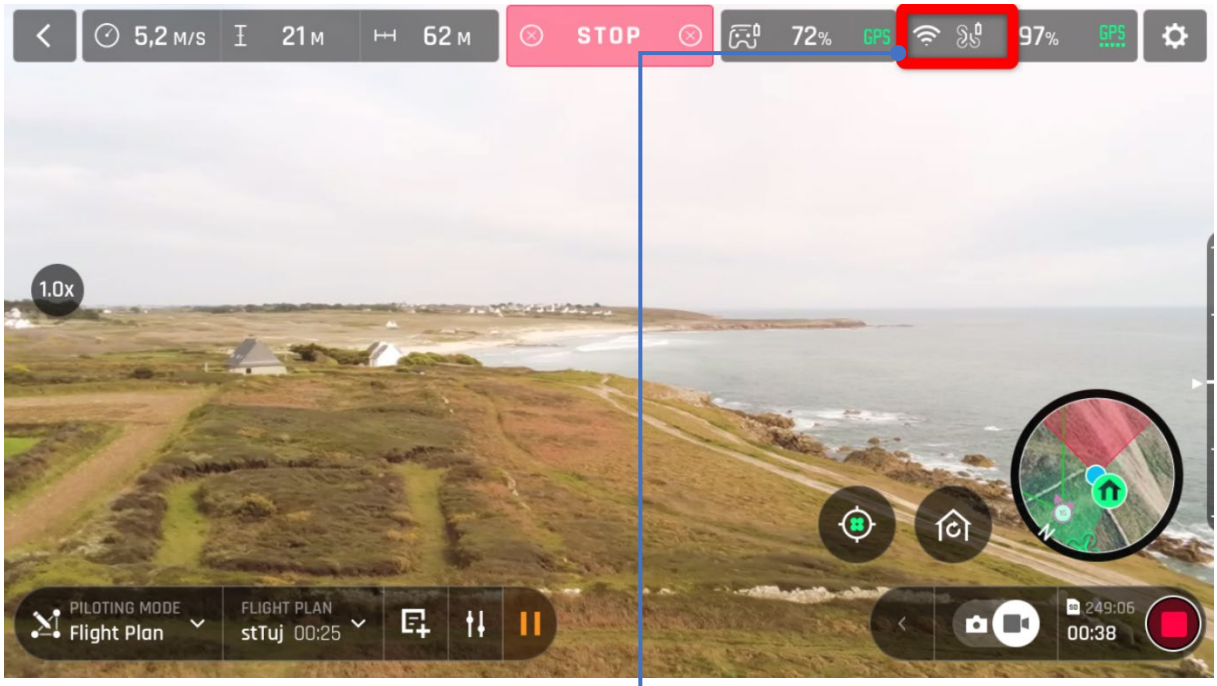
To maintain an optimal Wi-Fi link between the remote control and the drone, remember to keep a clear line of sight between them, and always direct the antennas of the **Parrot Skycontroller USA** toward **ANAFI USA**.

Several **FreeFlight 6** alerts enable you to react before a complete loss of Wi-Fi link. If the connection breaks down, **ANAFI USA** automatically initiates a RTH procedure: by default, the drone flies upward to 30m and starts flying toward its take-off position.

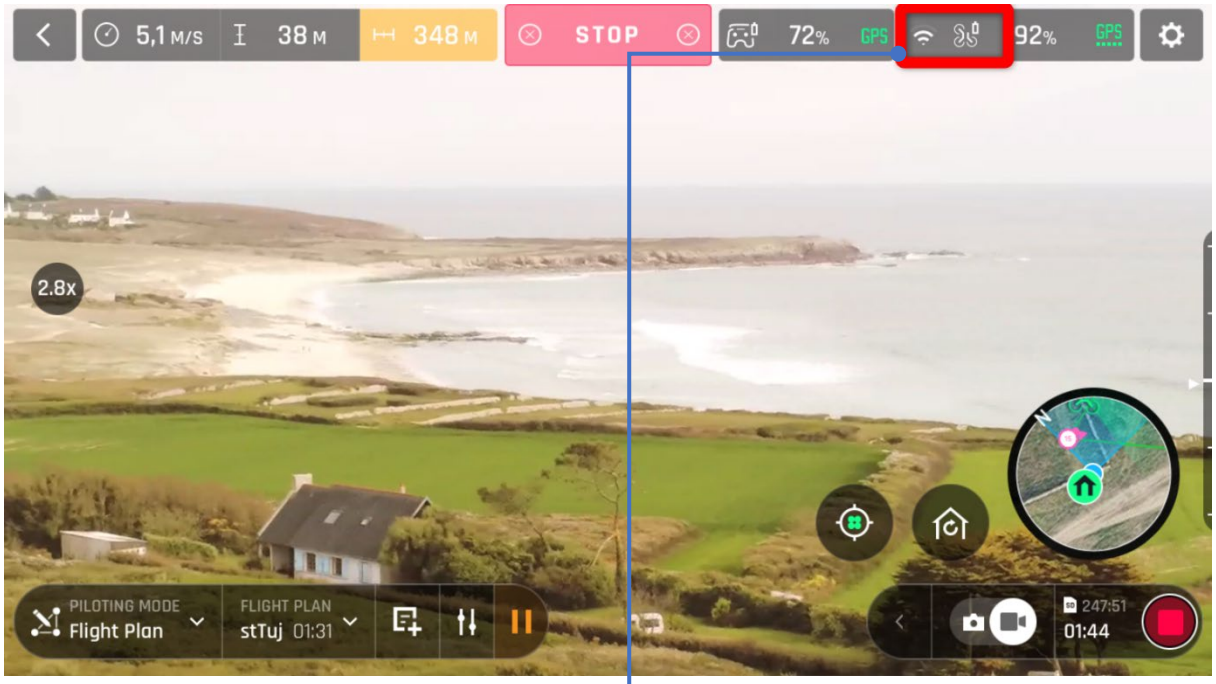
In most cases, this behavior enables a very fast recovery of the Wi-Fi link between the remote control and the drone, and pilots regain full control of the flight.

Refer to the *"Returning home"*, *"Smart RTH"*, *"Coordinates and advances RTH settings"* and *"PREFERENCES – Safety"* sections of this guide for additional information on RTH configuration.

Refer to the next pages for FreeFlight 6 screenshot illustrations of Wi-Fi statuses.

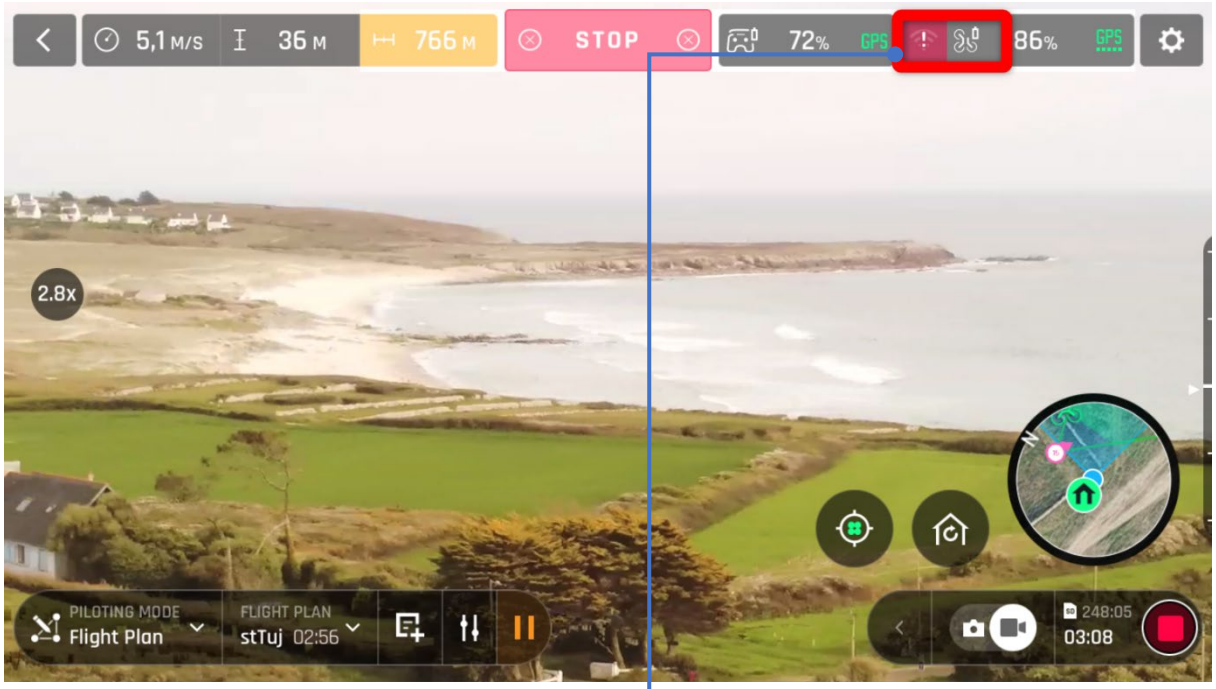


Wi-Fi link is perfect



Wi-Fi link is good

Wi-Fi link is degraded



Wi-Fi link is about to break-up

⚠ A Flight Plan has been set up in a controlled environment to illustrate all Wi-Fi statuses for the purpose of this user guide: **never fly your drone out of your direct line of sight unless special authorization has been granted.**

Parrot

RETURNING HOME

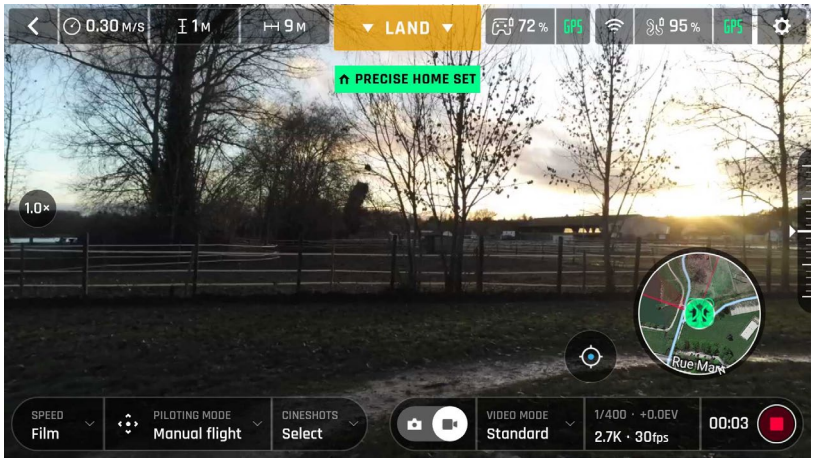
To bring **ANAFI USA** back to its take-off position, press the button on your **Parrot Skycontroller USA**, or tap the icon on your screen.

ANAFI USA rises to 30 meters over its take-off point – or to the altitude you have set, through **FreeFlight 6**, between 20 and 100 meters – and flies back over its take-off position.

Refer to the *"PREFERENCES – Safety"* section of this guide for further instructions on RTH configuration.

Precise Home Setting

When flight conditions are optimal at take-off, **ANAFI USA** can set a "precise home" for itself, through its vertical camera. In that case, a pop-up on the screen of **FreeFlight 6** confirms a precise home has been set, and the home icon of the minimap turns green.



"Precise Home Set" pop-up

SMART RTH

ANAFI USA features a Smart RTH capability: considering its altitude and its distance from its take-off point, the drone computes in real time the power it needs to return home – or to the pilot, or to a custom location (refer to the "*PREFERENCES - Safety - Advanced RTH settings*" of this guide for additional details on this feature). When short on battery power, **FreeFlight 6** alerts you that it will enter Smart RTH mode.

If you feel confident you can bring **ANAFI USA** back to its take-off point or if you wish to land it at a different location, you can cancel the Smart RTH directly from the alert pop-up.

COORDINATES AND ADVANCED RTH SETTINGS

ANAFI USA features a fly-by-coordinates function which allows you to instantly display, reuse and share any coordinates in the surroundings of your drone – or indeed the GPS position of your drone itself. This is especially useful to precisely locate any point of interest or person **ANAFI USA** has detected.

This section explains how to access coordinates on the **FreeFlight 6** app map, in flight or to prepare a flight – same simple procedure.

It then presents the advanced RTH function of the drone, and notably the custom RTH option, which relies on managing coordinates.

Managing coordinates

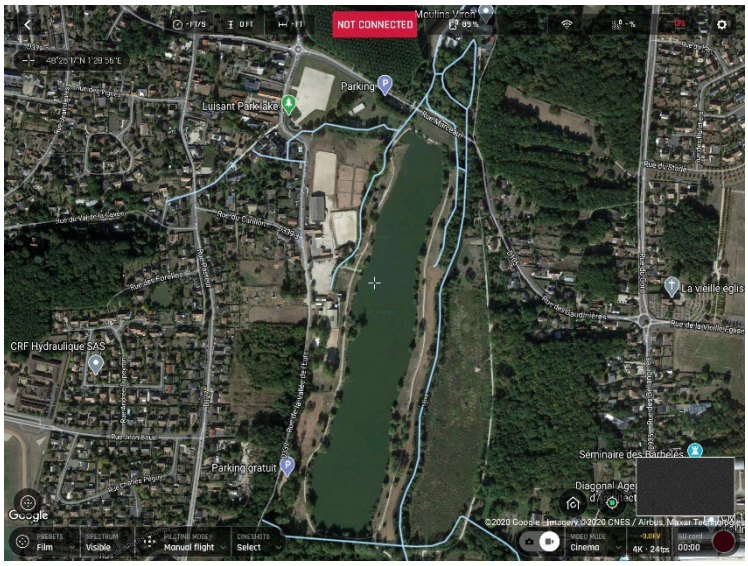
By default, coordinates are displayed on the **FreeFlight 6** app map. They can be set as latitude and longitude (LATLNG: default value), MGRS (Military Grid Reference System: NATO's geocoordinate standard), UTM (Universal Transverse Mercator), or DMS (degree, minute, second – of arc). Refer to the *"PREFERENCES – Interface – Coordinates system setting"* section of this guide for information on selecting a coordinates system.

In the following example, coordinates system is set on DMS. The drone is offline and the **Parrot Skycontroller USA** is connected to local Wi-Fi.

*Offline **FreeFlight 6** interface: tap minimap to open full screen*

Tap "FLY" from the **FreeFlight 6** homepage.

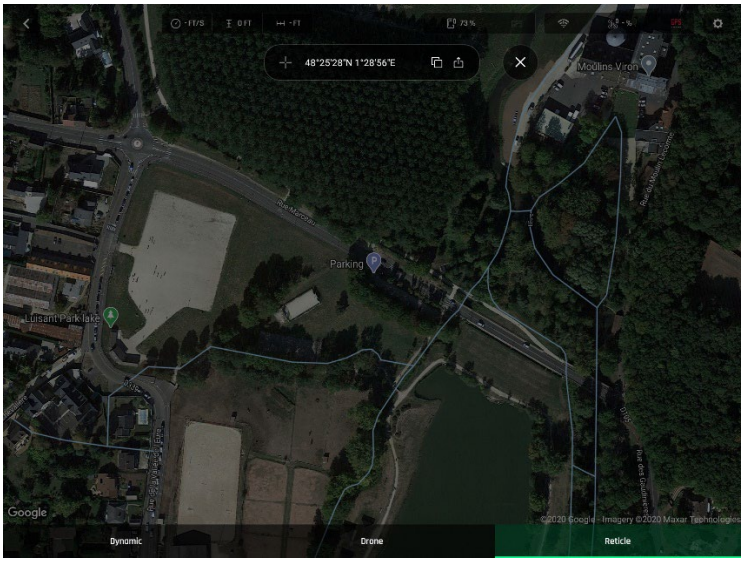
Tap the minimap on the bottom center of the offline interface to access the full screen map.



Reticle (crosshair) at the center of the screen, coordinates top left

By default, "Reticle" (crosshair at the center of the screen) coordinates are displayed on the top left of the screen.

Move the map around and zoom in to pinpoint any spot, then tap the coordinates box to activate coordinates options.



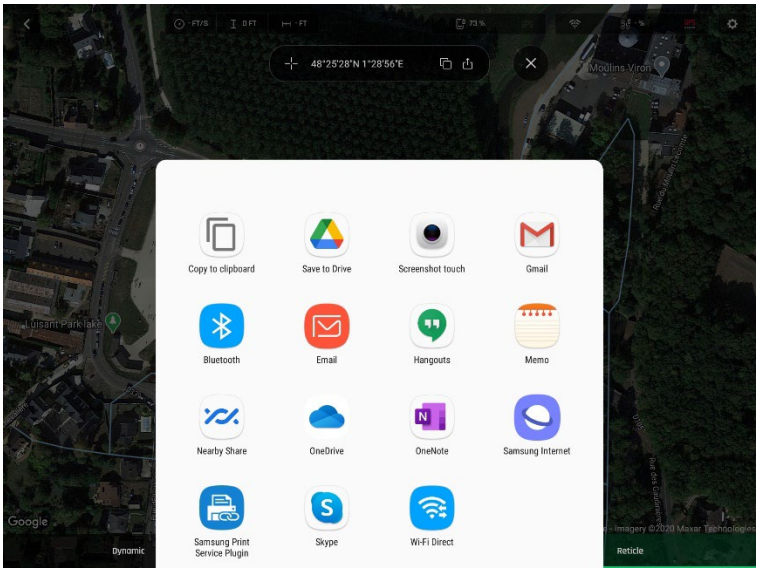
Coordinates options

Tap ⧉ to copy coordinates to clipboard – and reuse as custom RTH point, for instance.

Note the options at the bottom of the screen (tap to select):

- Reticle (default value) displays center of the map coordinates
- Drone displays drone coordinates (when online) or its last known position (when offline)
- Dynamic displays drone, POI or WP coordinates (autonomous or assisted flights only*)

** Refer to the* "Map based flying modes" *section of this guide for further information on autonomous and assisted flights.*



Sharing options

Tap from coordinates options to open the **Parrot Skycontroller USA** sharing options, like on the screenshot.

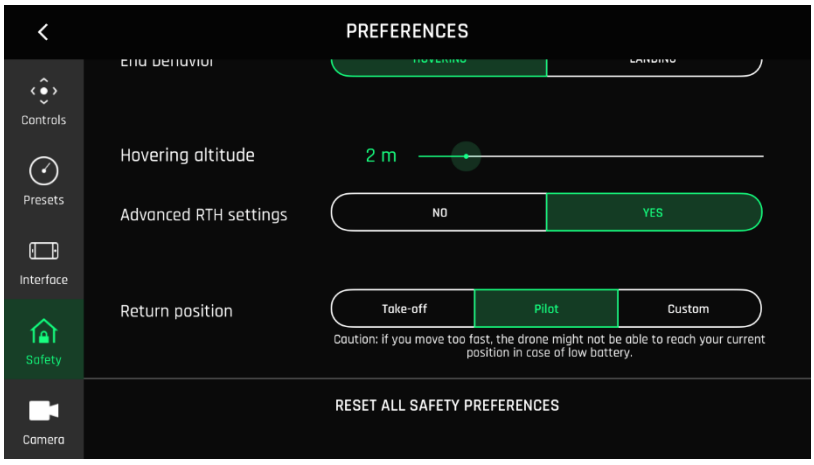
Tap X to exit coordinate options back to the full screen map.

About advanced RTH settings

Activate advanced RTH settings through the Safety Preferences of **FreeFlight 6** (refer to the *"PREFERENCES – Safety"* section of this guide for further information).

There are two advanced RTH options: Pilot & Custom.

⚠ *By activating advanced RTH features, if you select return to Pilot or Custom position, the drone might not be able to reach its destination in case of low battery. Parrot will not be held responsible in case the drone lands in a different location.*



Advanced RTH settings activated

Pilot RTH

When the “Pilot” advanced RTH option is selected, **ANAFI USA** comes back to the GPS position of the **Parrot Skycontroller USA** at the exact moment an RTH button is activated – or to the last known coordinates of the controller, in case it has lost GPS synch.

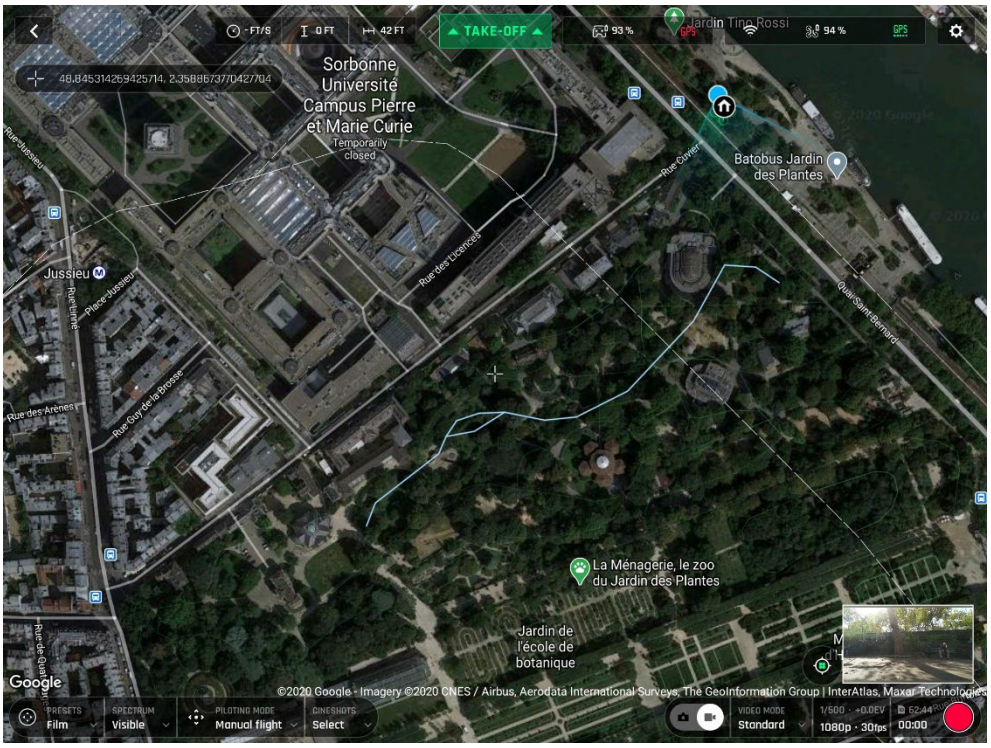
For this reason, we recommend ANAFI USA pilots not to move, after they have activated an RTH button, when in “Pilot” advanced RTH mode.

Custom RTH

By default, when you have set up **ANAFI USA** for a flight, provided it has a GPS synch, when you activate the “Custom” advanced RTH option, the current position of the drone appears in the “Custom point” field.

There are two ways to change this custom point.

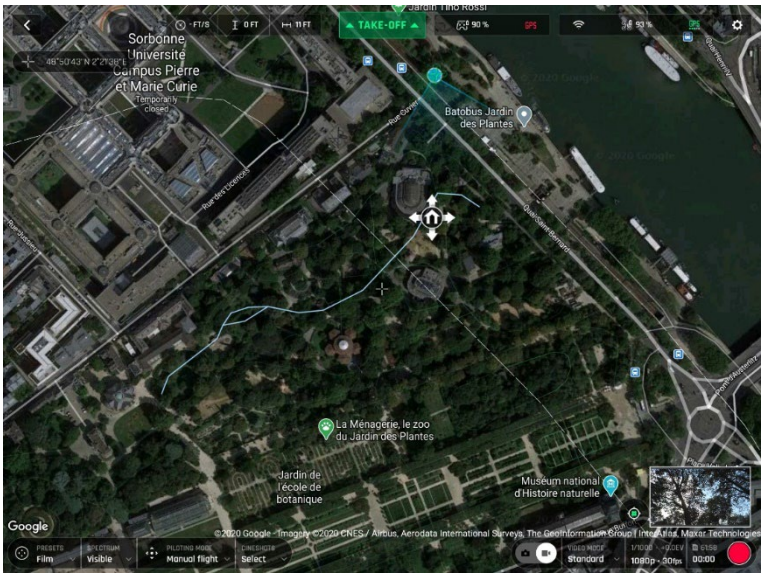
- Paste the coordinates you have copied from the map of **FreeFlight 6** – refer to the earlier section of this guide.
- If you have set up your drone for a flight, apply the following simple procedure to move the “Home” icon directly on the map of **FreeFlight 6**.



Initial home, at flight setup

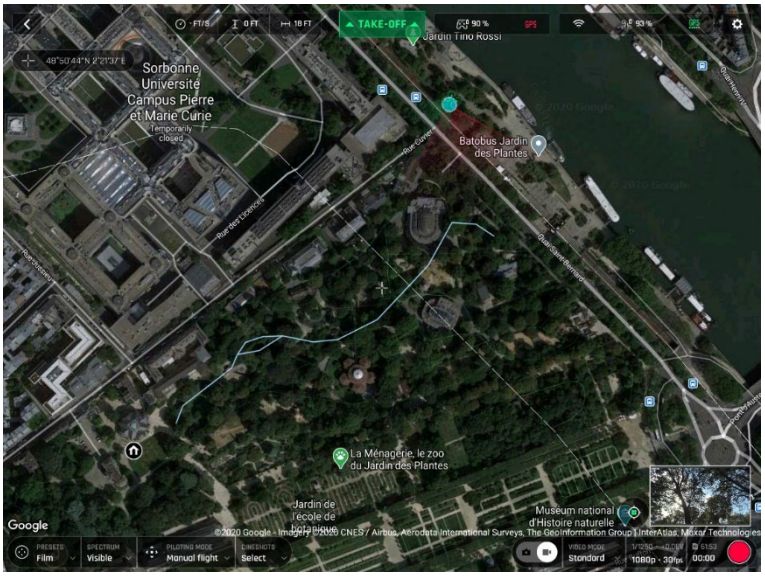
The “Home” icon appears close to the drone icon – or exactly over the drone icon if the 1st GPS fix at power up was excellent, like in our example. The blue dot materializes the position of the controller – typically that of the pilot.

Press the “Home” icon to activate it, then drag and drop it to your desired RTH point.



Home icon activated, ready to be dragged and dropped

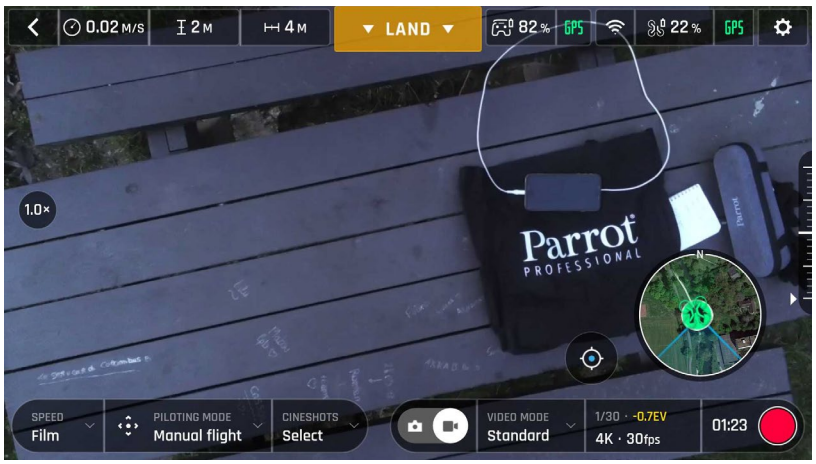
In our example, we have set up for a flight at a corner of a park, and planned an RTH over an open area, close to the center of the same park.



Custom RTH point set

Access Safety Preferences again and note the Custom point coordinates have been updated. You are set!

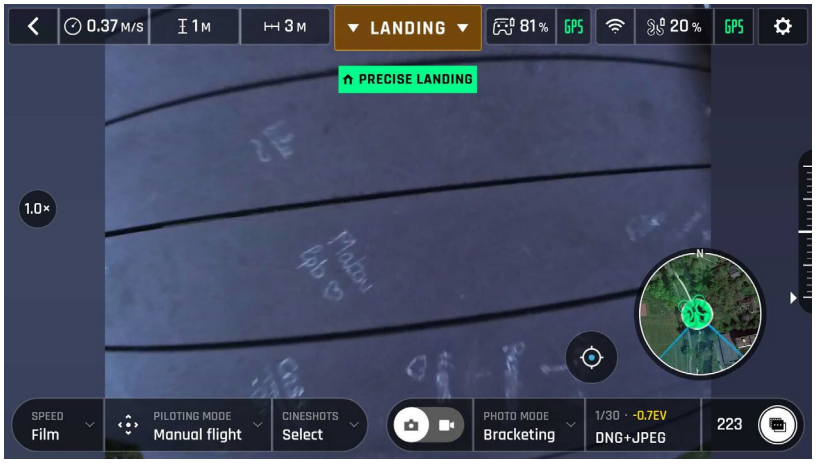
LANDING



Setting up for landing

Fly **ANAFI USA** directly over a flat, even, and clear surface, then press the ⇳ button, or tap the orange "LAND" box on the screen.

ANAFI USA lands.



Precise Landing

Hand landing

⚠ **Be especially careful when you hand land ANAFI USA. This procedure is safe provided you are not distracted or startled by an outside event with a live drone approaching your hand: concentrate on what you are doing, but always stay aware of your surroundings.**

Fly **ANAFI USA** at least 50 cm directly over your open hand then press the ⇳ button, or tap the orange "LAND" box on the screen.
ANAFI USA lands on your hand.

Recovery from a moving vehicle

⚠ Be cautious when you recover ANAFI USA from a moving vehicle: it is a technical gesture, which demands full focus.

⚠ Parrot recommends mobilizing two operators for this procedure: one operator pilots the drone, the second operator recovers ANAFI USA.

⚠ Always use a strong glove to recover ANAFI USA.

Before performing a drone recovery, reduce and stabilize the vehicle's speed as much as possible.

The pilot must present the rear of **ANAFI USA** on the side of the vehicle where the recovery operator is waiting for it.

To do so, the pilot must synchronize the lateral speed of the drone with that of the vehicle, and the altitude of the drone with that of the hand of the recovery operator.

When the drone is within the recovery operator's reach, his hand open, palm upward, he grabs the battery of the drone, from the bottom (under the drone's arms) between the thumb and the four other fingers.

Performing a quick wrist motion, the recovery operator turns the drone upside-down: **ANAFI USA** motors cut instantaneously.

REPLACING PROPELLER BLADES

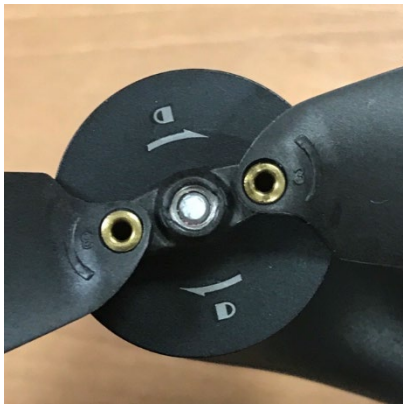
Propeller blades are instrumental for flight integrity and delicate pieces of equipment. Even minor contacts with external elements (wall, tree branch, etc.) can invisibly damage their structure.

Therefore, Parrot recommends you immediately replace propeller blades which have sustained such a contact.

ANAFI USA propeller blades have been designed for instant, no tool replacement. To replace a propeller blade, follow this simple procedure.

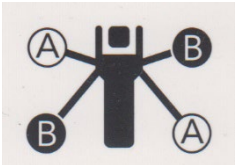
1. Unfold the arm that supports the blades which need to be replaced.
2. Hold the motor (round rotating part) of the propeller between your left thumb and index.
3. Unfold the blades and pinch the part which screws on the motor, between the blades, with your right thumb and index.

A. blades: unscrew damaged A blades (left front & right back) counterclockwise and screw new ones clockwise.



B. blades: unscrew damaged B blades (left back & right front) clockwise and screw new ones counterclockwise.

Double check your blades respect the following diagram before setting up **ANAFI USA** for its next flight.



SMART LIPO BATTERY

ANAFI USA's smart LiPo battery is preinstalled on the drone and should always be reinstalled in the same way, with the LEDs and power button facing up, to avoid irrecoverable electric damage to the battery, to the drone, or to both.

The smart battery can be charged whether it is installed on ANAFI USA, or not. When handling ANAFI USA, you should never apply pressure and generally avoid touching the drone's gimbal – its most sensitive part. The following directions will help you handle your drone and battery safely.

Battery removal

To remove the smart battery from the drone, unfold the back arms of **ANAFI USA**. Set the drone on a flat and even surface (such as a table), and press the push-button which connects the battery to the body of the drone with your thumb. Gently slide your thumb and the battery toward the back of **ANAFI USA**. When the hook of the push-button is disengaged from the body of the drone, lift the battery away from **ANAFI USA**.

Battery installation

To install the smart battery back on the drone, unfold the back arms of **ANAFI USA**. Set the drone on a flat and even surface (such as a table), and position the battery's three hooks into the drone's corresponding slots. Place your middle finger on the Parrot logo of **ANAFI USA** and your thumb on the back of the smart battery. Squeeze your fingers together until you feel and hear the battery clicking into the body of the drone. You are set!

Battery charging

To charge ANAFI USA's smart LiPo battery, use the enclosed USB-A to USB-C cable to plug the battery to a power source. This convenient cable enables you to charge your battery from:

- the enclosed charger;
- a tabletop or laptop computer's USB-A port;
- a power bank's USB-A port.

Indicative **full charging times** depending on power sources are as follows (at 20°C):

- enclosed charger: between 200 and 240 minutes;
- a computer's or power bank's USB-A port: between 300 and 350 minutes.

ANAFI USA's smart battery can also be recharged through a Power Delivery adapter or charger (USB-PD standard), using a USB-C to USB-C cable (not included in the box). In that configuration, full charging time of the battery can be reduced to 115 minutes.

⚠ **About USB-PD power banks: Parrot does not recommend ANAFI USA users to invest in a USB-PD power bank**, as not all of them support USB-C to USB-C charging of **ANAFI USA**'s battery. Indeed, due to the nature of the USB-C technology, some USB-PD power banks recharge on **ANAFI USA**'s smart battery, rather than the other way around.

When **ANAFI USA**'s smart LiPo battery is plugged to a power source and charging, **its 4 LEDs indicate in real time its level of charge**:

- LED 1 flashing: battery is between 0 and 25% charged;
- LED 1 steady & LED 2 flashing: battery is between 25 and 50% charged;
- LEDs 1 and 2 steady & LED 3 flashing: battery is between 50 and 75% charged;
- LEDs 1, 2 and 3 steady & LED 4 flashing: battery is between 75 and 100% charged;
- battery is plugged and all LEDs are off: battery is full.

Similarly, when **your battery is not installed on ANAFI USA**, you can check its charge level at any time by pressing its power button:

- 1 steady LED lights up: battery is between 0 and 25% charged;
- 2 steady LEDs light up: battery is between 25 and 50% charged;
- 3 steady LEDs light up: battery is between 50 and 75% charged;
- 4 steady LEDs light up: battery is between 75 and 100% charged.

Finally, the same logic applies when **the smart LiPo battery is installed on the drone and when ANAFI USA is powered on**. The number of steady LEDs enables you to estimate your remaining flying time:

- 1 steady LED is lit up: less than 8 minutes flying time remaining;
- 2 steady LEDs are lit up: between 8 and 16 minutes flying time remaining;
- 3 steady LEDs are lit up: between 16 and 24 minutes flying time remaining;
- 4 steady LEDs are lit up: between 24 and 30 minutes flying time remaining.

Battery software update

ANAFI USA smart batteries software can be updated, like the drone itself, its controller and its controlling software **FreeFlight 6**. When a battery update is available with a **FreeFlight 6** release, a message appears in the app.

Follow the simple in-app instructions to update your battery.

⚠ **Remember to keep your battery plugged to a power supply throughout the software update procedure and repeat it with all your batteries.**

Battery care and safety

As you can see, ANAFI USA's smart LiPo battery is as high-tech as any other element of your drone. It even features a wintering mode, designed to increase its durability and facilitate its care. Ideally, when not in use for a prolonged period, batteries should be stored half-charged. When not in use for 10 days, **ANAFI USA**'s smart battery discharges itself, if required, to 65% charge, over a 48h period. In other words, after a maximum of 12 days without use, this smart battery enters hibernation with a charge level which never exceeds 65%. If you leave your **ANAFI USA** battery for 12 days, you will find out its power button does not activate the charge level LED indicators. **The battery needs to be charged to exit the wintering mode and start operating as described in the earlier paragraphs: this behavior preserves the battery over time. Parrot recommends you always run a full charge of your smart battery before flying ANAFI USA.**

Like all other LiPo batteries, **ANAFI USA**'s smart battery must be handled, transported and stored with care:

- never leave a battery unattended while charging;
- never expose a battery to extreme temperatures, neither hot, nor cold;
- never charge a battery which is still warm from use (wait for at least 20 minutes);
- never use or recharge a damaged or swollen battery;
- always store your battery in a dry, ventilated place, at a temperature close to 20°C;
- always carry your battery in a fire-retardant bag or case (unless it is installed on **ANAFI USA**: it can then be transported with the drone, inside its carrying case).

Finally, note that **ANAFI USA**'s smart battery will only allow charge in ambient temperatures between +10°C and +45°C, and that using **ANAFI USA** in temperatures approaching -10°C will reduce its flying time. To minimize this slight drop in the smart battery's capacity, keep your battery as warm as possible before starting a flight in a cold environment.

⚠ **If the behavior of your battery is not consistent with the elements contained in this section, and if you cannot get it to power your ANAFI USA, you must hard reset your battery: plug it to a power source with the enclosed cable, then keep the battery's power button pressed for 15 seconds (regardless of the behavior of the LEDs), and release the button.**

The battery's LEDs flash quickly, one after the other, alternating green and red: the hard reset is successful!

MICRO SD CARD AND MEDIA MANAGEMENT

This section explains how to install a microSD card inside ANAFI USA and how to retrieve your media from the microSD card.

Installing a microSD card

To install a microSD card into its slot, the battery must be removed from the drone. Refer to the *"Battery removal"* section of this guide for details.

When you remove the battery from the body of the drone, you uncover the microSD slot, which is protected by a small metal lock.

Slide the metal lock with a finger toward the back of ANAFI USA to open it – you will feel a slight click. Lift the front part of the lock to open the slot. Position the microSD card into its keyed slot: make sure the metal contacts of the card are facing down and set on the contacts of the drone. The shortest side of the microSD card should be facing toward the back of the drone.

Tilt the metal lock over the microSD card. Press a finger gently on the lock and slide it toward the front of ANAFI USA to close and lock it – you will feel a slight click. A closed lock icon and an arrow, located on the right of the microSD slot, confirm to you the way you must slide the lock to close it.

Retrieving photos and videos

Use a microSD to SD card adapter to transfer videos and photos you have taken with **ANAFI USA** to your computer. Slide the microSD card into the adapter and use the adapter how you would use any other SD card: access your videos and photos through a card reader or the SD card slot of your computer. Copy your videos and photos to the hard drive of your computer to edit, store, and manage your media.

⚠ **Parrot recommends you backup your photos and videos, and you empty your microSD card after each flight, to ensure you always have available memory space to capture new still or moving images.**

Compatible microSD cards

Refer to Parrot online documentation for an updated list of compatible microSD cards.

Direct media retrieval (drone to computer)

You can also retrieve your media directly from ANAFI USA, without extracting the microSD card.

Note that connecting ANAFI USA to a computer will disable the Microhard link of the ecosystem. However, it will automatically be reactivated about 2 minutes after ANAFI USA has been unplugged from the computer.

Use an enclosed USB-A to USB-C cable to connect the drone (USB-C) to a USB-A port of your computer. Power **ANAFI USA** on.

ANAFI USA mounts as any other external drive: copy your media from the DCIM/100MEDIA directory to your computer's hard drive.

When you are done managing your media, eject **ANAFI USA** as any other external drive.

⚠ **When plugged in to a computer and powered on, ANAFI USA's battery discharges itself. This means you must recharge your smart battery after you have retrieved your media, even if it was fully charged when you began the procedure.**

FreeFlight 6 Gallery

Finally, you can manage your media and download them directly from ANAFI USA to your Parrot Skycontroller USA with the Gallery of FreeFlight 6.

The Gallery also lets you:

- **preview videos, without downloading them to your Parrot Skycontroller USA;**
- **create panoramas** (refer to the "Creating panoramas" section of this guide for additional details);
- **format a microSD card;**
- **encrypt a microSD card** (refer to the next sections of this guide for additional details).

To access the Gallery from the homepage of **FreeFlight 6**, either **tap the "microSD card" box**, on the top bar of the interface, or **tap the "Gallery" box**, at the center of the interface.

If **ANAFI USA** is powered on and connected to the **Parrot Skycontroller USA**, the FreeFlight 6 Gallery displays the microSD card media, by default.

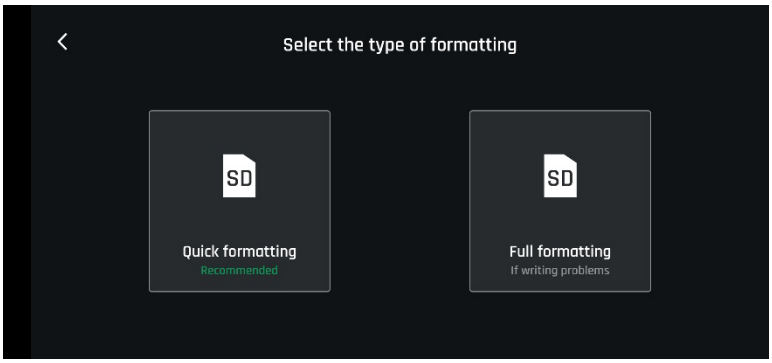
Tap any media to preview it.

Tap any green media download box to transfer the corresponding media to your **Parrot Skycontroller USA**.

Access the media you have downloaded to your **Parrot Skycontroller USA** by tapping the "Local" box, at the top of the interface.

MicroSD card formatting

Tap the “Format SD card” button of the SD Card screen of **FreeFlight 6** Gallery to access formatting options. Select one of the following options.



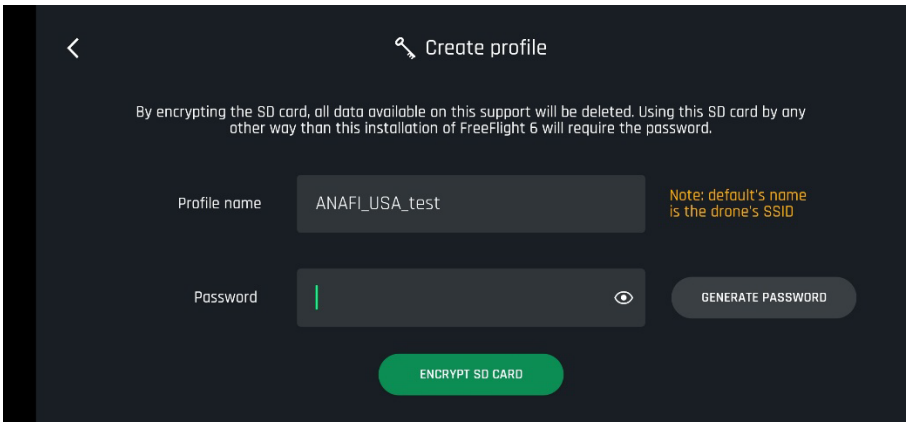
Confirm your selection from the next screen to launch the formatting.

Note that both options delete all microSD card contents, including flight data.

MicroSD card encryption

Encrypting a MicroSD card implies its formatting and the loss of all data present on the card memory.

Tap the “Encrypt SD card” button of the SD Card screen of FreeFlight 6 Gallery to access the encryption profile creation page.



Confirm or type a profile name.

Type your own Password or tap “Generate Password”.

Tap “Encrypt SD Card” to launch encryption.

The next screen confirms an Encryption profile has been applied to the SD card.

A MicroSD card encrypted by ANAFI USA is unreadable without the associated Encryption profile.

The Encryption profile is held by the version of FreeFlight 6, thus by the Skycontroller USA with which the encryption has been carried out.

Consequently, if a drone has been destroyed, its MicroSD card can only be decrypted through:

- the Skycontroller USA which holds the MicroSD card's Encryption profile;
- another ANAFI USA drone paired to that Skycontroller USA.

RTSP VIDEO STREAM SHARING

The screen of the Skycontroller USA can be easily shared, via RTSP protocol, to a VLC-equipped PC, with an RJ45 (Ethernet) cable.

Similarly, the stream can be shared using the open command line tool FFmpeg.

This section details the VLC stream sharing procedure, which can be set up at any stage of a flight.

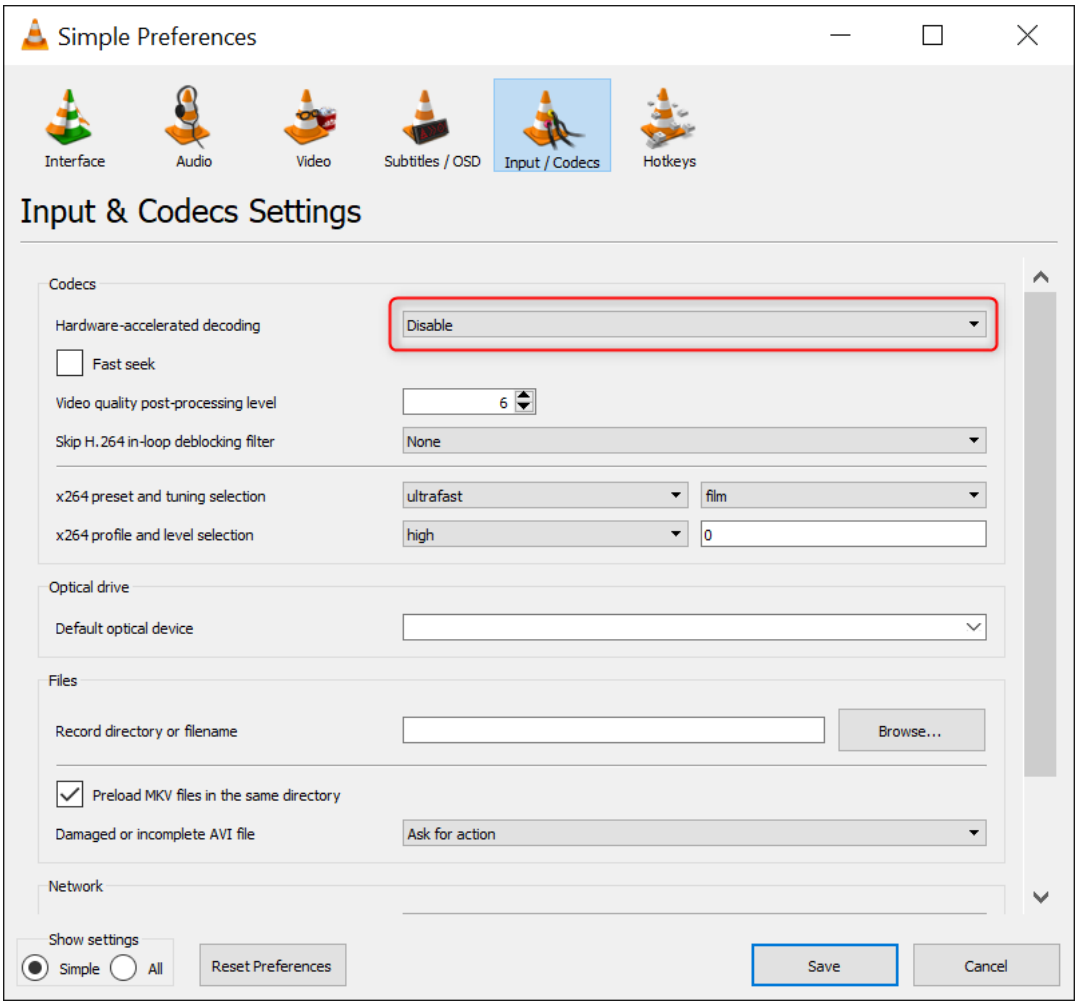
Power the Skycontroller USA on and connect it to a PC (host) with an RJ45 cable.

Launch VLC media player on the host PC.

From the "Tools" menu of VLC, select "Preferences".

From the "Preferences" interface of VLC, select the "Input / Codecs" tab.

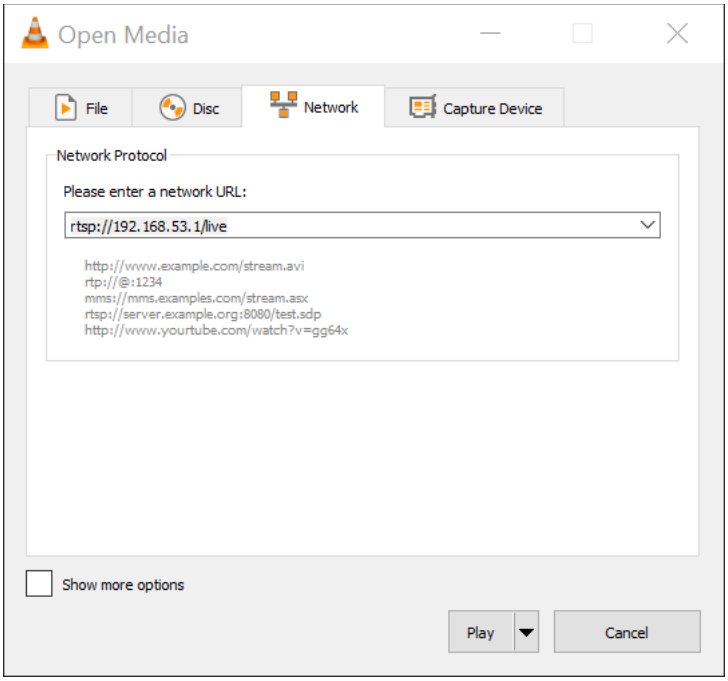
Set the first item, "Hardware-accelerated decoding" to "Disable", as in the screenshot below.



Save your selection to close the "Preferences" interface.

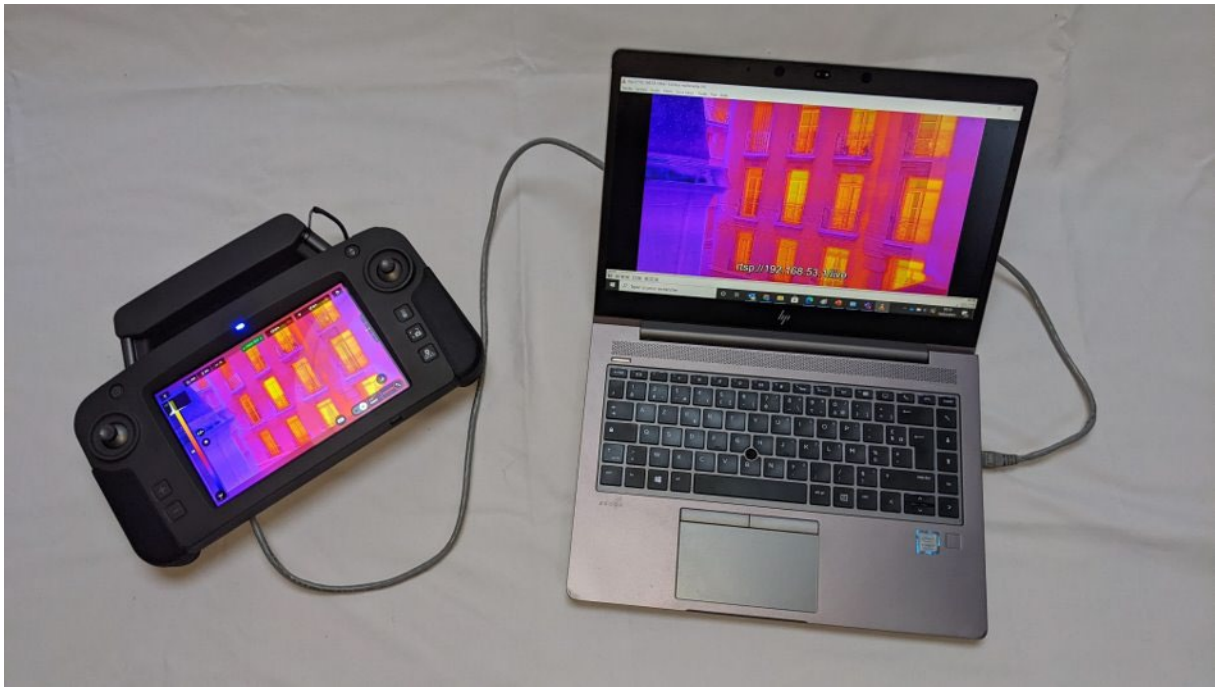
From the “Media” menu of VLC, select “Open network stream”.

Enter “rtsp://192.168.53.1/live” in the Network URL field, as in the following screenshot.



⚠ Enable the loop mode from VLC interface as in the screen capture below.

Click “Play” to launch the stream in the main window of VLC.



Parrot

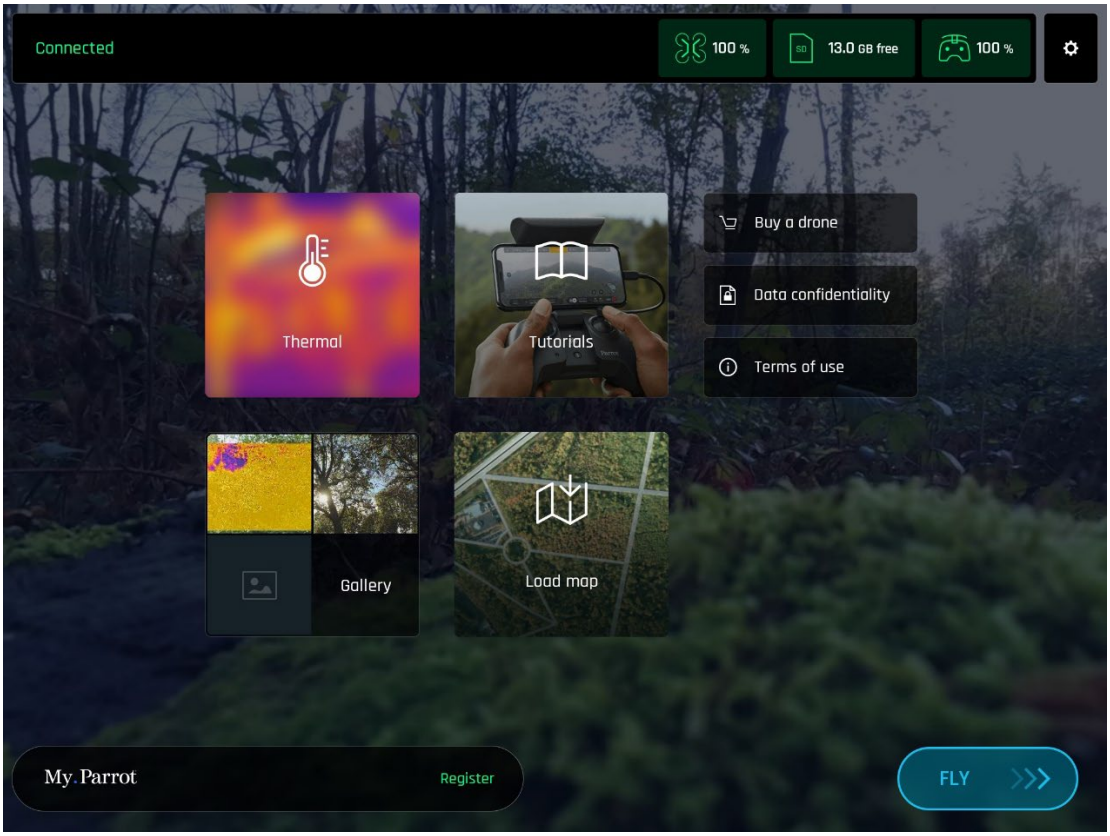
INTRODUCING FREEFLIGHT 6

The fully secure piloting software of ANAFI USA, FreeFlight 6, guarantees the integrity of data exchange for the full ecosystem, and manages updates (piloting software, drone, remote control, batteries).

The HUD (head-up display) interface of FreeFlight 6 is the ultimate companion to ANAFI USA. It enables you to access all the outstanding features of ANAFI USA, from the screen of your Parrot Skycontroller USA, at the touch of your thumbs.

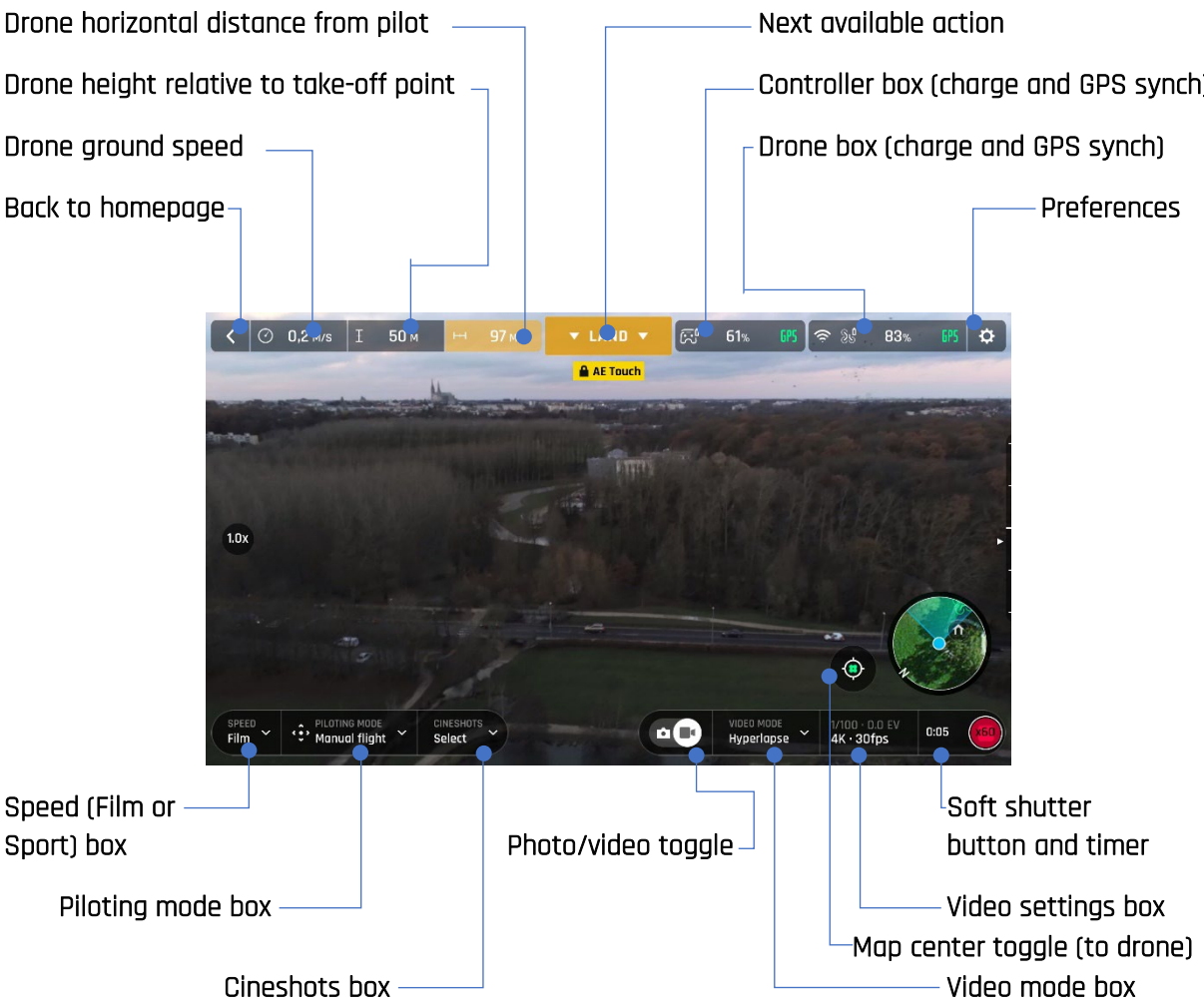
This section explores FreeFlight 6 functions, starting with a presentation of the top and bottom bars of the HUD.

Access the HUD by taping "**FLY**" on the bottom right of the homepage of **FreeFlight 6**.



FreeFlight 6 homepage

Presentation of the video mode HUD



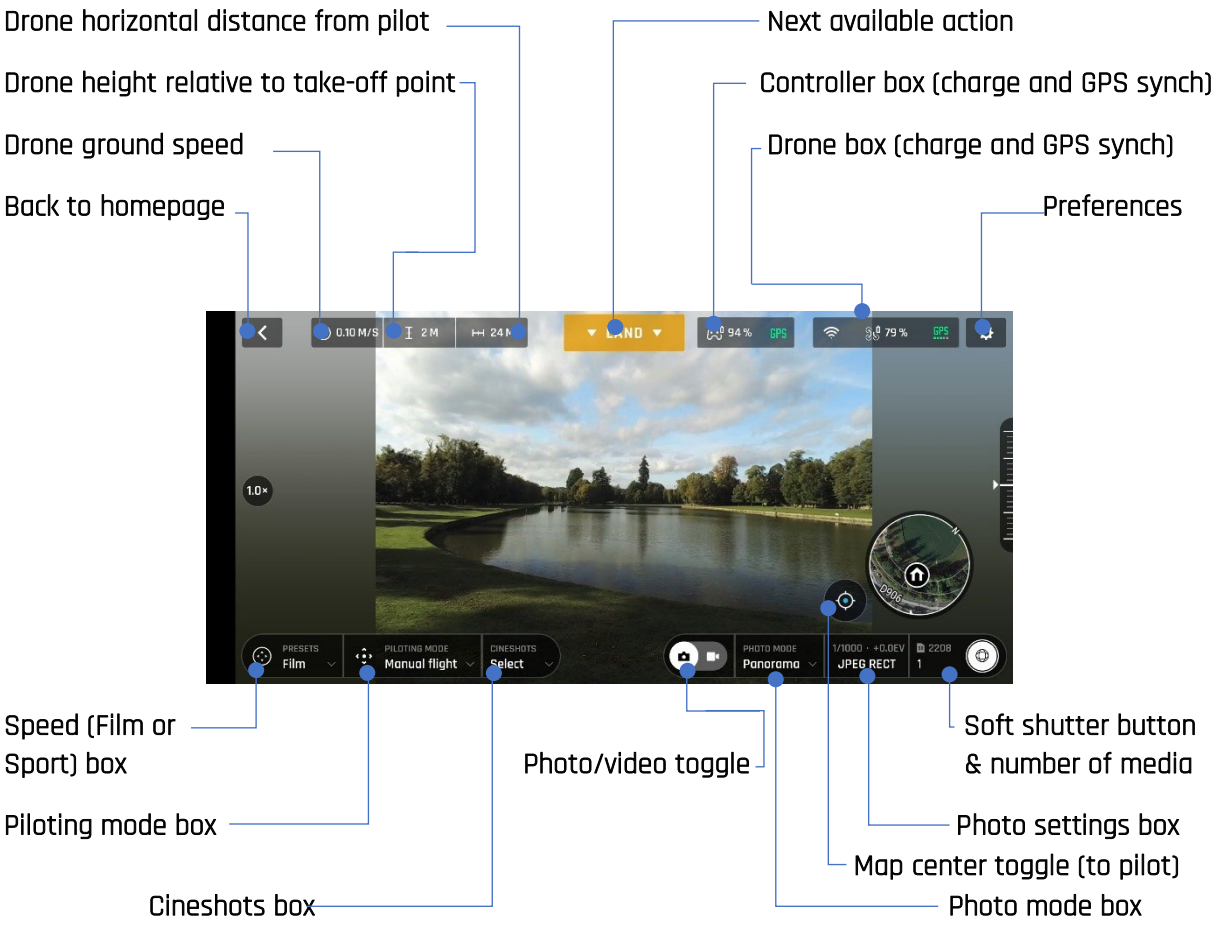
ANAFI USA and **FreeFlight 6** are packed with features which are accessible from the HUD. Before we present the *"PREFERENCES"* menu of **FreeFlight 6**, here is an overview of your drone's current piloting, Cineshots, Dronies, and video modes.

Piloting modes:	Manual flight Cameraman Follow Me Smartdronies FPV Flight Plan Touch & Fly: Waypoint & POI
Video modes:	Standard Cinema Hyperlapse High-Framerate Slow Motion
Cineshots:	360° (left & right) Reveal (30 & 60m) Spiral (30 & 60m) Epic (30 & 60m)
Smartdronies & POI Dronies	Orbit Parabola Dolly Zoom Boomerang
Follow Me Dronies	Orbit Parabola Tornado Boomerang

⚠ Note that both GPS icons are green, on both screen captures. This means that the Parrot Skycontroller USA and ANAFI USA are both synchronized to enough GPS, Glonass and Galileo satellites to optimize the stability of the drone, especially at higher altitudes.

Parrot therefore recommends you always check both your FreeFlight 6 HUD's GPS icons are green (and not red), before you make your ANAFI USA take off.

Presentation of the photo mode HUD



ANAFI USA's photo modes include a Single shot mode, a Burst mode, a Bracketing mode, a Timer mode, a Timelapse mode, a GPS Lapse mode and a five-format Panorama mode.

⚠ Note that both GPS icons are green, on both screen captures. This means that the Skycontroller USA and ANAFI USA are both synchronized to enough GPS, Glonass and Galileo satellites to optimize the stability of the drone, especially at higher altitudes.

Parrot therefore recommends you always check both your FreeFlight 6 HUD's GPS icons are green (and not red), before you make your ANAFI USA take off.

PREFERENCES

Access **FreeFlight 6** preferences through the icon on the extreme right of the top bar of the homepage, or that of the HUD. Preferences enable you to fine-tune **ANAFI USA** to your hand – to customize it, to fit your piloting and filming styles.

Access Preferences submenus from the boxes on the left of the screen. Tap a box to select it and access its items.

For all items, **default values (DV)** are marked in **bold characters**.

Asterisks (*) signal menu items which disappear in Light interface – refer to the *"PREFERENCES / Interface / About the Light interface"* section of this guide for additional information.

Controls

The Controls preferences set the way you controller behaves. It also enables you to activate the "Hand-launch" option.

Tap an item option to select it.

Control mode*	**CLASSIC** / ARCADE (only available in flight)
Inverse joys	**OFF** (white) / ON (green)
Special	**OFF** (white) / ON (green)
EV Trigger*	**OFF** (white) / ON (green)
Hand-launch	NO / **YES**

About EV Trigger: this function is not useful for **Parrot Skycontroller USA** users, as this remote control has two direct access buttons to control images' exposition.

Tap "RESET ALL CONTROL PREFERENCES" on the bottom of the page to reset preferences.

Presets

The Preset preferences allow you to adapt the flight behavior of **ANAFI USA** for each of four modes ("FILM", "SPORT", "CINEMATIC" and "RACING") – "SLOW & FAST" for the Light interface.

Tap an item option to select it.

Global reactivity	1% to 100% (DV: **15%** for **FILM** & **CINEMATIC**; **20%** for **SPORT**; **30 %** for **RACING**)
Horizon	FIXED / DYNAMIC (DV: **FIXED** for **FILM** & **SPORT**; **DYNAMIC** for **CINEMATIC** & **RACING**)
Camera tilt speed	1°/s to 180°/s (DV: **10°/s** for **FILM** & **CINEMATIC**; **20°/s** for **SPORT** & **RACING**)
Banked turn	NO / YES (DV: **YES** for **FILM**, **CINEMATIC** & **RACING**; **NO** for **SPORT**)
Inclination	1°/s to 40°/s (DV: **10°/s** for **FILM**; **20°/s** for **CINEMATIC**; **25°/s** for **SPORT** & **RACING**)
Vertical speed	0.1m/s to 4m/s (DV: **1m/s** for **FILM** ; **2m/s** for **SPORT**; **2.5m/s** for **CINEMATIC**; **3m/s** for **RACING**)
Rotation speed	3°/s to 200°/s (DV: **10°/s** for **FILM**; **20°/s** for **SPORT** & **CINEMATIC**; **40°/s** for **RACING**)

About horizon and Banked turn: refer to in-app information for details about these features.

⚠ **Note that "Global reactivity", "Inclination", "Vertical speed" and "Rotation speed" values are the ones which carry the biggest impact on ANAFI USA's acceleration and general flying behavior. Corresponding sliders turn to orange instead of green to warn users the settings they have selected require extreme care, superior piloting skills, or both, when flying ANAFI USA. Your drone will always remain outstandingly responsive, but with extreme settings, it will accelerate much more rapidly than you can imagine.**

Tap "RESET ALL PRESETS PREFERENCES" on the bottom of the page to reset the corresponding Mode to its default values. In other words, you must tap "RESET ALL PRESETS PREFERENCES" in each Mode to revert all Modes to their default values.

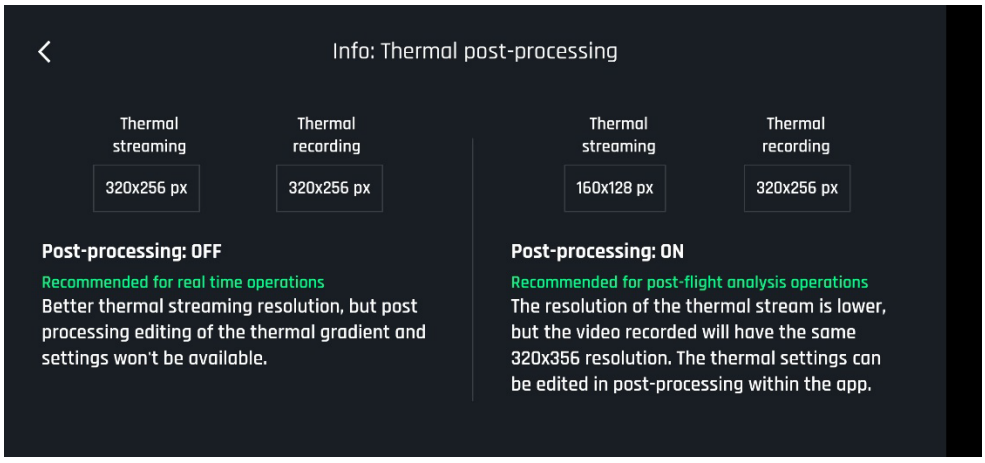
Thermal

The **Thermal** preferences deal with specific thermography settings.

Tap an item option, use "<" or ">" and "+" or "–" to change values.

- Color gradient — **Fusion** / Rainbow / White Hot / Black Hot
- Thermal post-processing — NO / **YES**
- Thermal sensor calibration — **AUTO** / MANUAL
- Temperature range — **DEFAULT** / VERY HIGH TEMPERATURES

About Thermal post-processing: NO is recommended for real time operations; **YES** is recommended for post flight analysis operations – refer to in-app information for details.



About Thermal calibration: AUTO mode is recommended for most users. If you select the MANUAL mode, note that the application will periodically remind you to calibrate your thermal camera, through the dedicated button of your HUD.

Tap "RESET THERMAL SETTINGS" on the bottom of the page to reset preferences. This button also reinitializes thermal Spot and Absolute scales to default values, as well as visible and thermal images blending.

Special

Special preferences manage the disabling of the LEDs of the drone and of the RTH function.

Disable drone LEDs	NO / **YES**
Return to Home (RTH)	NO / **YES**

About the RTH function: disabling this function, which also disables all RTH-linked alerts, is useful to explore cluttered, closed, or confined environments, as it disables any activation of the RTH procedure (raise to a minimum of 20m, return to the take-off position – by default). However, it requires the pilot to attach a particular attention to his drone's battery level. It also forbids any automatic drone return in case of Wi-Fi communication breakdown.

Interface

Interface preferences set the amount of information which appear on your **FreeFlight 6** HUD.

Interface	**FULL** / Light
Show minimap*	NEVER / **ALWAYS**
Display GPS position*	**YES** / NO
Coordinates system*	**LATLNG** / MGRS / UTM / DMS
Map type	MAP / SATELLITE / **HYBRID**
Show framing grid*	**NO** / 3x3 / 6x6
Measurement system	**AUTO** / IMPERIAL / METRIC
FPV Goggles*	Tap "**CHANGE**" to access the following options:

Parrot – CockpitGlasses 1	/	Homido
Parrot – CockpitGlasses 2	/	Merge VR
Parrot – CockpitGlasses 3	/	BNext
Google – DayDream View	/	Skillkorp VR5
Homido V2	/	Zeiss VR One
Homido Prime		

Tap "**TEST**" to verify the rendering of your selection.

About Light interface: The Light interface limits the number of items in PREFERENCES menus and the number of options (photo, video, piloting modes, styles) available in the HUD.

The menu items which disappear in the Light interface are signaled in this section by asterisks (*).

The options which remain available in the Light interface HUD are:

- Photo: Single, Panorama, Timelapse, GPS Lapse
- Video: Standard 1080p only (24, 25 or 30 fps)
- Piloting modes: Manual flight, Cameraman, Flight Plan, Touch & Fly
- Style (image): Natural only (with adjustment)

About the 3x3 framing grid: the 3x3 framing grid is useful as an aiming template, to facilitate building entries, through a door or a window.

About Coordinates systems: LATLNG stands for latitude and longitude; the Military Grid Reference System (MGRS) is NATO's geocoordinate standard; UTM stands for Universal Transverse Mercator; DMS (or D°M'S") stands for degree, minute, second (of arc).

Tap "RESET ALL INTERFACE PREFERENCES" on the bottom of the page to reset preferences.

Safety

Through Safety preferences, you can set a safe and clear flying area for **ANAFI USA**.

Set **ANAFI USA**'s maximum flight altitude with the "Max altitude" slider.

To set a maximum distance from the pilot for your drone, move the "Max distance" slider to the required value.

When the Geofence is activated, ANAFI USA will automatically stop when it reaches the maximum altitude or the maximum distance you have selected: a red prompt will also appear on your HUD.

Geofence	NO / **YES**
Max altitude	1m to 150m (DV: **30m**)
Max distance	10m to 4 km (DV: **300m**)
Minimum altitude when using RTH	20m to 100m (DV: **30m**)
End behavior	**HOVERING** / LANDING
Hovering altitude	1m to 10 m (DV: **2m**)
Advanced RTH settings	**NO** / YES

Note: By activating advanced RTH features, if you select return to Pilot or Custom position, the drone might not be able to reach its destination in case of low battery. Parrot will not be held responsible in case the drone lands in a different location.

Return position	**TAKE-OFF** / PILOT / CUSTOM

⚠ **About End behavior and Hovering altitude:** Parrot recommends ending RTH sequences by hovering (default value) as it enables the pilot to control the end of the flight. However, for missions at sea, Parrot recommends you modify the hovering altitude over 2m (default value). Indeed, up to 2m, at the end of the RTH, the drone will compute its height over the ground, with its ultrasound sensor. Above 2m, it will compute its height over its take-off point, with its barometer.

⚠ **In other words, if the drone takes off from deck of a ship, 40m above the sea level, with a hovering altitude set at 2m, at the end of the RTH, the drone will look for the ground and could stop 2m above the surface of the sea.**

⚠ **If it takes off with a hovering altitude set at 3m, it will stop 43m (40 + 3) above the surface of the sea.**

Tap "RESET ALL SAFETY PREFERENCES" on the bottom of the page to reset preferences.

Camera

Camera preferences enable you to select camera options, both in photo and video modes.

Camera calibration	Tap “CALIBRATE” to access “Correct horizon”, “Gimbal calibration” and “Cameras alignment” features
Auto record from take-off	NO / **YES** (video only)
Display overexposure	**NO** / YES
Anti-flickering	NO / **AUTO** / 50Hz / 60Hz

About correct horizon and cameras alignment: only resort to the “Correct horizon” and the “Cameras alignment” procedures if you notice your videos and photos are systematically tilted on the same side or if your visible and thermal cameras are misaligned. Refer to the *“Camera calibration”* section of this guide for the detailed procedures.

About Overexposure display: when this setting is activated, the HUD of FreeFlight 6 shows all overexposed areas of the screen as hatched, which enables you to fine-tune your framing, your EV settings, or both.

About Anti-flickering: this setting and the associated technology aim at eliminating the flicker effect which can arise due to some artificial lights. The “AUTO” option should work for most users, but depending on your country, you can try other settings if you feel bothered by a flicker effect on your device's screen, your artificial light videos, or both.

Tap “RESET ALL CAMERA PREFERENCES AND SETTINGS” on the bottom of the page to reset preferences.

Network

Network preferences let you change your **ANAFI USA**'s connectivity options, Wi-Fi network name, password, and band.

- Connectivity — **Wi-Fi** / Microhard
- Broadcast DRI — **OFF** / ON
- Network's name — Tap the field to change your **ANAFI USA**'s network name
- Password — Tap the field to change your network's password
- Wi-Fi band — **AUTO** / MANUAL

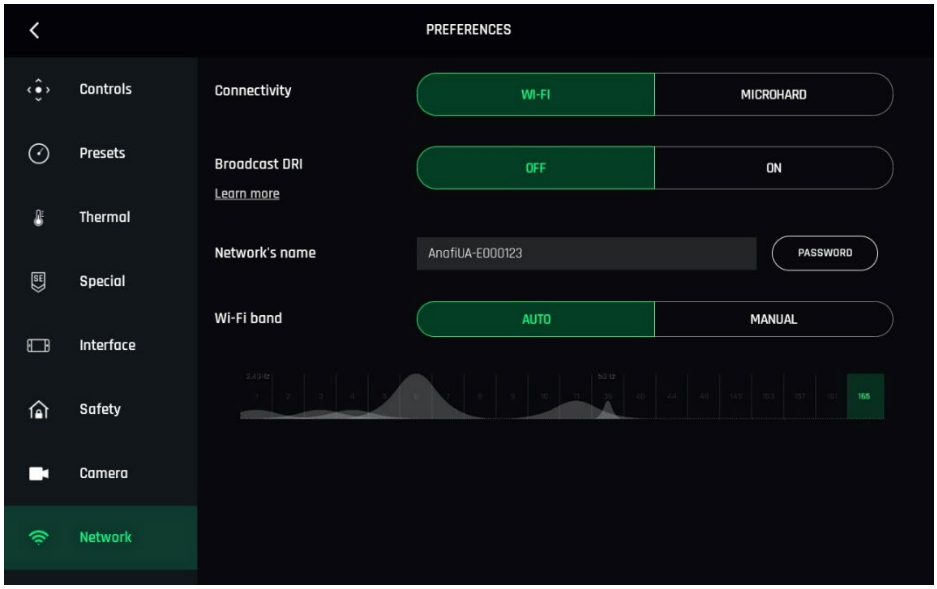
About Connectivity: refer to the next section of this guide "Switching to Microhard" for details on the procedure.

About Direct Remote Identification (DRI): the DRI system makes your drone locally broadcast information about itself for regulatory compliance (where applicable).

About Manual Wi-Fi band setting: activate the "MANUAL" box, then touch a free band to select it, as in the following screen capture.

In urban environments, 5 GHz Wi-Fi channels suffer typically less interference than 2.4 GHz channels.

To enable the automatic optimization of Wi-Fi communications on the 5 GHz channels, manually select a 5 GHz channel, then revert the Wi-Fi band setting to "AUTO".



Parrot

INSTALLING AND ACTIVATING EXTERNAL ANTENNAS

The **Parrot Skycontroller USA** is equipped with two external female TNC antenna connectors, which enable you to connect it to external antennas.

Compatible passive antennas must respect the following specifications:

- Connectors: male TNC
- Frequencies: 2400 to 2480 MHz, 5150 to 5250 MHz and 5750 to 5850 MHz
- Gain: >5 dBi
- Polarization: Vertical
- Radiation pattern Omnidirectional
- Impedance 50 ohms
- Cable length **as short as possible to limit losses**

Installing external antennas

1. Remove the protective caps from the female TNC connectors of the **Skycontroller USA.**
2. Screw the external antennas male TNC connectors to the female TNC connectors of the **Skycontroller USA.**

Activating the external antennas

1. Power the **Skycontroller USA** on.
2. Wait until **FreeFlight 6** launches**.**
3. Press and hold simultaneously the "**+**" (plus), "**-**" (minus) and "**Optics reset**" buttons of the **Skycontroller USA**.
4. The status LED of the **Skycontroller USA** turns to turquoise.
5. The external antennas are activated, and the inbuilt antenna of the **Skycontroller USA** is disactivated.

Reverting to the inbuilt antenna

1. Power the **Skycontroller USA** on.
2. Wait until **FreeFlight 6** launches**.**
3. Press and hold simultaneously the "**+**" (plus), "**-**" (minus) and "**Optics reset**" buttons of the **Skycontroller USA**.
4. The status LED of the **Skycontroller USA** turns to dark blue.
5. The external antennas are disactivated, and the inbuilt antenna of the **Skycontroller USA** is activated.

SWITCHING TO MICROHARD

ANAFI USA and the **Parrot Skycontroller USA** are set up to perform outstandingly, out of the box, over Wi-Fi, with **FreeFlight 6**.

However, the drone and controller's Microhard communication system ensure their compatibility with alternative piloting software. This section describes the procedure to switch the communication links from Wi-Fi to Microhard radio.

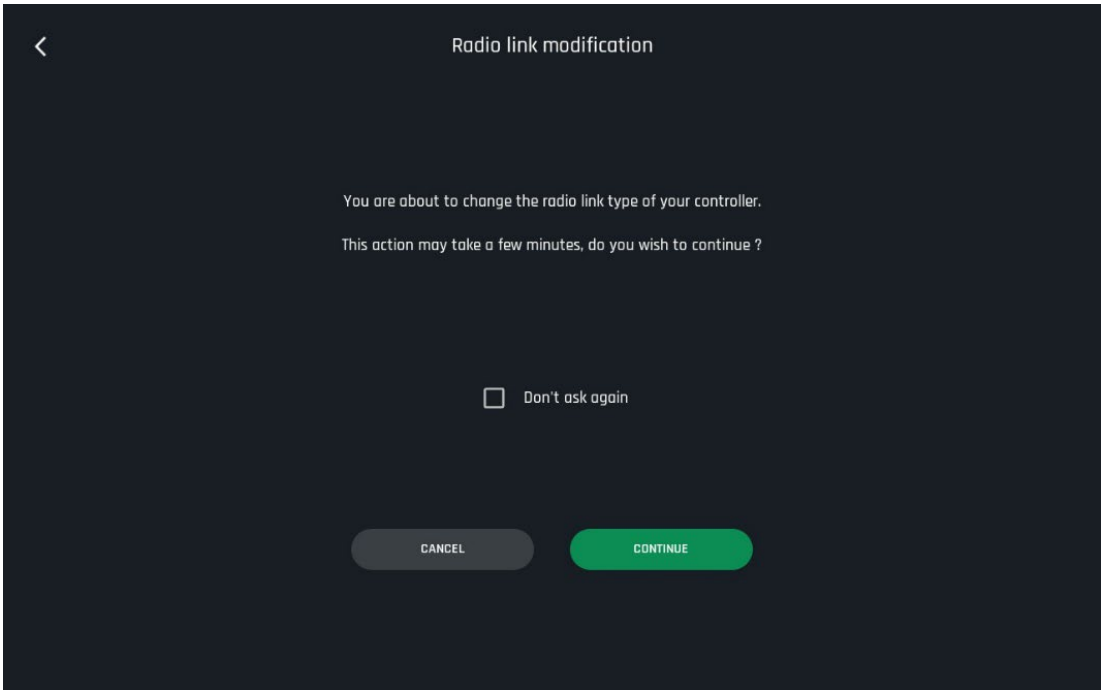
⚠ **Note that Parrot strongly recommends reverting to Wi-Fi before updating the ecosystem from a new FreeFlight 6 release.**

Activating the Microhard connection

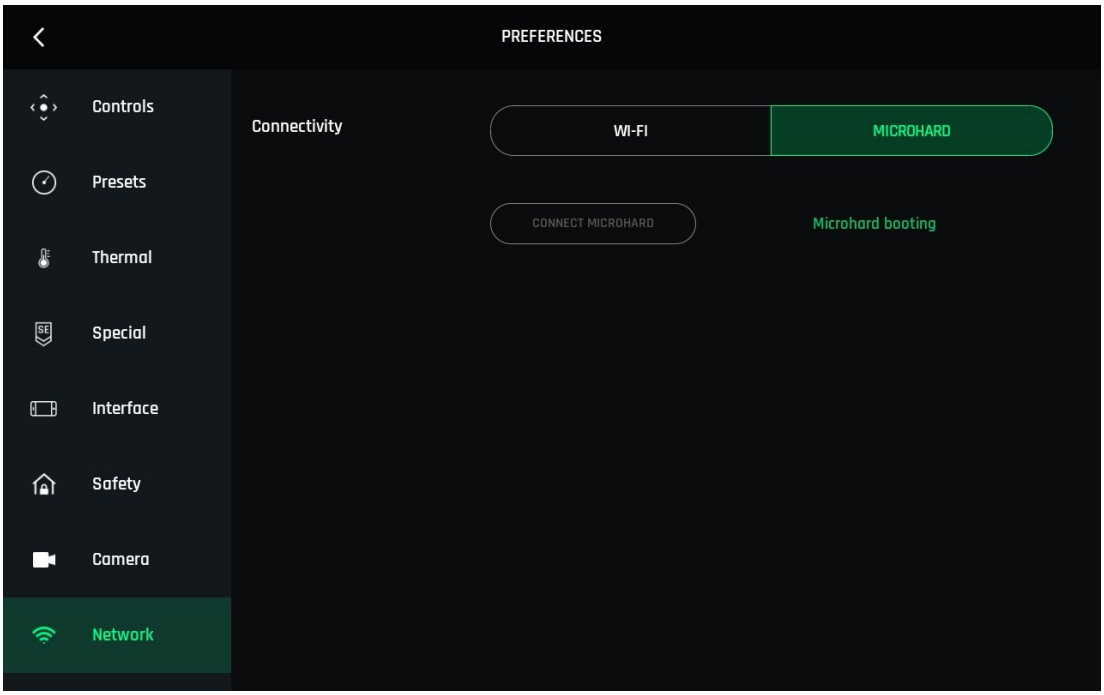
Parrot recommends keeping ANAFI USA and the Skycontroller USA at least 5 meters (15 ft) apart to optimize the Microhard connection procedure. Note this procedure will not function if ANAFI USA is plugged to a computer via USB.

1. Power **ANAFI USA** and the **Skycontroller USA** on and access the Network Preferences menu (refer to the "*PREFERENCES/Network*" section of this guide for additional details).

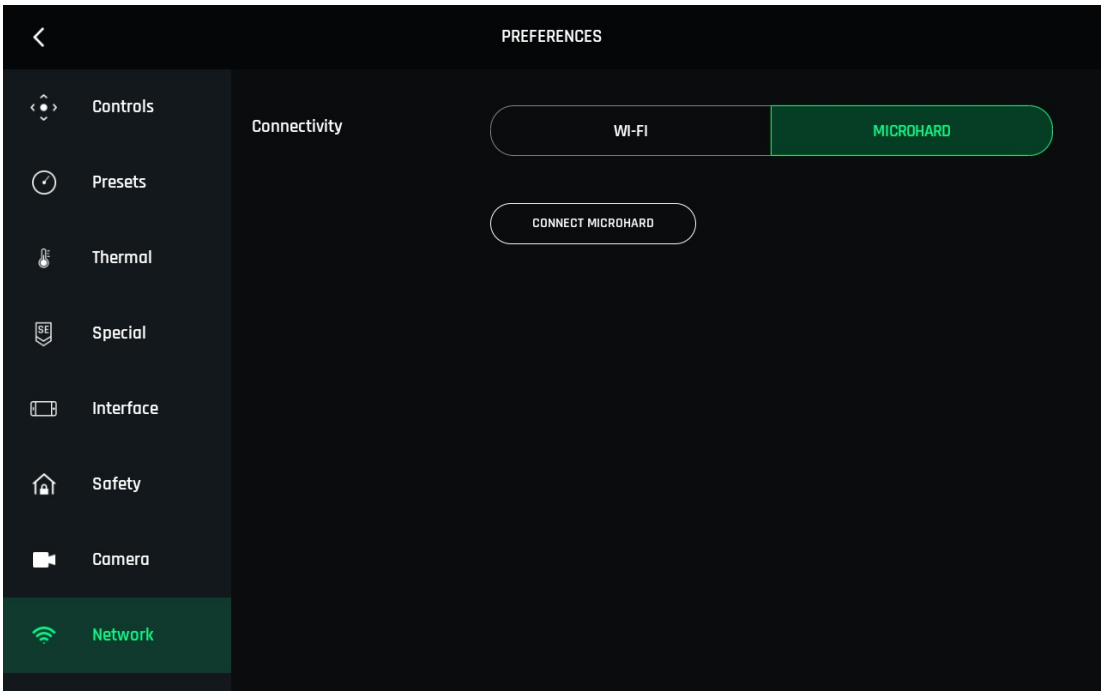
2. Tap "Microhard" to select the option: the **Skycontroller USA** displays the following screen.



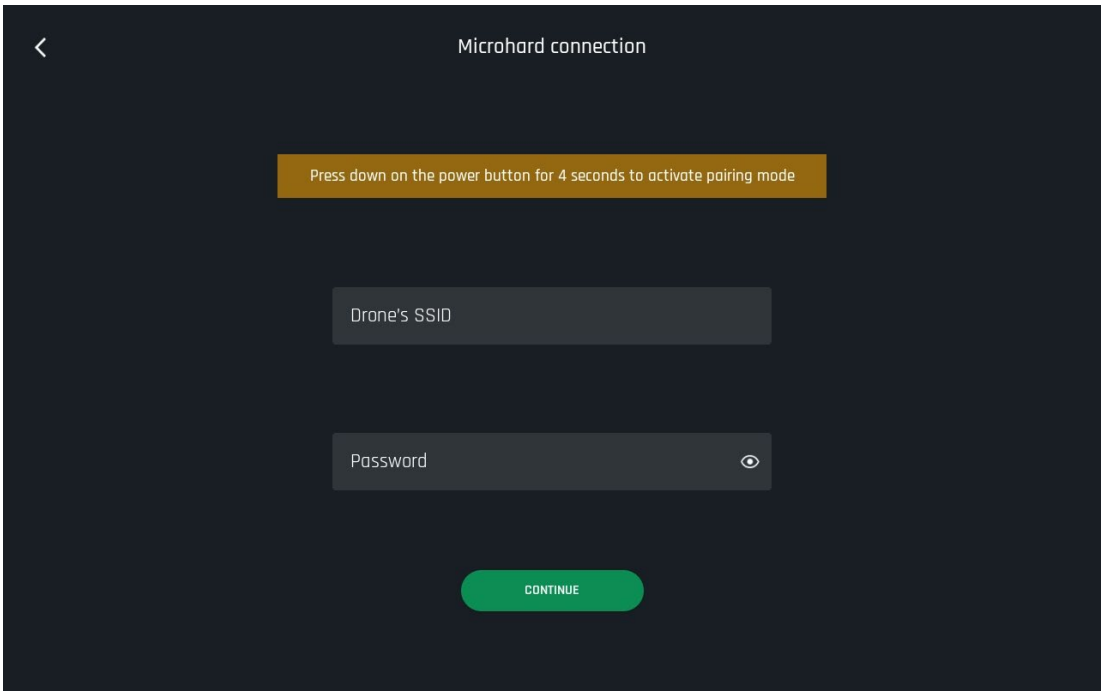
3. Tap the "Don't ask again" box if required, then tap "CONTINUE".
   The fan of the **Skycontroller USA** Microhard module starts up and the controller displays the following screen.



4. Wait about one minute for the Microhard to boot and the "CONNECT MICROHARD" button to activate as on the following screen.



5. Tap "CONNECT MICROHARD" to access the Microhard connection interface.

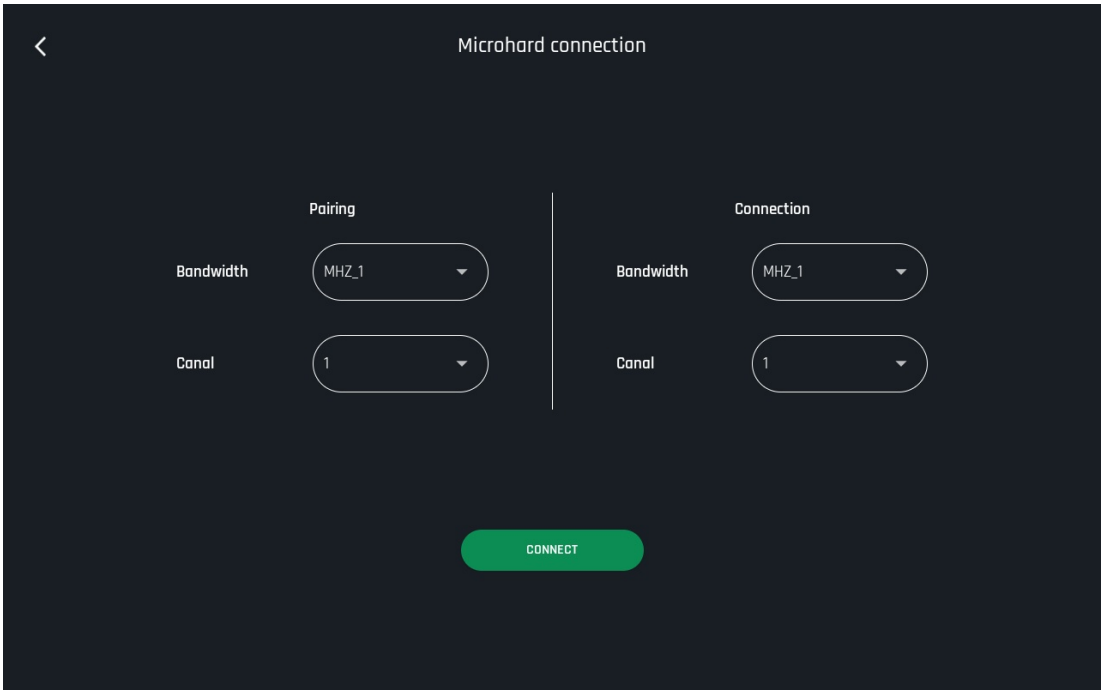


6. Enter the drone's SSID (refer to the packaging of the drone).
Make sure you do not leave a blank space after the SSID.

7. Enter the drone's password (refer to the packaging of the drone).

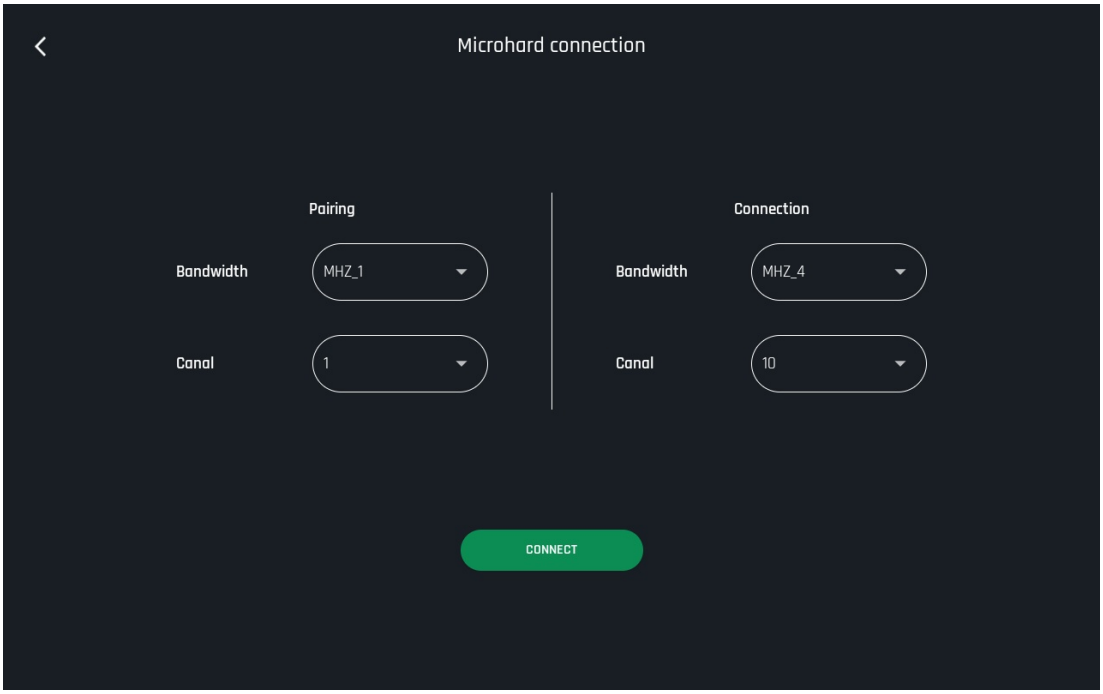
8. Press **ANAFI USA**'s power button for 4 seconds to activate the drone's pairing mode: the drone's LED start flashing.

9. Tap "CONTINUE" to access the following screen.



10. **Do not modify** the "Pairing" options (left on the screen) and set the Connection Bandwidth to "MHZ_4" (4 MHz – right of the screen: refer to the next screenshot).

11. Select any Canal (or Channel) and tap CONNECT to complete the procedure – refer to the next section, "*About Microhard frequencies deconfliction*", for details about channel selection.



12. After approximately one minute, the **Skycontroller USA**'s LED is back to steady dark blue: the Microhard connection is complete.

About Microhard frequencies deconfliction

When flying multiple drones in the same airspace, Microhard frequency deconfliction is an important topic. Indeed, unlike the ecosystem's Wi-Fi, the Microhard does not perform frequency hopping. Hence you must select your operating frequencies manually.

Parrot recommends you use the 4 MHz Bandwidth, as it offers the best video quality. As seen on the following datasheet, the 4 MHz Bandwidth spreads from channel 3 (1.813 MHz) to channel 57 (1.867 MHz).

Values (pDDL1800)

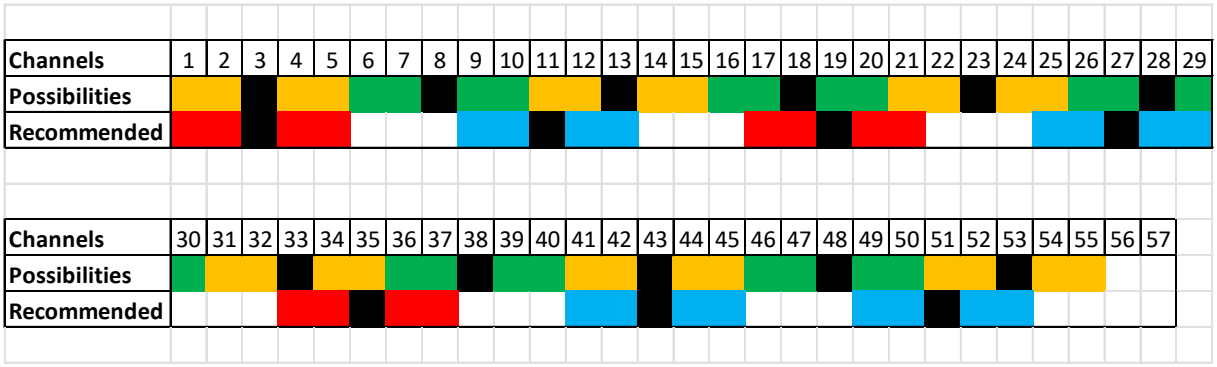
1811 - 1869 (1MHz BW, CH 1-59)
1812 - 1868 (2MHz BW, CH 2-58)
1813 - 1867 (4MHz BW, CH 3-57)
1814 - 1866 (8MHz BW, CH 4-56)

pDDL1800 datasheet (extract)

The following spectrum occupation diagram illustrates two different setups, using the blackened channels (central frequencies).

The "Possibilities" line presents a setup which enables the use of up to 11 systems simultaneously.

The "Recommended" line presents an optimal and interference-safe channels choice for up to 7 systems.



pDDL1800 spectrum occupation diagram

Reverting to Wi-Fi

To revert the connection to Wi-Fi, access the Network Preferences menu (refer to the "*PREFERENCES/Network*" section of this guide for additional details) and tap "Wi-Fi" to select.

After about 10 seconds, the Skycontroller USA's LED is back to steady dark blue: the switch back to Wi-Fi is complete.

Note: Parrot recommends performing a full system power cycle (reboot of drone and controller) after switching from Wi-Fi to Microhard or Microhard to Wi-Fi.

Restoring ANAFI USA's connections – hard reset procedure

If you experience connection issues (change of SSID, password, erroneous pairing options, etc.), apply the following procedure to restore **ANAFI USA** to its latest update state – which will also reactivate its Wi-Fi network.

1. Power **ANAFI USA** on with a fully charged battery – as always.
2. Press its power button for 8 seconds, until its first LED flashes in red.
3. Release the power button.
4. The drone reboots: the hard reset procedure is complete, the Wi-Fi network is restored.

VIDEOS AND PHOTOS

ANAFI USA is equipped with a state-of-the-art 3-axis-stabilized gimbal, which delivers astoundingly sharp motion and still pictures, through two 1/2.4" CMOS 21MP sensors.

The lenses of the cameras include low dispersion aspherical elements, that reduce chromatic aberrations and flare, and guarantee optical excellence to such a small, smart and versatile airborne imaging system.

Making videos

By default, **ANAFI USA** and **FreeFlight 6** are set to start recording a video as soon as **ANAFI USA** takes off. This literally means all you have to do, to start filming, is to fly **ANAFI USA** into the sky!

However, depending on your filming objectives, **ANAFI USA** and **FreeFlight 6** offer a wealth of settings, from full auto to manual professional options, for you to make the most of every situation.

If required, tap the photo/video toggle in the middle of the bottom bar of the HUD, to circle the film camera (right icon) in white.

Main filming options are twofold, and accessible from the HUD of FreeFlight 6.

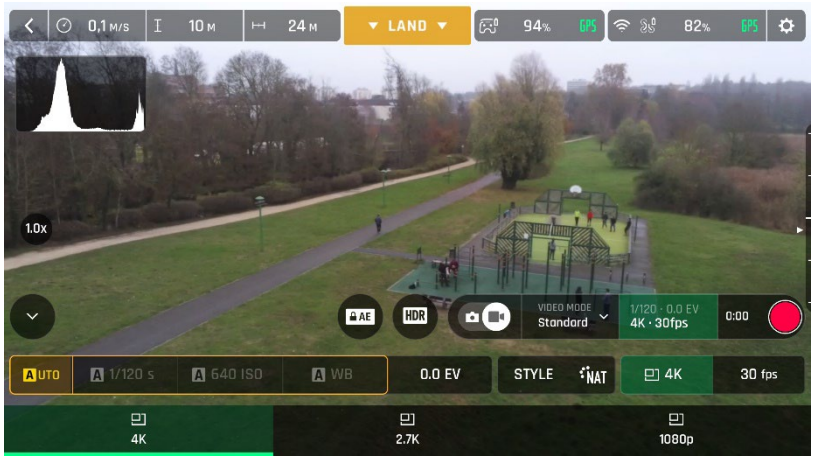
- **First**, select a **video mode** by tapping the corresponding box of the HUD.
  The options appear on your screen, as they do on the screen capture below. Tap a video mode to select it and tap the **video mode** box again to confirm your choice.

- **Second**, select a **video resolution and a framerate** (**fps** – frames per second) **value** from the corresponding box of the HUD.
  Tap the **video settings box** to call the individual **video resolution** and **fps** boxes.
  Tap the **video resolution box** to access the available video resolutions and tap one to select it.
  Tap the **fps box** to access the available fps values and tap one to select it.
  Tap the video settings box again to close the sub-boxes and confirm your choices.

Available video resolutions and fps values depend on the video mode you have selected:

Standard:	all-round **4K**, **2.7K** or **1080p** filming, at **24**, **25** or **30fps**.
Cinema:	spectacular **4K cinema** filming, at **24fps.**
Hyperlapse:	time-lapse video with a configurable speed factor (x15, x30, x60, x120, x240), in **4K, 2.7K** or **1080p**, exported at **24**, **25** or **30fps**.
Slow-Motion 1080p	filming at **48**, **50** or **60fps**, automatically slowed down by a factor of 2 (x0.5) and exported at 24, 25 or 30fps.
Slow-Motion 720p	filming at **96**, **100** or **120fps**, automatically slowed down by a factor of 4 (x0.25) and exported at 24, 25 or 30fps.
High-Framerate:	**1080p** filming at **48**, **50** or **60fps** (ideal for post-processing) and **720p** filming at **96, 100** or **120fps**.

In the following screen capture, **Standard video mode** is activated: available video resolutions are **4K (UHD), 2.7K** and **1080p (FHD)** – either in **24**, **25** or **30fps**, which you would find out by tapping "30 fps" on the bottom right of the screen.



Standard video format menu

When you are happy with your settings and your framing, press the hard shutter button on the right of **Skycontroller USA** (or tap the soft shutter button of the HUD) to start filming.

The soft shutter button of the HUD animates and displays a cycle between red square, and red circle. The timer starts running.

Press the hard shutter button of the controller (or tap the soft shutter button of the HUD) again to end the recording. The soft shutter button of the HUD comes back to steady, red and round. The timer resets.

Taking photos

To access the photo camera of ANAFI USA, tap the photo/video toggle in the middle of the bottom bar of the HUD, to circle the photo camera (left icon) in white.

Five photo modes are available on ANAFI USA: Single shot, Burst, Bracketing, Timer and Panorama (5 formats).

Thanks to its 21MP CMOS sensors, ANAFI USA produces three main picture formats:

- **rectilinear JPEG** (up to 16MP);
- **wide 21MP JPEG and DNG** (Digital NeGative: Adobe open standard RAW format)
- **composite panoramas** (JPEG), **up to 32MP**

Main photography options are accessible from the HUD of FreeFlight 6.

- **First**, select a **photo mode** by tapping the corresponding box of the HUD.
  The options appear on your screen. Tap a photo mode to select it and tap the **photo mode** box again to confirm your choice.

When the "**Single**" mode is selected, the soft shutter button of the HUD appears as a full white circle.

When the "**Burst**" mode is selected, the soft shutter button of the HUD displays the Burst icon inside a white circle.

Selecting the "**Bracketing**" mode opens three options: 3 photos (-1 EV, +0.0 EV, +1 EV), 5 photos (-2 EV to +2 EV) and 7 photos (-3 EV to +3 EV). When one of these options has been selected, the soft shutter button of the HUD displays the Bracketing icon inside a white circle.

Selecting the "**Timer**" mode opens three options: 3 secs, 5 secs and 10 secs. When one of these options has been selected, the soft shutter button of the HUD displays "3 secs", "5 secs" or "10 secs" inside a white circle, depending on the option which has been chosen.

Selecting the "**Panorama**" mode opens three options: Vertical, Horizontal and 360. When one of these options has been selected, the soft shutter button of the HUD displays the corresponding icon inside a grey (**ANAFI USA** landed) or white (**ANAFI USA** flying) circle.

The Panorama mode is indeed the only photography mode which requires the drone to be flying before you can activate the shutter. Refer to the next section, "*Generating Panoramas*", for additional details about the "Panorama" mode.

Selecting the "**Timelapse**" mode opens six options: 5 secs, 10 secs, 15 secs, 30 secs, 60 secs, and 120 secs. When one of these options has been selected, the soft shutter button of the HUD displays a Timelapse icon.
Selecting the "**GPS Lapse**" opens six options: 5m, 10m, 20m, 50m, 100m, and 200m. When one of these options has been selected, the soft shutter button of the HUD displays a GPS Lapse icon.

- **Second**, select a **photo format** from the corresponding box of the HUD.
  Tap the **photo settings box** to call the **photo settings** boxes.
  Tap the **last box on the right** of the screen to access the **available photo formats**.

Available photo formats for each photo mode are as follows:

Single	JPEG RECT, JPEG WIDE, DNG+JPEG (RECT or WIDE)
Burst	JPEG RECT, JPEG WIDE
Bracketing	JPEG RECT, JPEG WIDE, DNG+JPEG (RECT or WIDE)
Timer	JPEG RECT, JPEG WIDE, DNG+JPEG (RECT or WIDE)
Panorama	JPEG RECT only
Timelapse:	JPEG RECT, JPEG WIDE, DNG+JPEG (RECT or WIDE)
GPS Lapse:	JPEG RECT, JPEG WIDE, DNG+JPEG (RECT or WIDE)

Tap a format (**JPEG RECT**, or **JPEG WIDE** if available, or **DNG+JPEG** if available) **to select it.**
Tap the photo settings box again to close the sub-boxes and confirm your choice.

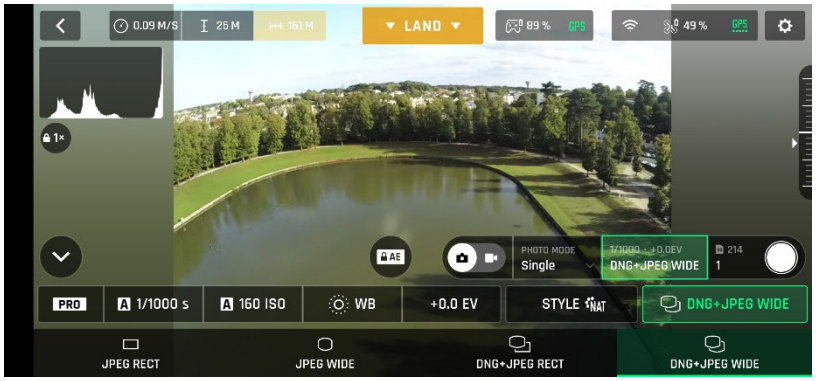


Photo formats: DNG+JPEG WIDE

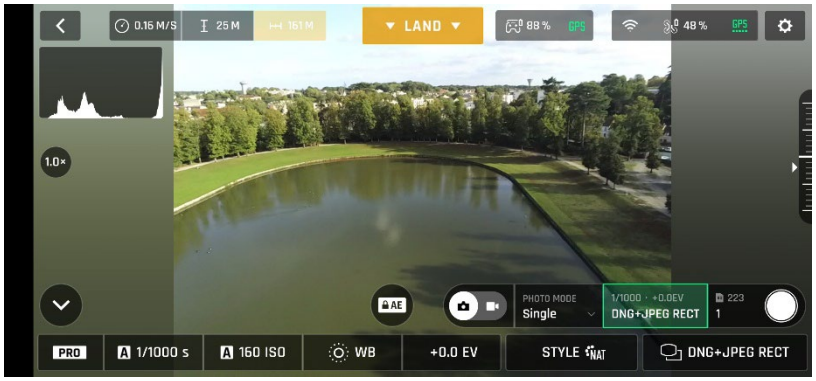


Photo formats: DNG+JPEG RECT

In "**Single**" mode, the screen flashes white then freezes briefly in black and white to confirm a picture has been taken. The number to the left of the soft shutter button (the number of media on the microSD card) of the HUD is increased by 1.

In "**Burst**" mode, the screen flashes white then freezes briefly in black and white to confirm 14 pictures have been taken in the span of 1 second. The number to the left of the soft shutter button of the HUD is increased by 14.

In "**Bracketing**" mode, the screen flashes white then freezes briefly in black and white to confirm 3, 5 or 7 pictures have been taken. The number to the left of the soft shutter button of the HUD is increased by 3, 5 or 7, depending on your option choice.

In "**Timer**" mode, the countdown is displayed (from 3, 5 or 10 seconds) at the center of the HUD, the timer of the soft button also countdowns, then the screen flashes white and freezes briefly in black and white to confirm a picture has been taken. The timer of the soft shutter button resets. The number to the left of the soft shutter button of the HUD is increased by 1.

For additional details on the "**Panorama**" mode, refer to the next section, "*Generating Panoramas*".

In "**Timelapse**" mode, the screen flashes white then freezes briefly in black and white to confirm a picture has been taken. 5 to 120 seconds later, depending on your option choice, the drone takes another photo, and so on until you press the shutter button again to stop the Timelapse. Between each shutter action, a green progress bar, at the bottom of the screen, serves as a countdown. At the end of the Timelapse, the number to the left of the soft shutter button reflects the total number of medias on the microSD card of the drone.

In "**GPS Lapse**" mode, the screen flashes white then freezes briefly in black and white to confirm a picture has been taken. Control and move **ANAFI USA**: when the drone reaches any point on a 5 to 200-meter radius sphere around the initial photo, depending on your option choice, the drone takes another photo, and so on until you press the shutter button again to stop the GPS Lapse. Between each shutter action, a green progress bar, at the bottom of the HUD, lets you estimate the distance the drone must cover before the next shot. At the end of the GPS Lapse, the number to the left of the soft shutter button reflects the total number of medias on the microSD card of the drone.

About ANAFI USA photo formats:

JPEG RECT:	**4:3 aspect ratio, up to 16MP and 75.5° horizontal field of view** (HFOV)
JPEG WIDE:	**4:3 aspect ratio, 21MP, 84° HFOV** – zoom is disabled for this format
DNG+JPEG:	**4:3 aspect ratio, 21MP, 84° HFOV** – zoom is disabled for this format

⚠ **The DNG+JPEG option produces at least 2 files (1 DNG, 1 JPEG) for each shutter action.** As other RAW picture formats, **DNG is a very useful format for professional photography** processing and workflow. Indeed, RAW formats retain all the information gathered by photography sensors, contrary to JPEG formats – which are compressed and processed renderings of this comprehensive information. In consequence, RAW pictures such as **ANAFI USA's DNG are heavy files, but they offer the very best post-processing and retouching possibilities**.

Creating Panoramas

ANAFI USA panoramas are generated automatically through the gallery of **FreeFlight 6**, based on a series of pictures taken by the drone.

The generation of a panorama, regardless of its format, implies three phases:

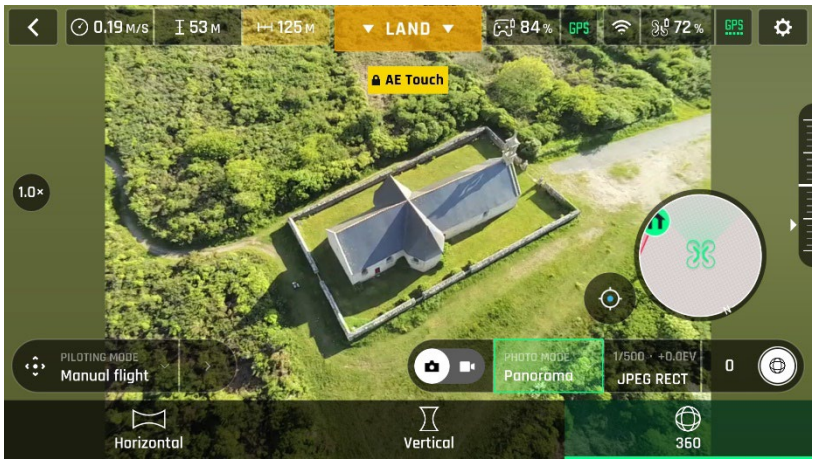
- **collecting the pictures**, in flight;
- **downloading the pictures** from **ANAFI USA** to your **Parrot Skycontroller USA**;
- **stitching the pictures together** to create the panorama, on your **Parrot Skycontroller USA**, through the gallery of **FreeFlight 6**.

⚠ **Before shooting a panorama:**

- **Make sure you are not flying lower than 10 meters (30ft) over water.**

- Make sure no object nor subject are present in a 10 meters (30ft) radius around ANAFI USA.
- Bear in mind ANAFI USA locks the exposure (refer to the "*AE Lock*" section of this guide for additional information on exposure locking) of the frame with which you start your panorama. For this reason, Parrot recommends you always frame the main subject of the intended panorama before pressing the shutter button.
- Bear in mind ANAFI USA will not enable you to proceed with a panorama if the drone is short on power (capturing a 360 Panorama takes ANAFI USA up to 90 seconds).

To capture a panorama, select the "Panorama" box from the "Photo Mode" menu of the HUD. Then, tap the panorama type you want to select it: Vertical, Horizontal or 360. The soft shutter button icon reflects your choice, as on the screen capture below.



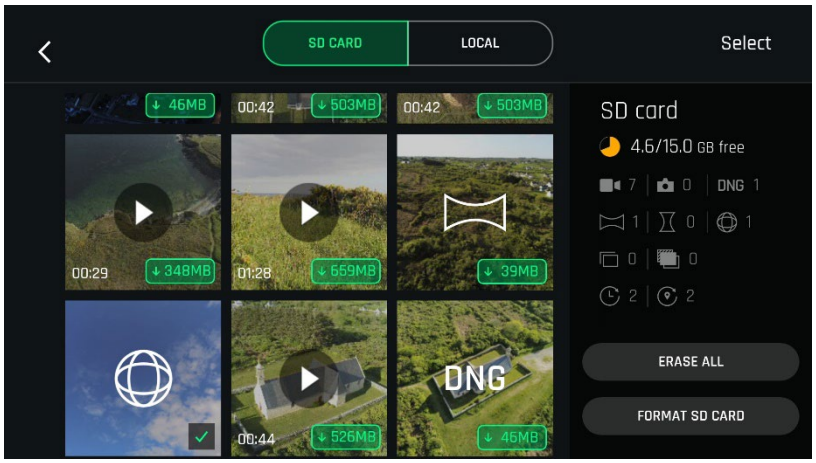
Panorama formats

When you are happy with your framing, press the hard shutter button on the right of the Parrot Skycontroller USA (or tap the soft shutter button of the HUD) to begin the Panorama capture. ANAFI USA starts taking pictures and the bottom of the HUD displays a progress bar which fills with green as the capture unfolds.

⚠ Panorama types capture characteristics:

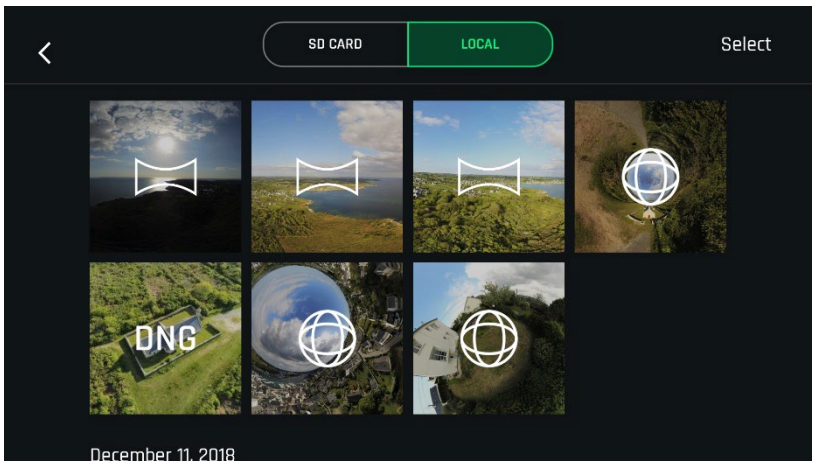
- Vertical: ANAFI USA takes 8 photos in about 18 seconds
- Horizontal: ANAFI USA takes 10 photos in about 20 seconds
- 360: ANAFI USA takes 42 photos in about 90 seconds

To download the Panorama pictures to your Parrot Skycontroller USA, land ANAFI USA, access the homepage of FreeFlight 6 and tap the microSD card box or the Gallery box to display the media present on your microSD card. Like other media, Panoramas are marked with their distinct icon and a green download box, which shows the size of the corresponding series of pictures.



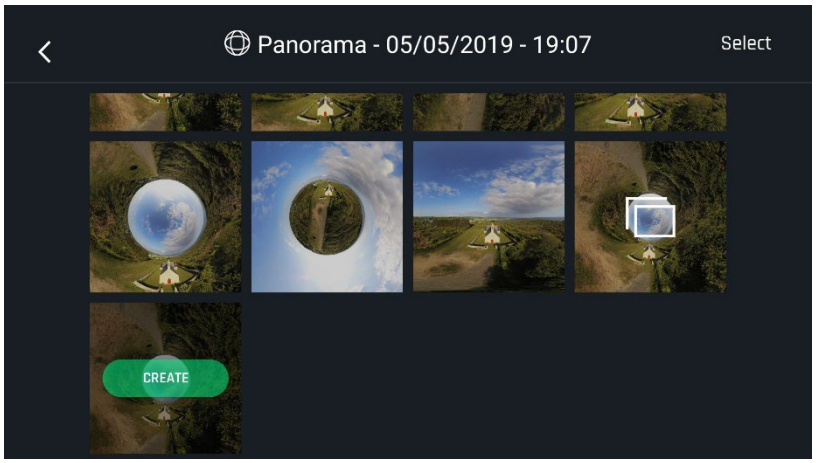
MicroSD card gallery

Tap the green box of the Panorama you want to generate to start downloading the corresponding series of pictures to your **Parrot Skycontroller USA**. When the download is complete, **FreeFlight 6** displays a page from where you can delete the downloaded photos: tap "Yes" to keep the originals on the microSD card; tap "No" to delete them. **FreeFlight 6** displays the Local (**Parrot Skycontroller USA**) gallery, which contains only the media you have downloaded from **ANAFI USA**'s microSD card.



Local gallery

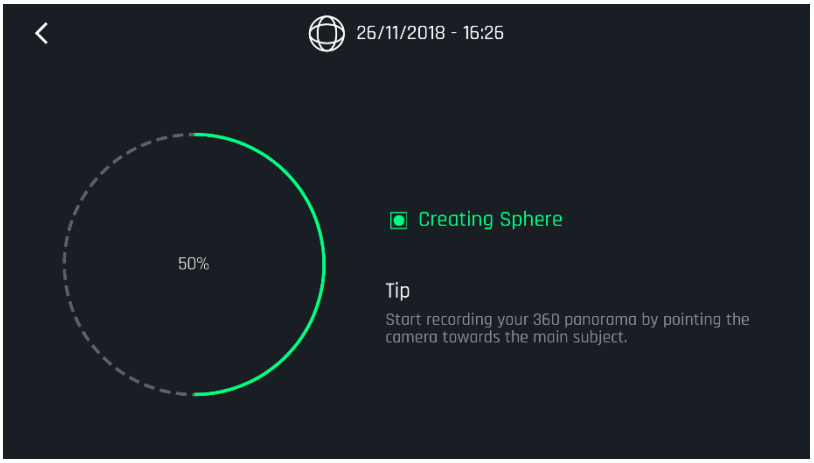
Finally, select the panorama you want to generate from your Local gallery: **FreeFlight 6** displays the following screen.



Panorama generation page

Tap "Create" to generate the panorama (or tap the other icon to access the series of individual pictures.

FreeFlight 6 may displays two resolution options, up to 32 MP. Select the option you want to launch the generation. For the highest quality 360 panorama (32 MP), it can take several minutes.



Generating a Sphere panorama

When the panorama creation is complete, **FreeFlight 6** displays the panorama and gives you the option to delete the original files.

⚠ For each **Vertical** or **Horizontal** panorama capture, you will be able to generate one panorama only.

⚠ For each **360** capture, you will be able to generate three different preset panoramas (Sphere, Little Planet and Tunnel) and a potentially infinite number of custom panoramas, through the 360 editor.

⚠ Do not worry about stitching issues on your 360 editor screen, when you create a custom panorama: the direct rendering is a preview only. For each custom panorama you decide to create, FreeFlight 6 completely reprocesses the data to minimize stitching issues and discrepancies.

An example of custom panorama

GIMBAL TILT AND ZOOM CONTROLS

Two of ANAFI USA's main assets are its gimbal tilt control capabilities (180°, nadir to zenith), and its 32x zoom. This section presents these features and the way to activate them.

Gimbal tilt control

ANAFI USA's gimbal tilt control is activated through the left trigger of Skycontroller USA. It is available in all video and photo modes, and in all manual piloting modes.

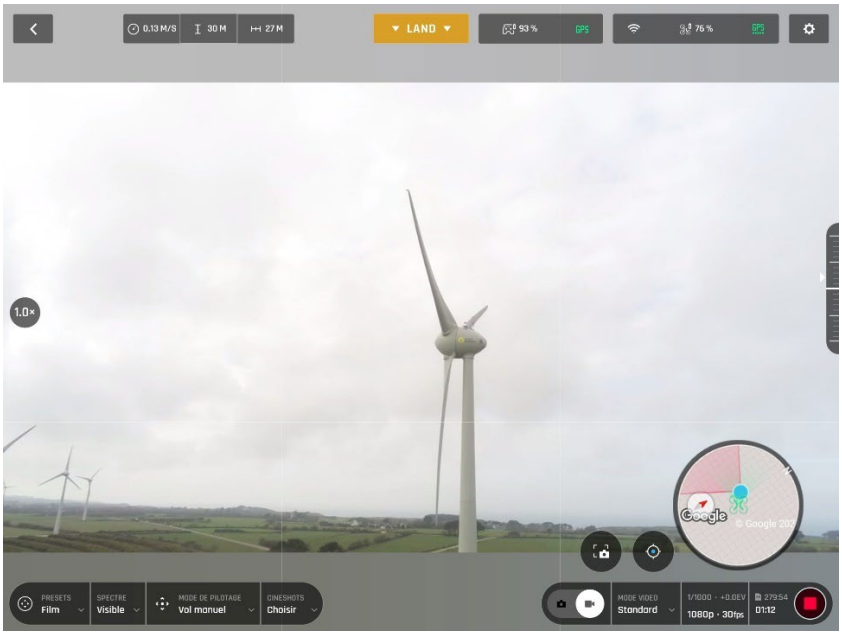
- To aim the gimbal toward the ground, push the tilt control trigger down.
- To aim the gimbal toward the sky, pull the tilt control trigger up.
- To reset the gimbal tilt to a horizontal position, press the optics reset button on the left of Skycontroller USA (this action also resets the zoom factor of the lens to 1x).

Zoom control

ANAFI USA's zoom control is activated through the right trigger of Skycontroller USA. It is available in all video modes, and in JPEG RECT photo mode (with an impact on the final resolution of your pictures). WIDE photo modes imply the use and rendering of all 21MP delivered by ANAFI USA's CMOS sensors: zoom is deactivated in both WIDE photo modes.

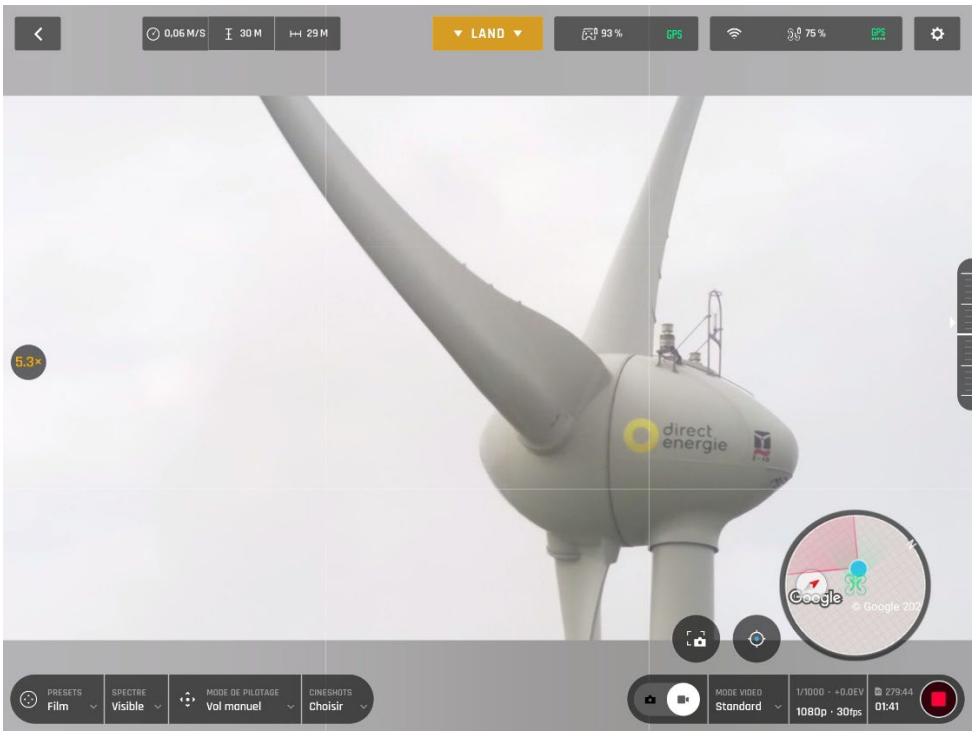
- To zoom in on a subject, push the zoom trigger down.
- To zoom out, pull the zoom trigger up.
- Pressing the optics reset button on the left of Parrot Skycontroller USA instantly resets the zoom factor of the lens to 1x (this action also resets the gimbal tilt to a horizontal position).

The HUD of FreeFlight 6 presents precise, decimal-by-decimal zoom information at all times, in the middle of the left side of the screen, as shown on the following screen captures.

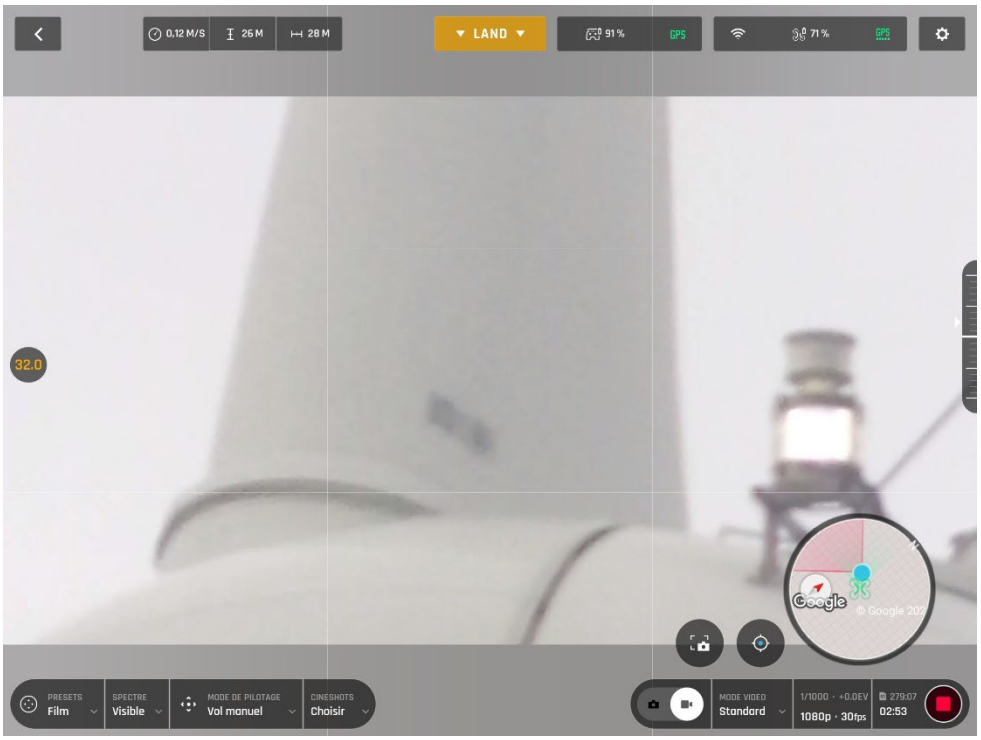


x1 Zoom

Parrot



x5.3 Zoom



x32 Zoom

Camera Calibration: Correct horizon (exceptional procedure)

⚠ **Your ANAFI USA's camera has been factory-calibrated with unparalleled precision.** Unlike the calibration of **ANAFI USA** or that of the **Parrot Skycontroller USA**, which must be carried out periodically, **the camera calibration must not be carried out unless it appears necessary** – typically, after a crash.
If you notice **a tilted horizon on all your videos and photos**, and if this **tilt is always on the same side**, access camera calibration to make your horizon perfectly straight again.

This feature is accessible from the **ANAFI USA** box on the **FreeFlight 6** homepage (or from the **ANAFI USA** box of the HUD) and from the *"PREFERENCE – Camera"* menu.

Before starting this procedure, you need to position **ANAFI USA** on a flat and perfectly level surface, exactly perpendicular to any pattern containing straight lines you can use as horizon references. A set square can help you check that a line on your floor is perpendicular to your wall, as on the following pictures.

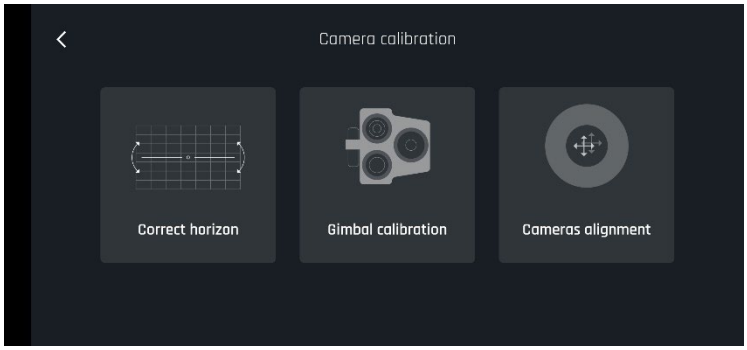
Finding a line perpendicular to the wall

***ANAFI USA** ready for horizon correction*

When **ANAFI USA** is correctly positioned, perpendicular to its straight horizon reference, power it on, along with the **Parrot Skycontroller USA**, as you would for any flight.

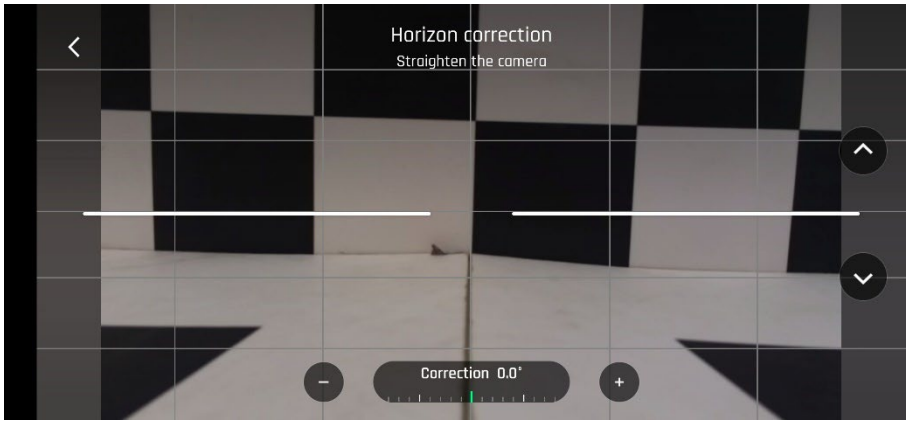
Access “Camera calibration” from the **ANAFI USA** box of the homepage or the HUD of **FreeFlight 6**, or from the “PREFERENCES-Camera” menu.

Select the “Correct horizon” option from the following screen.



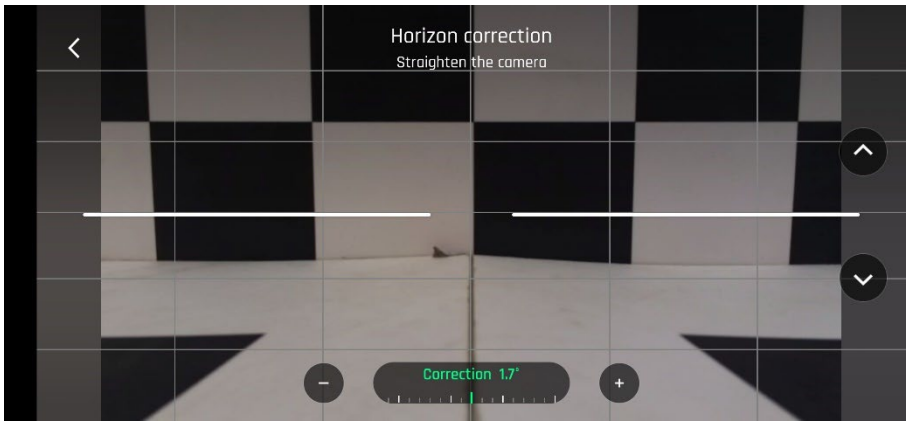
ANAFI USA: gimbal/camera calibration

The following screen appears.



Gimbal/camera calibration: before

Tap “–“ or “+” until the artificial horizon of **ANAFI USA** matches the horizon reference facing the drone. **Do not worry about vertical lines: as you can see from the screenshots, they do not appear straight or parallel on the gimbal calibration screen.**



Gimbal/camera calibration: after

When you have straightened the tilt of the camera, tap the "<" icon on the top left of the screen to confirm your setting and exit camera calibration.

Camera Calibration: Gimbal calibration

Use this option to perform a gimbal calibration, similar to that which occurs after **ANAFI USA** is powered on.

⚠ **Be aware that FreeFlight 6 can require you to carry out this procedure (as it can require you to perform a drone magnetometer calibration) before allowing you to fly ANAFI USA.**

Camera Calibration: Cameras alignment (exceptional procedure)

Use this option to align the images of your visible and thermal spectrum cameras.

As the interface advises, due to cameras parallax, use the farthest possible object as your alignment reference.

***ANAFI USA**: Camera alignment, before*

Note that you can activate the zoom (right) trigger to magnify the view of your reference.

Tap "-" or "+" on each axis to align visible and thermal views.

ANAFI USA: Camera alignment, after

Tap "<" on the top left of the screen to exit the interface and confirm your settings.

PRO-IMAGING SETTINGS

ANAFI USA is set to deliver high quality and balanced 4K videos and 21MP photos, out of the box.

Some image enthusiasts and all professional directors, videographers and photographers, however, will find their way through pro-imaging settings. This section is designed to help you exploit manual settings and develop your filming and photography styles.

The Exposure value (EV) is the only setting accessible in the Auto mode, from the "Video/Photo settings box" menu of the HUD.

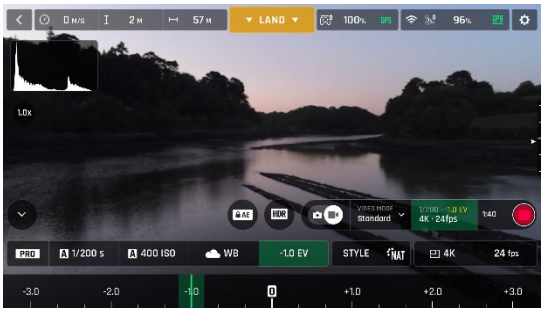
Exposure value (EV)

The EV expresses the general darkness or lightness of a photograph – or a video. At +0.0 (zero) EV, **ANAFI USA** automatically adapts the shutter speed and the ISO value to deliver a perfectly balanced photo or video: not too dark and not too light.

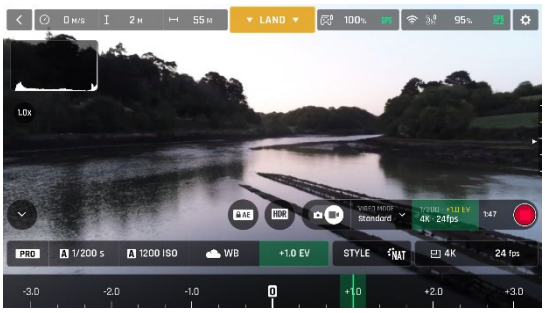
Tap the "+0.0 EV" box to activate the EV slider.

Slide your finger on the screen to adapt your EV toward negative values and darken your picture or video.

Use positive values to lighten your images. This can be useful if you want to capture a backlit scene and to fade surroundings in light.



1.0 EV



+1.0 EV

To activate further settings, tap "Auto", on the far left of the Video/Photo settings box. The additional settings boxes are unlocked, they stand out in white and "Auto" has been replaced with "Pro".

Shutter speed (s)

The "s" value refers to the time, in fraction of second, when the shutter stays open to capture a still picture: it is called exposure time.

In Auto mode, **ANAFI USA** selects the best shutter speed and ISO value couple, in real time, depending on the scene and available light. In consequence, selecting a shutter speed also deactivates the Auto ISO mode.

As **ANAFI USA**'s f/2.4 aperture lenses lets a lot of light in, even compared to most professional SLR lenses, your drone can achieve very fast "s" values (down to 1/10000s) and capture very fast action. It can also be used for slow shots, up to 1 second for the photo mode.

Note that **ANAFI USA** can shoot pictures and videos when it is not flying. You can even hold it in your hand and use it as a premium stabilized 4K video and photo camera.

Tap the "s" box to open the shutter slider.

Select a value to exit the auto-mode for shutter speed and ISO. This action also deactivates the EV slider.

Set the s value you require, then tap the "ISO" box to select an ISO value. Experiment! The display of the HUD reflects your settings. If you get lost, tap Auto either on the "s" or the "ISO" slider to get back to auto exposure and reactivate the EV slider.

ISO value (ISO)

The ISO value refers to the sensitivity of the sensor. As we have seen, it is linked to the shutter speed value: both sliders activate when you deactivate the "Auto" mode and set a value for one, or for the other. The lower the ISO value, the lower the sensitivity of the sensor, and the lower the image noise (digital grain). Therefore, under good lighting conditions, such as sunny daylight outside shots, low ISO values (100 or 200) should always be selected. The sensitivity of the sensor increases as the ISO value goes up: 3200 ISO can be used to capture low light interior scenes, or exterior shots at dusk or dawn, for example.

By default, in Auto mode, **ANAFI USA** constantly adapts its ISO and shutter speed values to the scene it is filming. Setting an ISO value for a whole shot or series of shot, however, is very useful to professional filming.

Tap the ISO box to open the shutter slider.

Select a value to exit the Auto mode for ISO and shutter speed. This action also deactivates the EV slider.

Set the ISO value you require, then tap the "s" box to select a shutter value. Experiment! The display of the HUD reflects your settings. If you get lost, tap Auto either on the "s" or the "ISO" slider to get back to auto exposure and reactivate the EV slider.

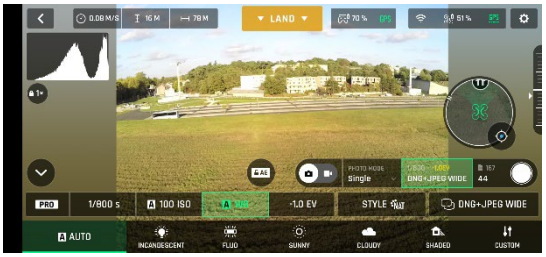
White balance (WB)

White balance deals with the color temperature of the light. Cold lights make the whites look blue. Warm lights make the whites look yellow. By default, in Auto WB mode, **ANAFI USA** keeps the whites white, at all times: it adapts its WB value in real time.

However, setting a WB value for an entire shot is especially useful for professional filming: stable WB facilitates the grading (color treatment) of videos.

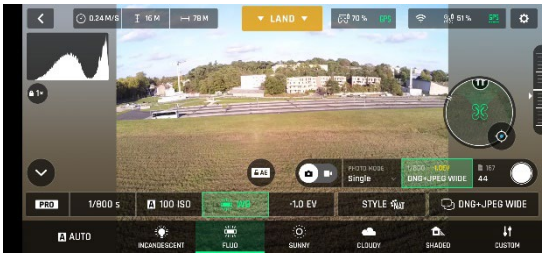
Tap the WB box to open the white balance options.

Select the WB option that is best suited for your shooting conditions, your subject, or both. The display of the HUD reflects your settings and helps you make the best choice.

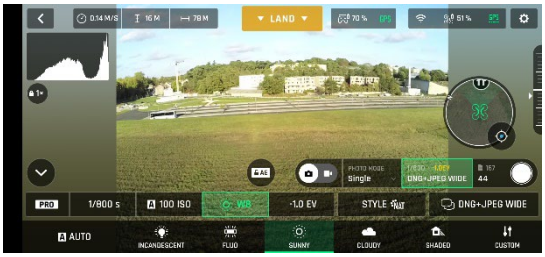


Auto WB

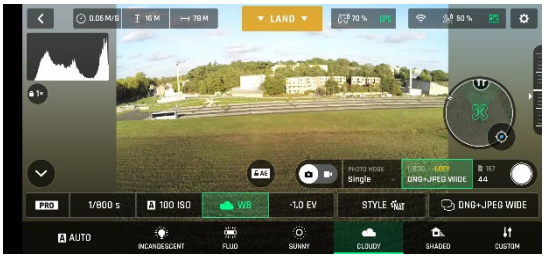
Incandescent WB



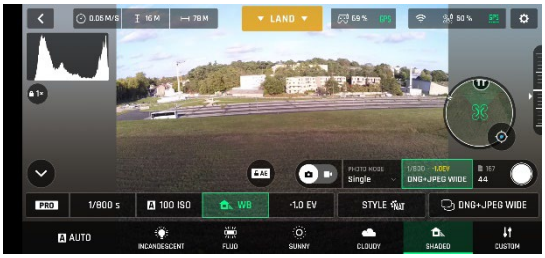
Fluo WB



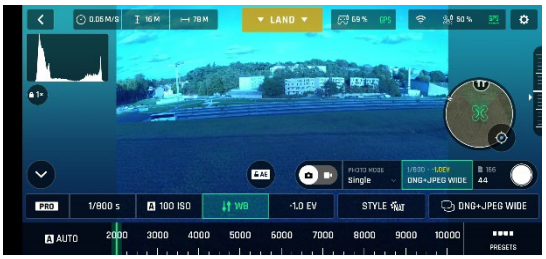
Sunny WB



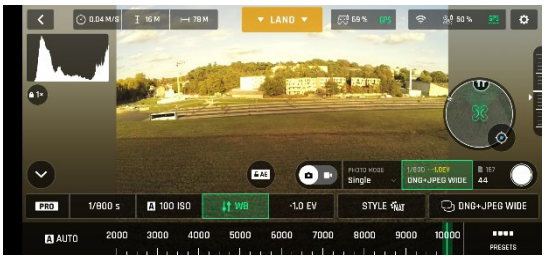
Cloudy WB



Shaded WB



WB 2 000 K



WB 10 000 K

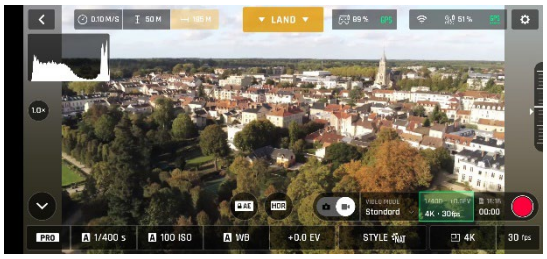
HDR

HDR (high dynamic range) is another great way to enhance a video or a photo. **The HDR option is available for Standard video mode 4K, 2.7K and 1080p formats** (regardless of framerate values) and **JPEG photos.**

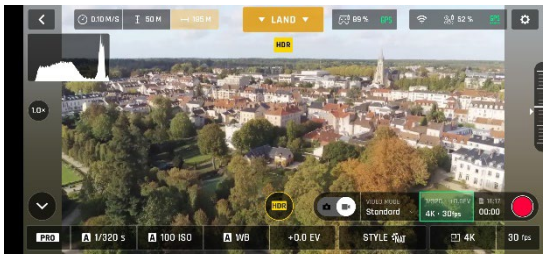
To activate the HDR option, select a Standard video mode or a JPEG photo format from the relevant boxes of the bottom bar of the HUD. A white and round HDR icon appears on your screen, to the left of the photo/video trigger.

Tap this icon: it turns yellow and a HDR notice appears in black inside a yellow box, under the "next available action" box, at the center of the top bar of the HUD. Press the hard shutter button on your **Parrot Skycontroller USA** (or the soft shutter button of the HUD) to start filming in HDR or to take a HDR photo.

Tap the round HDR icon again to deactivate HDR. The yellow HDR box disappears from the screen.



HDR Off



HDR On

Note that you cannot modify "S", "ISO" or "WB" values when the HDR mode is activated. However, you always keep control over your EV value.

⚠ Note that activating (or deactivating) HDR stops any ongoing video recording.

NATURAL Style

The **Natural** Style is the default **ANAFI USA** Style: it respects nature's colors and tones.

Activate the "NATURAL" Style from the "Style" box of the Video/Photo settings menu.

P-LOG Style

One alternative Style to Natural looking images (default value) can be selected for **ANAFI USA** both in the video mode, and in the photo mode. This alternative Style is called "**P-LOG**". It makes images a little less contrasted: P-LOG style is ideal for videos you want to edit and process using professional grading tools and filters.

Activate the "P-LOG" Style from the "Style" box of the Video/Photo settings menu.

INTENSE Style

Another alternative Style to Natural looking images (default value) can be selected for **ANAFI USA** both in the video mode, and in the photo mode. It is called "**Intense**". It makes images more saturated and contrasted.

Activate the "INTENSE" Style from the "Style" box of the Video/Photo settings menu.

PASTEL Style

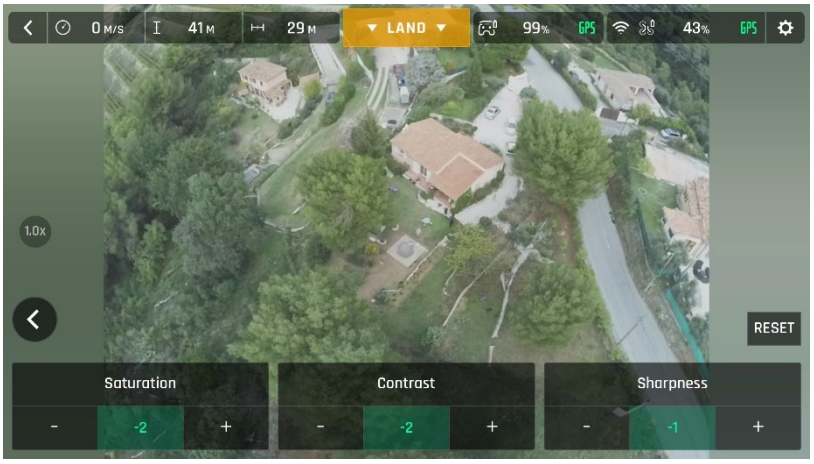
Another alternative Style to Natural looking images (default value) can be selected for **ANAFI USA** both in the video mode, and in the photo mode. It is called "**Pastel**". It makes images less saturated, but it brings out their warmest tones.

Activate the "PASTEL" Style from the "Style" box of the Video/Photo settings menu.

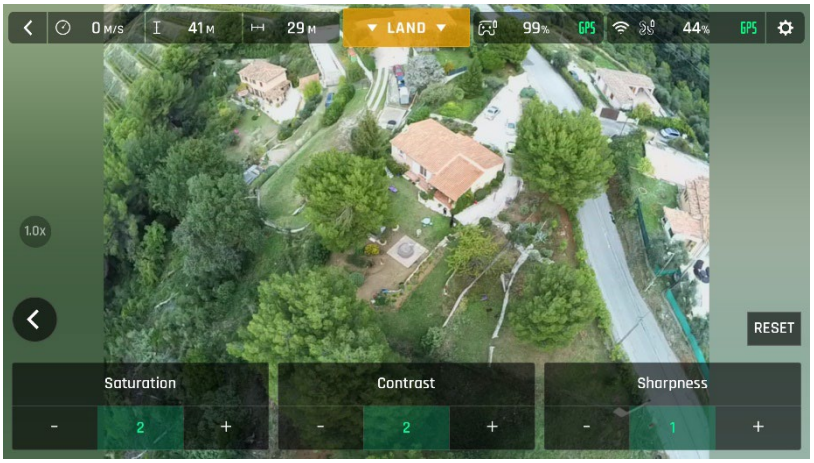
ADJUSTMENT

The ADJUSTMENT button, next to the P-LOG box, provides three additional settings for your **Normal Style** still images and films:

- Saturation: sets the intensity of the colors (from -2 to +2)
- Contrast: sets the degree of difference between lightest and darkest parts of the image (from -2 to +2)
- Sharpness: sets the distinction of the reproduction of details (from -1 to +1)



All settings at minimal values



All settings at maximal values

Tap the RESET button, on the right of the screen, to bring all values to 0 (zero).

Tap the "<" icon, on the left of the screen, to confirm your settings and exit the ADJUSTMENT menu.

Lock AE

Another great feature of **FreeFlight 6** is the possibility to lock the general exposure of a view, to fine-tune the framing of a shot and keep the desired exposure.

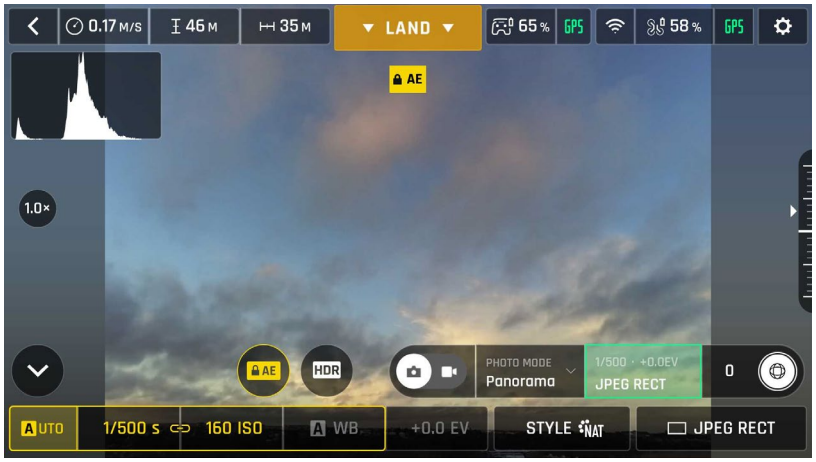
To access this function, tap the "Video settings box" (video mode) or the "Photo settings box" (photo mode) of the HUD.

A "Lock AE" icon appears, to the left of the HDR icon (it replaces the "HDR" icon in DNG+JPEG photo format, since HDR is not available with this setting).

Tap the "Lock AE" icon to lock the exposure value to that of the current view. The icon turns to yellow. A yellow "Lock AE" box appears under the "Next available action" box, at the center of the top bar of the HUD.

Move **ANAFI USA** around or tilt its gimbal to change the frame: the exposure settings remain as they were when you activated the function.

Tap the "Lock AE" icon again to deactivate the exposure lock: the icon turns back to white and the yellow "Lock AE" box disappears.



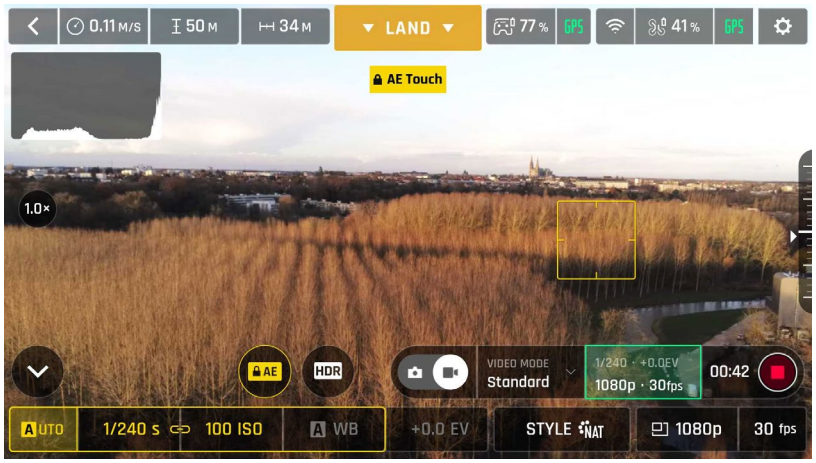
Exposure is locked on the sky

Lock AE Touch

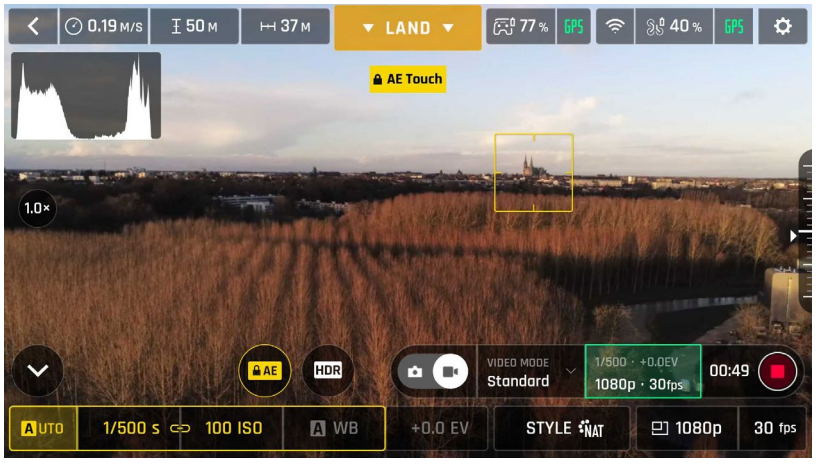
With the "Lock AE Touch" (or "Spot AE") function of FreeFlight 6, you can also lock the exposure of a frame on any detail of any view.

To activate this function, follow the "Lock AE" procedure of the preceding section. When the exposure is locked, touch the part of the frame you want to base your exposure on. A yellow square animates around this spot and the yellow "Lock AE" box is replaced by a yellow "**Lock AE Touch**" box.

Refer to the following screen captures for additional details on the logic of this great feature.



Exposure is locked on the top of the trees; shutter speed is set at 1/240 s



Exposure is locked on a building on the horizon; shutter speed is set at 1/500 s

THERMAL IMAGING

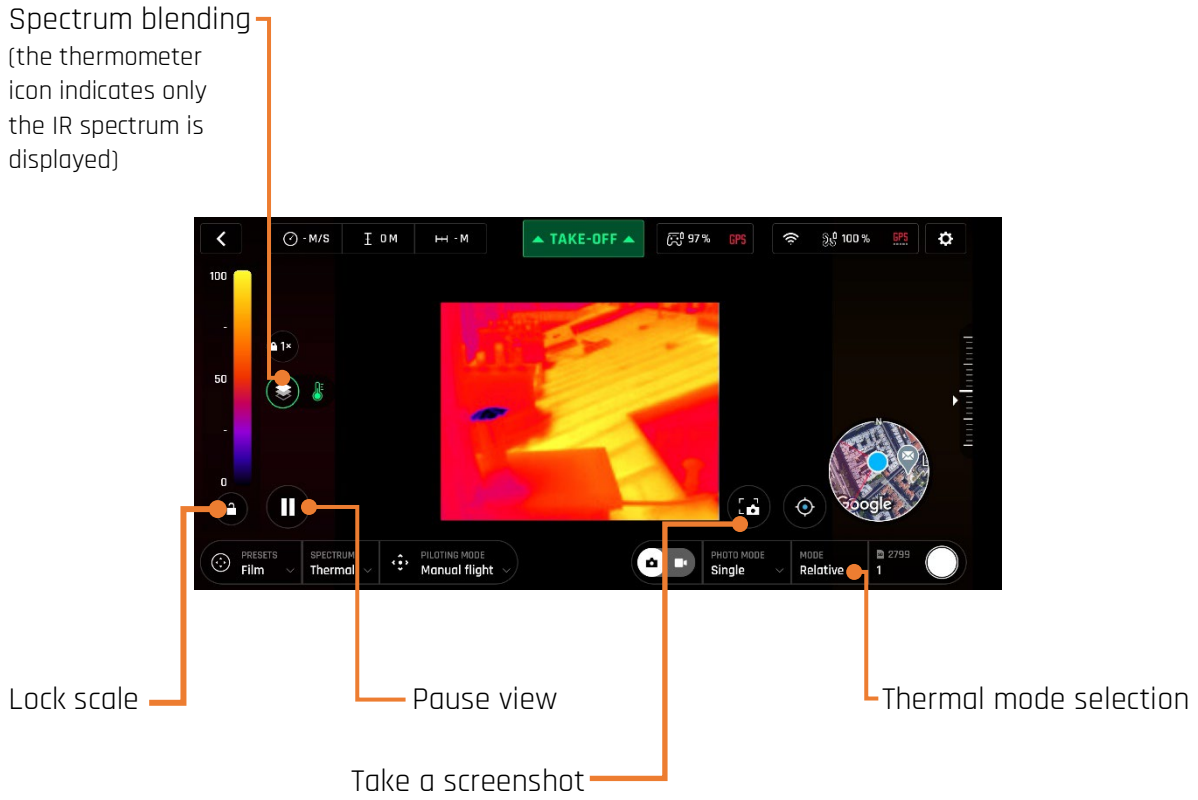
About Thermal Imaging

Thermal imaging – or infrared (IR) thermography – is the process of acquiring, measuring and analyzing thermal information from non-contact devices, such as **ANAFI USA**'s FLIR Boson camera.

Thermal imaging devices transform invisible IR radiations, or heat transfers, into colored images the human eye can interpret and analyze.

> To access **ANAFI USA**'s thermography mode, either tap the "THERMAL" box on the homepage of **FreeFlight 6** or tap the "SPECTRUM" box on the lower bar of the HUD and select "Thermal".

Presentation of the Thermal HUD (post-processing)



⚠ **Note that when post-processing is activated (default value), the "Pause view" and "Lock scale" buttons are available** – they disappear when post-processing is deactivated (refer to the *"PREFERENCES – Thermal – Thermal post-processing"* section of this guide for further information on thermal post-processing).

As for the Visible Spectrum, you can record both **Thermal photos and videos**: make your choice through the photo/video toggle button in the lower bar of the HUD (or among additional settings, as in the Thermal HUD screen capture).

When in Thermal Spectrum, **the choice of photo modes is limited to three options**, each of which delivering 1280x720 rectilinear JPEG thermography images:

- Single shot
- Timelapse (10, 30, 60, 120 or 240 seconds intervals between shots)
- GPS Lapse (5, 10, 20, 50, 100 or 200 meters spherical intervals between shots)

The **Thermal Spectrum video mode is limited to a single option**: **ANAFI USA** shoots 9 frames per second 1280x720 thermography MP4 (H264) videos.

You can always **capture screenshots**, directly to your **Parrot Skycontroller USA**, through the dedicated screen button. This feature is especially useful when filming, as it enables you to extract a still image from a film without stopping the recording.

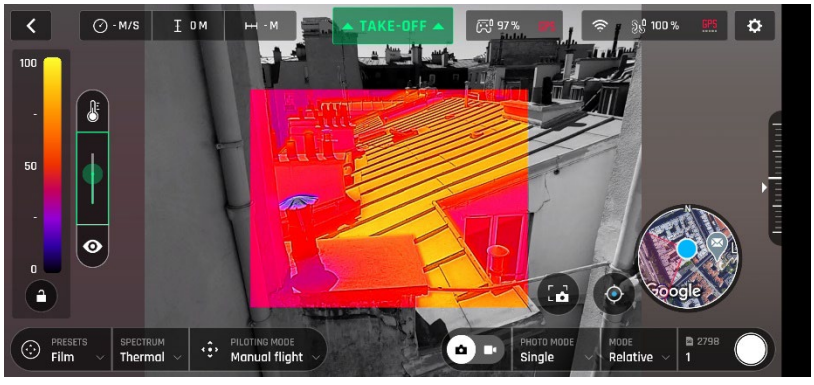
⚠ **ANAFI USA** is a multicamera system (two EO lenses for one visible camera, one thermographic camera). However, photo or video mode selection is independent from the cameras. In other words, for example, switching from Visible Spectrum photo mode calls the last Thermal Spectrum photo mode that was selected; similarly, switching from Thermal Spectrum video mode calls the last Visible Spectrum video mode that was selected.

Relative Thermal mode

The Relative mode is the default thermography mode of **ANAFI USA**, which is activated upon first access to the Thermal HUD.

The Relative mode is useful to get a quick overview of any scene's temperature range. In this mode, even slight heat differences materialize as strong contrasts.

Its main specificity is that the scale it displays, on the left of the HUD, matches by default the temperature range of the scene **ANAFI USA** is filming, on a 0 to 100 graduated scale.



Relative Thermal mode
(balanced blending between IR and visible)

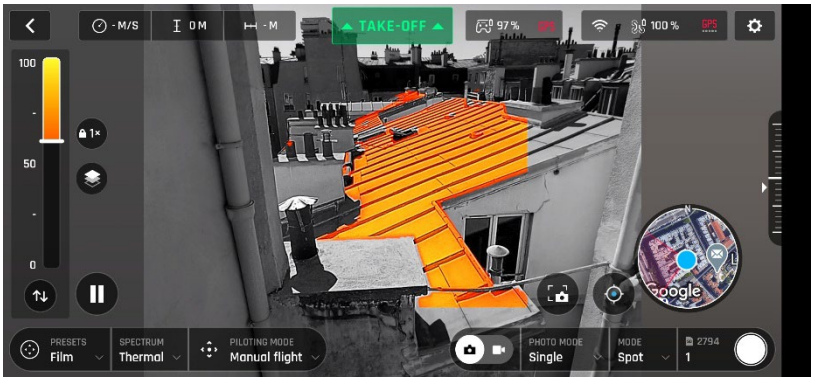
However, when the post processing is activated, the lock button enables you to temporarily lock the scale to the temperature range of any scene. This is especially useful if you must reframe your scene to include part of the sky. Indeed, the sky always appears as a very cold element, which disturbs the scale.

Spot Thermal mode

The Spot Thermal mode of **ANAFI USA** is especially useful to isolate cold or hot spots.

Use the **inverted arrows button** (under the scale, on the left of the screen) to toggle from hot to cold (or from cold to hot) and **slide your finger along the scale** to adapt the threshold of the scale to your scene and highlight only coldest or hottest spots.

Spot Thermal mode: only the hottest elements of the scene are colored.



Note that in Spot Thermal mode, the thresholds you set manually are only reset when you tap the "RESET THERMAL SETTINGS" button in the Thermal Preferences tab.

THERMAL ANALYZER MODE

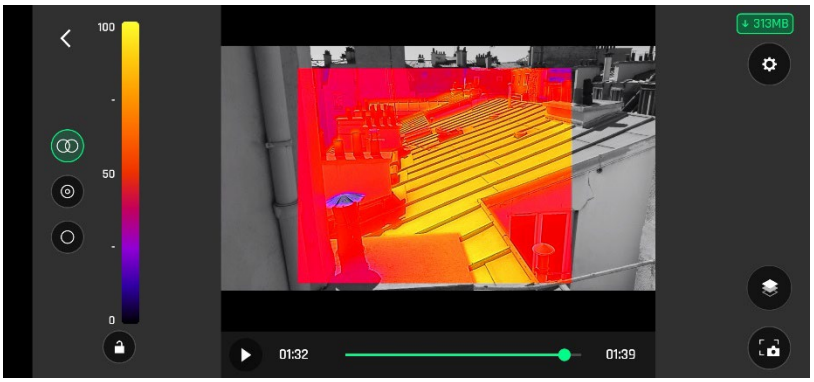
The Thermal analyzer feature of **FreeFlight 6** provides you with a great tool to achieve quick thermal analysis, directly from your **Parrot Skycontroller USA**.

This function gives you full control over the on-screen rendering of any thermography video or photo you have taken with **ANAFI USA**. From the analyzer, you can:

- access Thermal Preferences directly from the preview's Preferences icon, top right;
- navigate inside your thermography videos;
- modify the thermography modes (Relative, hot and cold spots) and their associated thresholds at any point of any video or on any photo;
- modify the blending between Visible and Thermal spectrums;
- save as many screenshots as you want.

However, Thermal analyzer videos cannot be saved or exported by **FreeFlight 6** – even if the **Parrot Skycontroller USA** enables you to record your screen.

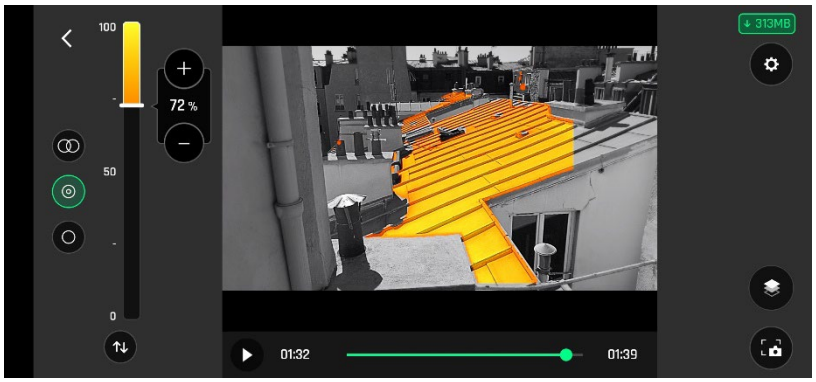
To analyze a thermography media, access your **Local FreeFlight 6 Gallery** and open a thermal video preview or a photo.



Thermography video preview, Relative mode

Tap the green "ANALYZE" box.

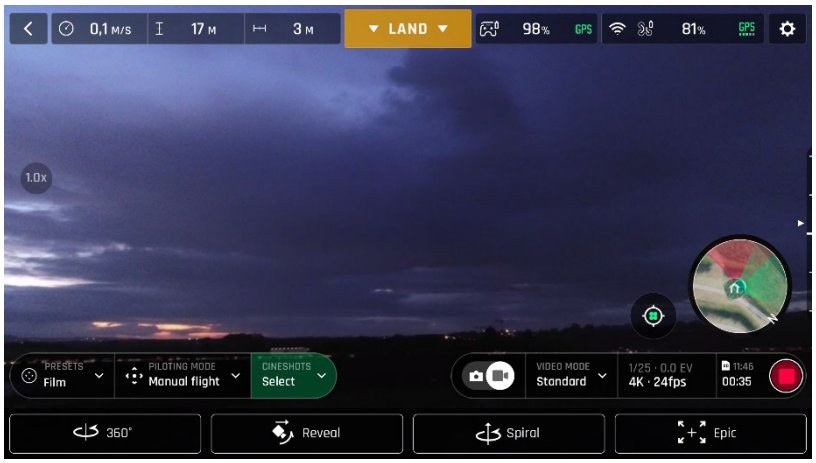
The photo displays or the video plays in Analyzer mode. As shown on the following screen captures (extracted from a video analysis), the interface gives you access to most options available for filming.



Same image, (hot) Spot mode

CINESHOTS (VISIBLE SPECTRUM ONLY)

ANAFI USA features a series of automated shots, which enable you to capture scenes professionally.



Cineshots menu

Make sure you have selected the video settings you require and tap "CINESHOTS" in the bottom bar of the HUD to access Cineshots. Tap a Cineshot to select it. For each, two options appear. ANAFI USA films all your Cineshots automatically – provided you have free space on your microSD card.

360°

The 360° Cineshot is self-explanatory: when it is activated, **ANAFI USA** maintains its position and altitude, and rotates slowly and completely around its axis to uncover a full panorama.

> **Tap "Right" or "Left" to select the direction you want your drone to rotate, and to activate the 360°.** After a countdown on the HUD, **ANAFI USA** starts its rotation. An animation flashes on your screen, and the "360°" box progressively fills with green as the Cineshot unfolds.

Reveal

The Reveal Cineshot is a classic motion picture opening shot: when it is activated, **ANAFI USA** tilts its camera toward the ground and starts moving forward in a straight horizontal line. Slowly, over 30 or 60 meters, the camera gimbal tilts up, revealing the scenery in front of **ANAFI USA**.

> **Before you activate the Reveal Cineshot, check the area in front of ANAFI USA is clear from obstacles, and safe.**
>
> **Tap "30m" (small-arrow icon) or "60m" (large-arrow icon) to select the range of your Reveal shot, and activate it.** After a countdown on the HUD, **ANAFI USA** tilts its camera down and starts moving forward. An animation flashes on your screen, and the "Reveal" box progressively fills with green as the Cineshot unfolds.

Spiral

The Spiral Cineshot is perfect to unveil your surroundings – or that of any object on the ground. When it is activated, **ANAFI USA** tilts its camera to the ground and starts moving up, in a straight vertical line. Slowly, as it climbs to 30 or 60 meters, **ANAFI USA** carries out a full 360° rotation around its axis, then its camera tilts up progressively, panning over the scenery along a 180° rotation. Therefore, **ANAFI USA** finishes the Spiral Cineshot with a 180° angle, compared to its starting point.

Before you activate the Spiral Cineshot, check the area beyond ANAFI USA is clear from obstacles, and safe: do not activate the Spiral Cineshot under trees, or a bridge, for example.

Tap "30m" (small-arrow icon) or "60m" (large-arrow icon) to select the range of your Spiral shot, and activate it. After a countdown on the HUD, **ANAFI USA** tilts its camera down and starts moving up and rotating. An animation flashes on your screen, and the "Spiral" box progressively fills with green as the Cineshot unfolds.

Epic

The Epic Cineshot offers another great way to dramatize any scene or location. When it is activated, **ANAFI USA** moves away backward in a smooth ascending line, keeping its subject in the center of its frame for 30 or 60 meters. The Epic Cineshot gives best results when **ANAFI USA** starts from a close-up position, relative to its subject.

Before you activate the Epic Cineshot, check the area behind ANAFI USA is clear from obstacles, and safe.

Tap "30m" (small-arrow icon) or "60m" (large-arrow icon) to select the range of your Epic shot, and activate it. After a countdown on the HUD, **ANAFI USA** starts moving backward and upward. An animation flashes on your screen, and the "Epic" box progressively fills with green as the Cineshot unfolds.

⚠ Activate and monitor all Cineshots with care: always check your automated shot flight plan is clear from obstacles and safe, always retain visual contact with ANAFI USA, and always be ready to reclaim control of your drone: any action on any stick of Parrot Skycontroller USA immediately terminates the current Cineshot.

PILOTING MODES

Tap the "PILOTING MODE" box in the bottom bar of the HUD of **FreeFlight 6** to access the piloting modes options.

Tap a mode to select it. Each mode is associated with a specific behavior, which this section describes.

Manual flight

The Manual flight mode is **ANAFI USA**'s default mode. It enables you to pilot the drone and fully control its camera tilt and zoom.

When you release the commands in Manual flight mode, **ANAFI USA** stays in position, hovering.

Cameraman

The Cameraman mode enables you to keep an object or a subject in the center of your frame, while you pilot **ANAFI USA** around it/him/her.

Frame the object or subject you want to film and fly around.

Tap the "PILOTING MODE" box in the bottom bar of the HUD to access the options. Tap "Cameraman" to select this piloting mode.

Draw a rectangle with your finger on your screen, around the object or subject you want **ANAFI USA** to follow – or double tap this object or subject. When your target is locked, the blue rectangle turns to green and the orange "LAND" box at the center of the top bar of the HUD turns red and displays "STOP". **ANAFI USA**'s frame centers on your target, inside the green box.

Drag the green box to the area of the frame where you want your target to remain at.

Fly **ANAFI USA** around your target. The drone keeps your target in the part of the frame you have selected. Therefore, if you push the right joystick of the **Parrot Skycontroller USA** to the left, **ANAFI USA** circles around your target clockwise. If you push the right joystick of the **Parrot Skycontroller USA** to the right, **ANAFI USA** circles around your target counterclockwise.

When the Cameraman mode is activated, **ANAFI USA** manages the gimbal tilt to keep the target in the frame. Therefore, the left trigger of the **Parrot Skycontroller USA** is deactivated in this mode. However, you can still control the zoom, with the right trigger.

When you release the commands in the Cameraman mode, **ANAFI USA** hovers and rotates to keep following the target.

To end the following of your target, tap the red "STOP" box at the center of the top bar of the HUD.

When no target is selected, or when the following of the target has been ended by the pilot, **ANAFI USA**'s behavior is similar to that of the Manual flight mode.

⚠ **Activate and monitor the Cameraman mode with care: always check your flight plan and the trajectory of your subject are clear from obstacles and safe, always retain visual contact with ANAFI USA, and always be ready to stop the following (tap the "STOP" box of your HUD) in case a danger or any sort of unexpected obstacle arises.**

Follow Me

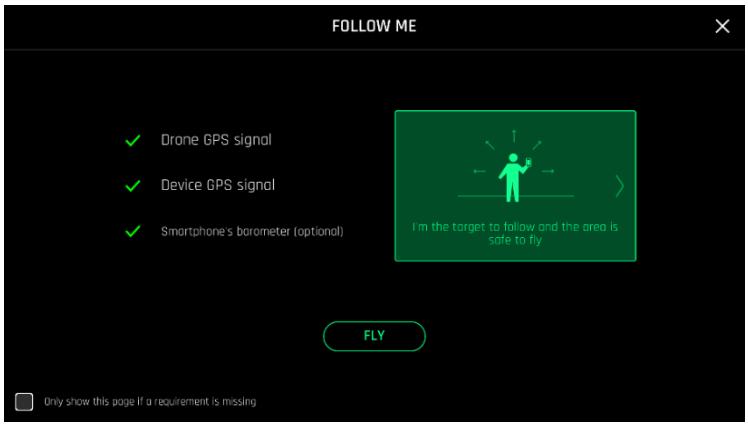
The Follow Me mode was designed to enable **ANAFI USA** pilots to have their drone follow them in action.

Fly **ANAFI USA** at least 5 meters (15ft) high and 10 meters (30ft) in front of you, facing you – **FreeFlight 6** will inform you with a red alert at the bottom of the HUD if you are too close from **ANAFI USA** or if it is flying too low.

Frame yourself.

Tap the "PILOTING MODE" box in the bottom bar of the HUD to access the options. Tap "Follow Me" to select this piloting mode.

Both a drone GPS synchronization and a controller GPS synchronization are imperative to activate this mode: upon first activation, the following page appears.



Follow Me GPS warning

Tick the box on the bottom left on the page if you do not want this warning to appear again when no prerequisite is missing. Tap "FLY" to access the Follow Me mode.

Select one of the three Follow Me options (refer to in-app explanations for details):

Track

Lock

Dynamic (**Parrot recommends you only use this option in completely open and unobstructed areas**)

Draw a rectangle with your finger on your screen, around yourself. When **ANAFI USA** has a lock on you, the blue rectangle turns to green and the orange "LAND" box at the center of the top bar of the HUD turns red and displays "STOP".

By default, **ANAFI USA** keeps you in the center of the frame, but you can drag the green box to the area of the screen you want to remain at. If you push the right joystick of the **Parrot Skycontroller USA** to the left, **ANAFI USA** circles around you clockwise. If you push the right joystick of the **Parrot Skycontroller USA** to the right, **ANAFI USA** circles around you counterclockwise.

In the Follow Me mode, **ANAFI USA** manages the gimbal tilt to keep you in the center of the frame. Therefore, the left trigger of the **Parrot Skycontroller USA** is deactivated in this mode. However, you can still control the zoom, with the right trigger.

When you release the commands in the Follow Me mode, **ANAFI USA** keeps following you from a constant distance if you are moving. If you stay immobile, **ANAFI USA** stops and stays focused on you.

To have **ANAFI USA** stop tracking you, tap the red "STOP" box at the center of the top bar of the HUD.

When no target is selected, or when the tracking has been ended by the pilot, **ANAFI USA**'s behavior is similar to that of the Manual flight mode.

In addition, the Follow Me mode features a series of exclusive Dronies which can be activated as you move, always keeping you in the center of the frame. For each Dronie, two options are available (they are listed between brackets):

- **Orbit (left or right):** **ANAFI USA** circles around you in a full 360°.
- **Parabola (10 or 30 m):** **ANAFI USA** flies in an arc over your head, gaining 10 or 30 meters in altitude and turning 180° at its peak.
- **Tornado (10 or 30 m):** **ANAFI USA** performs a double "Orbit" around you, one up 10 or 30 meters, the other down 10 or 30 meters, back to its original height.
- **Boomerang (30 or 60 m):** **ANAFI USA** flies away from you for 30 or 60 meters, with an ascending angle following that of the starting gimbal tilt, then comes back to its starting point.

To select a Follow Me Dronie, make sure you are in the Follow Me mode and that **ANAFI USA** is tracking you.

Tap the "Select Dronie" box in the bottom bar of the HUD.

Tap a Dronie to select it. Tap the option you have chosen to activate the Dronie: after 2 seconds, **ANAFI USA** starts moving around you. The corresponding Dronie box fills with green as the Dronie unfolds.

⚠ Activate and monitor the Follow Me mode and each Dronie with care: always check your flight plan is clear from obstacles and safe, always retain visual contact with ANAFI USA, and always be ready to stop the following (tap the "STOP" box of your HUD) in case a danger or any sort of unexpected obstacle arises.

⚠ To optimize the drone's tracking, always make sure you remain visible by ANAFI USA: do not let an obstacle obstruct the camera's view and do not hide in the shadows, or ANAFI USA could lose track of you.

Smartdronies

ANAFI USA features four Smartdronies:

- the Orbit, Parabola and Boomerang Dronie can be accessed through this menu – refer to the above section for details about the Boomerang Dronie;
- however, the smartest of ANAFI USA's dronies is the Dolly Zoom.

  We will not spoil it for you: just make sure you have a memorable scenery behind you. Frame yourself (or better yet, your group of friends!) with ANAFI USA: keep the drone at least 5 meters away, at man level, between 1 and 2 meters above the ground.

  Check that the flight path of your drone is perfectly clear: at least 30 meters behind it, flat and without obstacles.

  Tap "Smartrdronies" from the "PILOTING MODE" box menu.

  As for the Follow Me mode, both a drone GPS synchronization and Parrot Skycontroller USA GPS synchronization are imperative to activate this mode: upon first activation, the same warning page appears as for the Follow Me mode. Tick the box on the bottom left on the page if you do not want this warning to appear again when no prerequisite is missing. Tap "FLY" to access the Smartdronies mode.

  Tap the Dolly Zoom Dronie to open its three options: try them all and enjoy the magic!

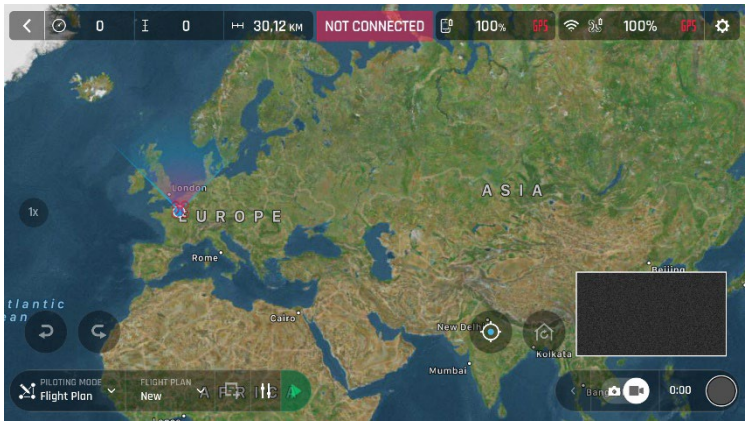
MAP-BASED FLYING MODES

Flight Plan

Flight Plan is a powerful tool, which enables you to fully prepare and configure your flights and filming sessions, from home, on the train, in a plane, or anywhere else you can take your phone with you.

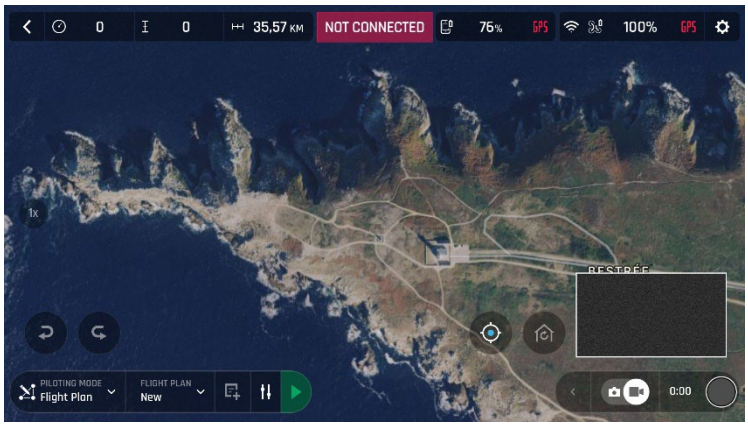
Through an example, this section will teach you the basics of automated flight and shooting management, with ANAFI USA and Flight Plan.

Tap Flight Plan from the "PILOTING MODE" box menu. The map of your surroundings opens full screen. If you are not connected to **ANAFI USA**, the minimized live view is black, as on the screen captures that follow. Find your next dream flying spot on the map.



Flight Plan

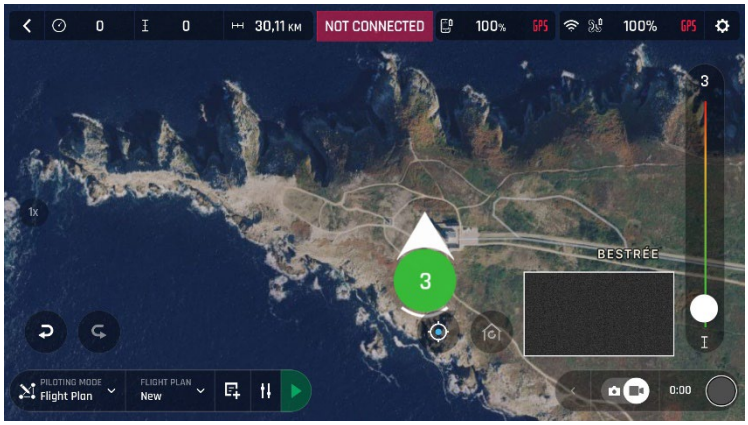
Consider this pointy bit of land, with a lighthouse in the middle. Say you could fly **ANAFI USA** and shoot a film there. Let's do it!



New Flight Plan

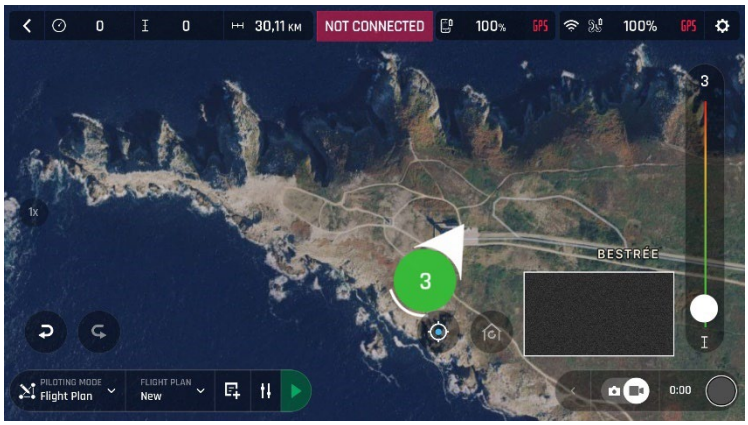
Parrot

First, select your initial waypoint: ideally, very close to your intended take-off point. Tap the screen to set it. The green circle represents the waypoint, the white figure the altitude of the drone, and the white arrow the direction of **ANAFI USA**'s camera.



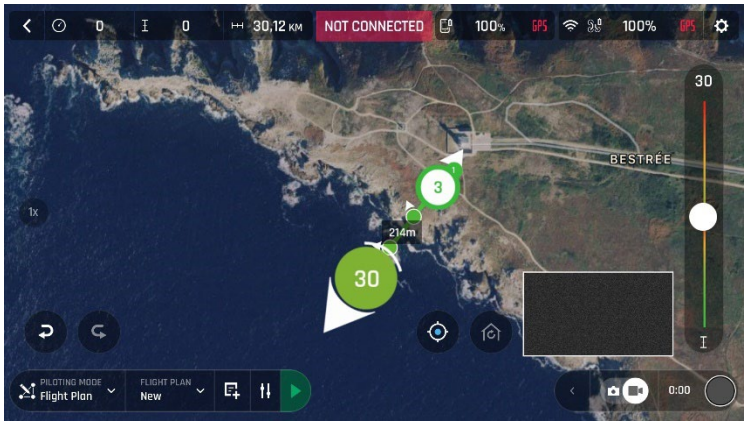
Initial waypoint (WP)

Tap the white arrow and hold it to move it around. In this example, we want **ANAFI USA** to frame the lighthouse as it starts the flight.



Initial waypoint, with the camera framing the lighthouse

Tap the map to set the second waypoint: the distance between the two waypoints appears on the screen. Use the slider on the right of the screen to set the altitude of the waypoint. In this example, **ANAFI USA** will climb from 3 to 30 meters between the initial waypoint and the second waypoint.



Second waypoint

Add waypoints to tour the area and end your Flight Plan where you intend to land.

Full Flight Plan

The tip of the peninsula is a POI: we want **ANAFI USA** to focus on it while it flies around it. **Tap it and hold your finger on the screen to call choices** (POI/Close).

Setting a POI

Tap "Point of interest" to add the POI. It appears as a blue square diamond. The figure in the center represents the height of the POI, which you can modify using the slider on the right of the screen. All waypoints turn white as they can now be selected to be linked to the POI.

Open waypoints

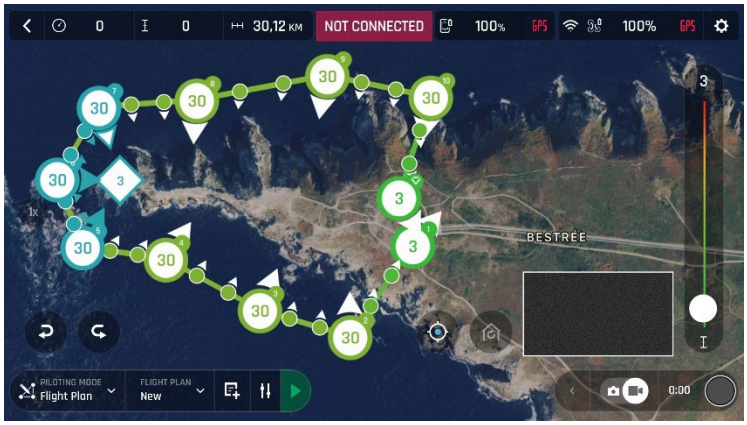
Tap waypoints to link them to the POI. In this example, we want **ANAFI USA** to film the tip of the peninsula as it flies around it: we have selected the three waypoints to the left of the peninsula. The arrows of those waypoints have turned toward the POI and are colored in blue – the last one which was selected has a blue border around the white arrow.

Three waypoints linked to the POI

Tap the POI to confirm your choices. Blue waypoints are linked to the POI, which appears as a white square diamond with a blue border. During the entire blue part of the flight, **ANAFI USA**'s camera will stay focused on the tip of the peninsula, enabling you to achieve the smoothest flyby shoot. Green waypoints remain independent from the POI.

POI Flight Plan

Tap a green waypoint to edit it: use the slider on the right of the screen to modify its height; tap and move its white arrow to set the direction of **ANAFI USA**'s camera. For this example, we had the drone point toward the land at most steps of the Flight Plan, and toward the lighthouse at take-off and landing, with a descent from 30 to 3 meters between the last two waypoints.



POI Flight Plan

All you have to do now is to close **FreeFlight 6**, to get to your flying spot, to prepare **ANAFI USA** and your **Parrot Skycontroller USA** for the flight.

Tap the "PILOTING MODE" box on the HUD to call the options. Select "Flight Plan": the last plan you have set up appears.

Tap the green arrow on the right of the left bottom bar of the Flight Plan interface to begin the Flight Plan: ANAFI USA takes off, flies to the first waypoint and starts the Flight Plan. At the end of the Flight Plan, depending on your settings and depending on your version of FreeFlight 6, ANAFI USA lands at, or hovers over, the last waypoint you have set.

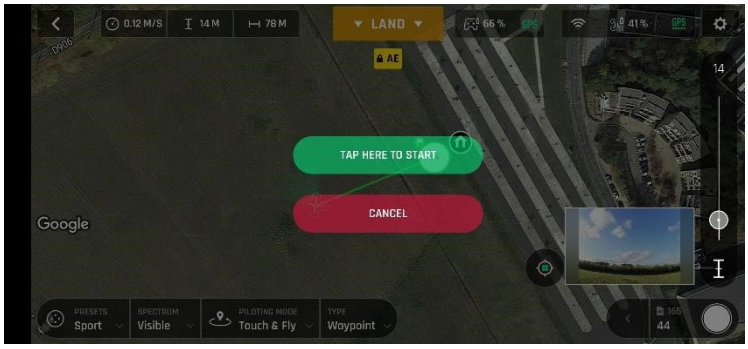
That is why, for this section, we have chosen to consider that **ANAFI USA**'s final waypoint is also its landing spot.

⚠ Activate and monitor every Flight Plan with extreme care: always check your drone's route is clear from obstacles and safe, always retain visual contact with ANAFI USA, and always be ready to stop the Flight Plan (tap the "STOP" box of your HUD or reclaim commands of the drone) in case a danger or any sort of unexpected obstacle arises.

Touch & Fly: Waypoint

Waypoint is the default "Touch & Fly" mode. It enables you to fly **ANAFI USA** to any point on the map. Tap "Touch & Fly" from the "PILOTING MODE" box menu. The map of your surroundings opens full screen. The live image captured by **ANAFI USA** is minimized in the bottom right corner of your screen.

Tap a point on the map to select a destination for ANAFI USA: this point is marked as a white circle with a green border. For each new Waypoint Touch & Fly session, FreeFlight 6 asks you to confirm the first destination of **ANAFI USA** as on the following screen capture. Tap the green "TAP HERE TO START" box, **ANAFI USA** flies toward its designated destination. Use the slider on the right of the screen to control the drone's altitude (the green figure inside the circle) when it reaches its destination.



Touch & Fly Waypoint: first destination confirmation screen

⚠ **Activate "Touch & Fly" Waypoint with care: be especially careful with your touches on the screen in this mode, as after the initial confirmation, any tap on the map will immediately send ANAFI USA to the corresponding spot.**

For this reason, Parrot recommends you set your FreeFlight 6 filming or photography options before activating the "Touch & Fly" Waypoint mode. If, by mistake, you have sent ANAFI USA toward a dangerous area, tap the STOP box at the center of the top bar of the HUD, or firmly reclaim commands from the Parrot Skycontroller USA.

Touch & Fly: POI

To access the POI Touch & Fly option, tap the "Type" box from the lower bar of the HUD, and select POI.

In POI mode, tap a point on the map to create a point of interest (POI), marked as a white square diamond with a blue border, labelled with a POI icon. Control the height of the POI (the blue figure inside the square diamond) through the slider on the right: this effectively controls the tilt of the gimbal, while you use the **Parrot Skycontroller USA** to fly around your target. **ANAFI USA** remains focused on the POI.

Touch & Fly: POI

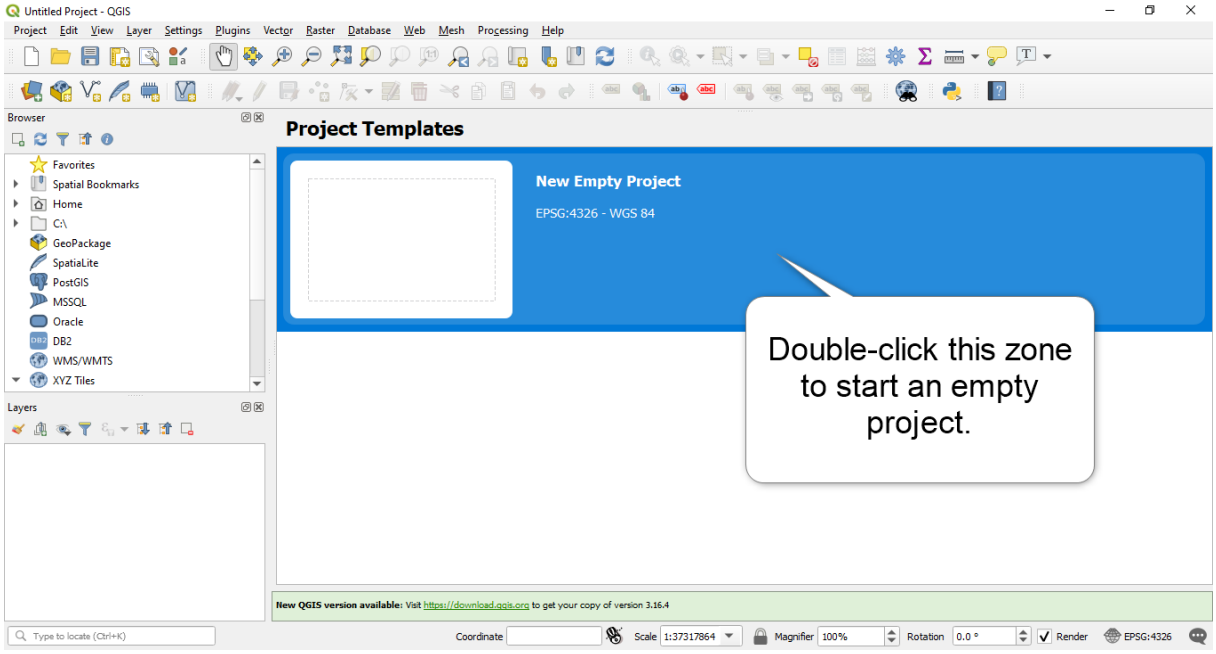
Tap “STOP” from the red box at the center of the top bar of your screen to halt **ANAFI USA**, or to reset a POI.
From the “Smartdronies” box, next to the “Type” box of the lower bar of the HUD, you can also activate Smartdronies (Orbit, Parabola, Dolly Zoom, Boomerang) of your POI. Refer to the “Smartdronies” section of this guide for additional information on Smartdronies types.

APPENDIX 1: GEOTIFF CONVERSION AND IMPORT

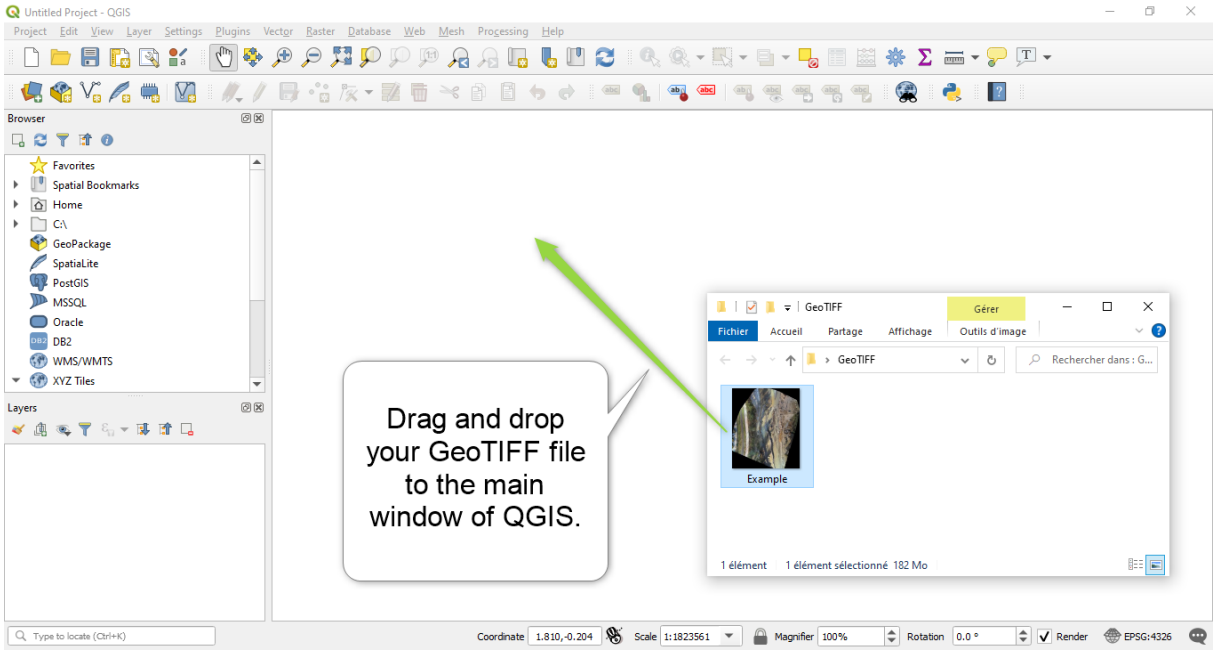
The free software QGIS provides an easy way to convert GeoTIFF maps into FreeFlight 6-compatible PNG tiles.

Follow this procedure to convert your files.

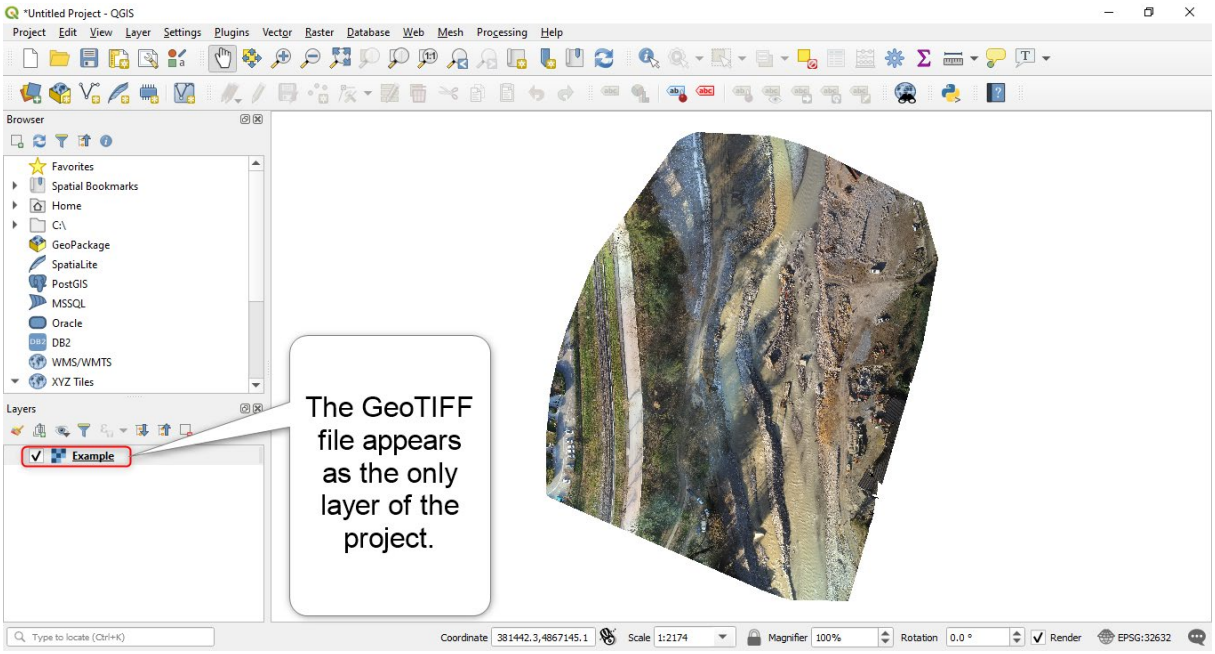
1. Launch QGIS: this is the software's main interface.



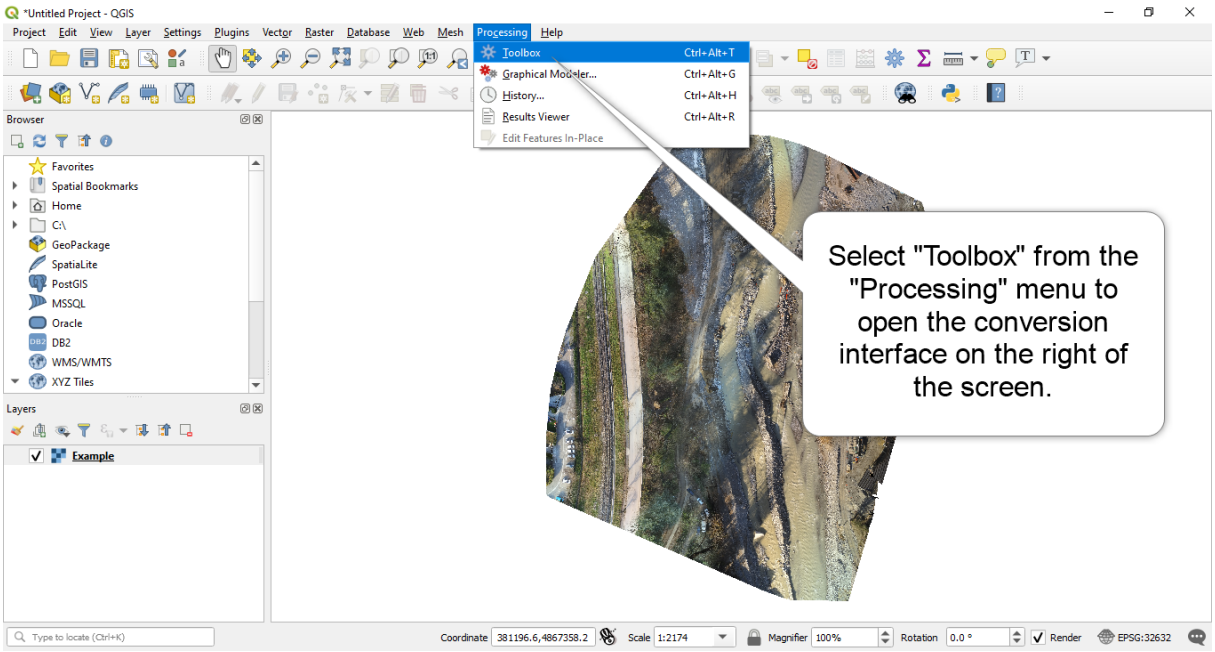
2. Import your GeoTIFF file in the software's main interface.



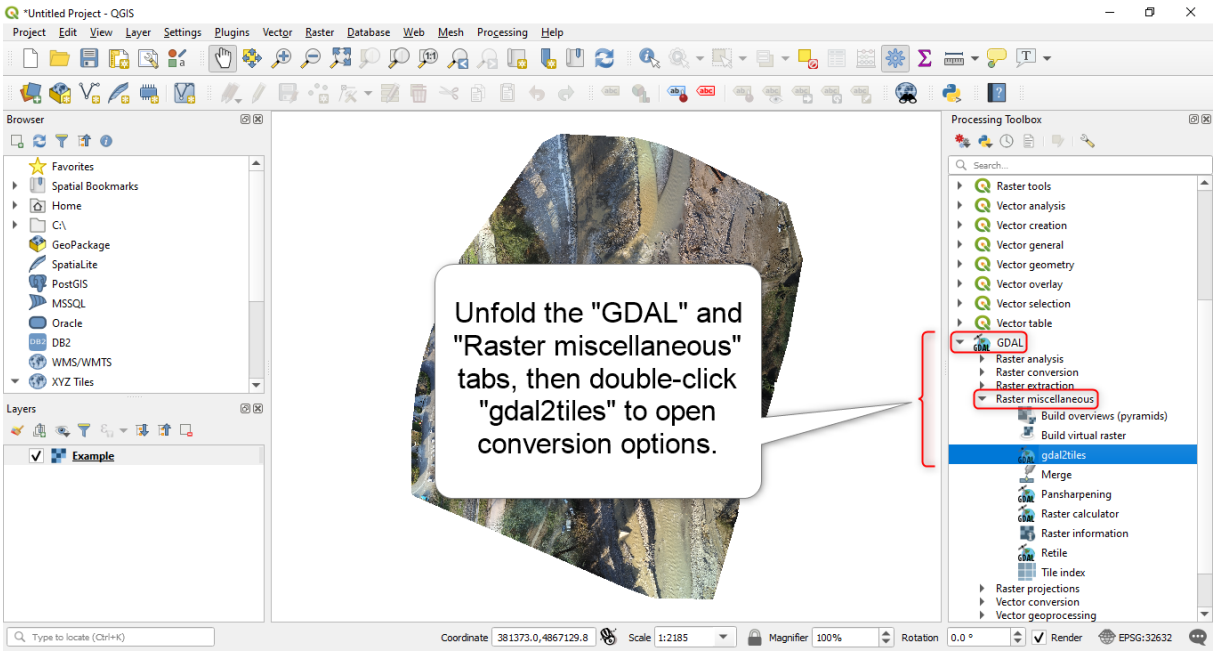
3. Check your GeoTIFF file has been imported on the screen of your PC.



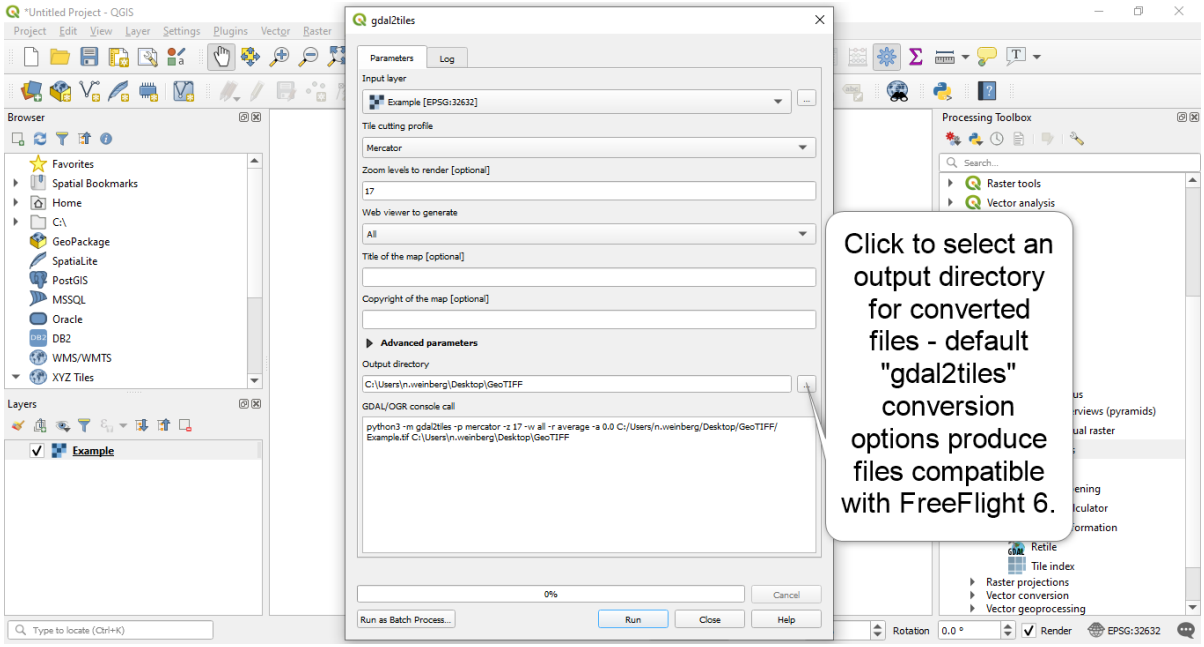
4. From the "Processing" menu, select the "Toolbox" to open it.



5. From the “Toolbox”, launch the “gdal2tiles” process.



6. Select an output directory – and an appropriate zoom level.
7. Click “Run” to launch the conversion – it can take over an hour, depending on the size of the original file.



8. Compress **together all new folders** (.zip format) from the output directory, without renaming them.
9. Turn the **Skycontroller USA** to Maintenance Mode and copy the compressed folder to the “FreeFlight6\Custom maps” directory of the **Skycontroller USA** – refer to the *Skycontroller USA Maintenance Mode* section of this guide for additional information.
10. At the next launch of **FreeFlight 6**, the new map appears as an overlay of the default (Google) map.

APPENDIX 2: TROUBLESHOOTING GUIDE

This guide addresses all issues ANAFI USA users may have encountered while discovering and using a drone from the ANAFI USA series.

DO NOT CONTACT PARROT SUPPORT before you have applied the procedures and tips relevant to your issue.

TROUBLESHOOTING PROCEDURES

ANAFI USA drone hard reset

Hard resetting ANAFI USA reverts ANAFI USA's most recent firmware to its original state. Parrot recommends the drone hard reset as a first intent procedure for several issues, notably gimbal calibration troubles.

1. Check a compatible microSD card is inserted into ANAFI USA.
2. Power **ANAFI USA** on (short press on the battery's power button).
3. Wait for the gimbal to calibrate (or for the gimbal calibration to fail).
4. Press and hold the battery's power button: after 8 seconds a battery's LED lights up in red.
5. Release the battery's power button: **ANAFI USA** powers off briefly then reboots.
6. Check the contents of **ANAFI USA**'s microSD card: the hard reset procedure has generated a .TXT document named "wifi_security_key" at the root of the microSD card. This document confirms the hard reset procedure is complete and successful.

ANAFI USA's smart battery hard reset

Hard resetting ANAFI USA's battery is useful to correct any battery issue. Parrot recommends a battery hard reset whenever the battery's behavior strays from its expected behavior.

1. Plug your smart battery to a power source.
2. Regardless of the battery's behavior, press and hold its power button for 15 seconds.
3. Release the power button: the battery's LED run successively in green and red, then flash alternatively in green.
4. The battery's hard reset is complete.

Reboot all systems

Rebooting all systems is useful to solve connectivity issues (black screen, white noise, etc.).

1. Power **ANAFI USA** off.
2. Kill **FreeFlight 6** on your **Parrot Skycontroller USA**.
3. Reboot your **Parrot Skycontroller USA**.
4. Power **ANAFI USA** on.
5. Wait for synchronization between **Parrot Skycontroller USA** and **ANAFI USA**: check that the left trigger of the **Parrot Skycontroller USA** activates the drone's gimbal to ensure the synch is complete.

Pairing **ANAFI USA** to a **Parrot Skycontroller USA**

This procedure is useful to pair a drone and a controller which have never been paired, and to restore the lost pairing between a drone and a controller.

1. Power **ANAFI USA** on.
2. Power the **Parrot Skycontroller USA** on.
3. Plug the drone and the controller together with an USB-A (controller) to USB-C (drone) cable.
4. The LED of the **Parrot Skycontroller USA** flashes briefly in green: it is acknowledging **ANAFI USA**.
5. Wait for synchronization between **Parrot Skycontroller USA** and **ANAFI USA**: check that the left trigger of the **Parrot Skycontroller USA** activates the drone's gimbal to ensure the synch is complete.
6. Unplug the controller from the drone.

Issues

What do I do if I experience a connectivity issue (black screen, white noise, thermography camera activation failure, frozen or lagging stream)?

Reboot all systems (refer to the relevant procedure in the earlier section of this guide).

What do I do if my **ANAFI USA**'s gimbal does not calibrate?

Hard reset ANAFI USA (refer to the relevant procedure in the earlier section of this guide).

What do I do if my **ANAFI USA** does not power on?

Make sure your smart battery is "awake": plug it to a power source to take it out of wintering mode, and its LED should start flashing to acknowledge the fact it is charging – Parrot recommends you always fully charge your smart battery before you fly **ANAFI USA**.

What do I do if my battery shows a strange behavior (flashing LED, red LED, etc.)?

Reset the smart battery (refer to the relevant procedure in the earlier section of this document).

What do I do if my **ANAFI USA** is connected to the **Parrot Skycontroller USA**, but won't take off when I hit the take-off button?

The drone or controller boxes of the homepage of **FreeFlight 6** either signal you that:

- you must update your **Parrot Skycontroller USA**, your **ANAFI USA**, or both;
- or you must calibrate your **ANAFI USA**'s gimbal;
- or you must carry out a magnetometer (drone) calibration;
- or you must calibrate your **Parrot Skycontroller USA**.

What do I do if my **ANAFI USA** flips over at take-off?

The propeller blades have been improperly installed. Remove all propeller blades and reinstall them properly and carefully, following the instructions enclosed in all **ANAFI USA** propeller blades packs.

What do I do if **my Parrot Skycontroller USA** does not synch with my **ANAFI USA**?

1. Check no device is connected on **ANAFI USA**'s Wi-Fi network, with **FreeFlight 6** running.
2. Pair your **ANAFI USA** to your **Parrot Skycontroller USA** (refer to the relevant procedure in the earlier section of this document).

What do I do in the unlikely event my **ANAFI USA** has sustained a crash?

⚠ *FIRSTLY YOU MUST CHANGE ALL YOUR PROPELLER BLADES BEFORE ATTEMPTING ANOTHER FLIGHT: PROPELLER BLADES ARE INSTRUMENTAL FOR FLIGHT INTEGRITY AND DELICATE PIECES OF EQUIPMENT, AND EVEN "MINOR" CRASHES CAN INVISIBLY DAMAGE THEIR STRUCTURE.*

1. Set up **ANAFI USA** for a flight.
2. Check the **ANAFI USA** page of FreeFlight 6: any permanently damaged element (gimbal or motor) will appear in red – if an element is damaged, refer to point 8 below.
3. If no element is damaged, carry out the calibration(s) requested by FreeFlight 6 (gimbal, magnetometer, or both).
4. Fly **ANAFI USA** in a mission, take pictures and videos.
5. Check your **ANAFI USA** pictures and videos to see if your drone's horizon if offset.
6. If your horizon is offset, carry out the "Correct horizon" procedure (refer to **ANAFI USA**'s User Guide for details) of **FreeFlight 6**'s "Camera" Preferences
7. If the "Correct horizon" function cannot make your horizon straight again, it means a part of your gimbal has been deformed and your drone needs service and a new calibration – refer to point 8 below.
8. Note that if the crash has damaged a component of **ANAFI USA** which is essential to a safe flight (such as its vertical camera or its ultra-sonar), your drone will not be able to take off and a FreeFlight 6 alert will tell you to contact your Parrot Support Partner.

APPENDIX 3: OPERATIONAL CHECKLIST

This foolproof checklist has been developed with military ANAFI series drone pilots.

If it is useful to them, it is useful to every ANAFI USA pilot.

Update & calibration

Device	UPDATED
FreeFlight 6	UPDATED
Skycontroller USA	UPDATED
ANAFI USA	UPDATED
Magneto calibration	OK
Skycontroller USA calibration	OK
Gimbal calibration	OK

Skycontroller USA & ANAFI USA OFF

Arms	unfolded, locked
Arms mechanical lash	NONE
Lens cap	OFF
Check drone and gimbal	OK
Check propellers	intact, free
Check Skycontroller USA	OK, 100 % charged
ANAFI USA battery	OK, 100% charged
ANAFI USA battery LED	4 x OK
ANAFI USA battery temp	OK
Device	OK, 100% charged
MicroSD card	Inserted
ANAFI USA battery	3 hooks engaged in drone, locked

Skycontroller USA & ANAFI USA ON

Skycontroller USA (SCUSA)	ON, flashing light to dark blue LED
ANAFI USA	ON, gimbal calibration OK
SCUSA / **ANAFI USA** Wi-Fi link	steady blue LED on SCUSA, L trigger moves gimbal: OK
FreeFlight 6 launched	Image feed & telemetry: OK
Flight mode selection	MANUAL
RTH Height	set (20m to 100m)
Max altitude	set
Max distance	set
Geofence	activated if needed
Image settings	OK
Check Stick Mode	Inverted / Special mode
Map on app	OK
Micro SD card	Formatted
Battery levels	XXX% (report on flight log if ≠ from 100%)
Global reactivity	set
Camera tilt speed	set
Inclination	set
Vertical speed	set
Rotation speed	set

Before take-off

ANAFI USA GPS signal	Red / Orange /Green (check status matches mission)
SCUSA GPS signal	Red / Green (check status matches mission)
Flight mode	MANUAL
Weather	OK
Take-off Zone	Clear
Drone status	Check
Take-off/Land command	Take-off

After take-off

Precise Home Set	Depending on conditions / 10 secs or 10 meters
Check Stick Mode	Inverted / Special mode
Flight mode	MANUAL
Check flight commands	OK
Check gimbal	OK
Video feed	OK
Video latency	OK
Drone status	Check

Before landing

Flight mode	MANUAL
Weather	OK
Landing Zone	Clear
Drone status	Check
Take-off/Land command	Land

After landing

Check engines off	OK
Drone status	Check
ANAFI USA Battery	OFF
Skycontroller USA	OFF
Check drone / gimbal / propellers	OK
Lens cap	ON
ANAFI USA Battery	Disengaged, stored away
Micro SD card	Stored away
ANAFI USA arms	Folded, no mechanical lash
ANAFI USA drone	Stored away
Device	OFF / Stored away
Skycontroller USA	Stored away
Cables	Stored away

Documents

Flight & batteries info	Report on flight log