

**SPECIAL FLIGHT OPERATIONS  
CERTIFICATE  
-APPLICATION-**

**(Standing SFOC)**

**STANDARD OPERATING PRACTICES, PROCEDURES  
& UAV SPECIFICATIONS**

Applicant:

**8.1,8.2(a)**

**Tony Slavin**

**Pilot/Chief Executive Officer**

**29 Lawson Rd**

**(Courtice, Ontario)**

**905-767-0101**

**866-603-8561-fax**

**D.O.B- October 6, 1954**

**March 16, 2018**

**8.2(b)**

# Training

Since May 2014, the applicant has undertaken at least 400 hours dedicated to researching and gaining an understanding of Canadian aviation legislation including, among other relevant legislation, the *Aeronautics Act R.S. 1985*, rules and regulations and aeronautical principles. In addition to having a firm understanding of the current regulations, the applicant has also spent at minimum 400 hours researching and training hands on with the technical aspects of the aircraft.

The pilot/operations officer has also studied relevant laws and regulations pertaining to Canadian air laws, rules and regulations prescribed by Transport Canada and other Canadian regulatory bodies, proper maintenance of UAV systems, and rules & procedures pertaining to aeronautical communications.

For communications purposes, the pilot/operations officer have 2-way radio's and cell phones.

When considering this application, the applicant respectfully requests that the application review officer considers his competent understanding of applicable laws, rules and regulations and over 3 years of uneventful and safe UAV flight experience.

Before each flight operation commences, the pilot/operations officer recaps safe UAV flying practices. When new safety information is published by any governing body, or the manufacturer, the pilot/operations officer reviews the safety procedures with the visual observer.

## About the Flight Crew

### SFOC Applicant, Pilot & Chief Executive Officer-

**Name:** Tony Slavin

**D.O.B.:** October 6, 1954

**Address:** 29 Lawson Rd  
Coutice, ON L1E 2K3

**8.3 Telephone:** 905-767-0101

**Email:** [tony@allaboutwebservices.com](mailto:tony@allaboutwebservices.com)

[11.6\(2\)\(a\)](#)

Tony has been involved with UAVs, specifically the DJI Phantom and Inspire series, for over (4) years. His primary use for UAVs is commercial videography for Real Estate Promotion and property inspections. He has been flying model RC aircraft since 2010. In 2017, Tony successfully completed UAV certificate course through DronePilots.ca Inc which is included with the application. He has been operating similar quadcopters since 2011. He has flown this Phantom 4 70+ times. Total hours on this unit is approx 200 hours. Overall total 1000+ hours flying RC model aircraft. Tony has proven he can operate this UAV safely. He is aware of the emergency services available if needed and has a cellular phone to contact them. Tony and his Visual Observers have discussed the positions and duties for before, during and after all operations.

Tony has successfully completed all recommended training maneuvers in the Owner's manual including advanced maneuvers. Tony has been trained on emergencies such as loss of control and signal loss.

## 8.4

### Preamble

All missions are for the purposes of videography. This will be used in marketing for real estate in Ontario. We only use the DJI Phantom or Inspire series drones as laid out in this application.

This is an application for a Standing Special Flight Operator Certificate (Restricted-Simplified) being made pursuant to relevant Canadian Aeronautics laws and rules and regulations prescribed by Transport Canada for commercial operation of a small Unmanned Aerial Vehicle (UAV).

The main goal of the applicant is to satisfy the compliance requirements set forth by Transport Canada and demonstrate his ability and willingness to comply with any laws that apply to safe operations of a UAV for commercial purposes as a videographer.

The airspace any of our operations will take place in is generally take place in Class "G", but may sometimes take place in Class "C", "D", & "E".

The applicant would like the information contained in this application to remain on file and form the basis of his operational procedures and equipment.

As of the date of submission of this application, the area of operation that the applicant will be working in is confined to Southern and Central Ontario.

## 8.5

Dates for Standing SFOC: Starting June 1, 2018  
Total time on location is approximately 45 minutes

## 8.6

# UAV, Controller & FPV Specifications

<b>UAV Manufacturer:</b>	DJI
<b>UAV Model:</b>	Phantom 4
<b>UAV Serial #:</b>	<b>07DDD2MV108131</b>
<b>Controller Model:</b>	<b>V 1.8.0</b>
<b>Controller Serial#:</b>	<b>045JDB260R9785</b>
<b>Latest Firmware Update:</b>	April 9, 2018 (v2.0.700)
<b>FPV Device:</b>	<b>Apple Ipad mini 3</b>
<b>Operating Frequency</b>	2.400 GHz-2.483 GHz
<b>Max Distance</b>	Up to 5 km or 3.1 miles (unobstructed, free of interference) when FCC compliant Up to 3.5 km or 2.1 miles (unobstructed, free of interference) when CE compliant
<b>Video Output Port</b>	USB
<b>Operating Temperature</b>	0°C- 40°C
<b>Battery</b>	6000 mAh LiPo 2S
<b>Mobile Device Holder</b>	For tablet or phone

<b>Receiver Sensitivity (1%PER)</b>	-101 dBm $\pm$ 2 dBm
<b>Transmitter Power (EIRP)</b>	<ul style="list-style-type: none"> <li>• FCC: 20 dBm</li> <li>• CE: 16 dBm</li> </ul>
<b>Working Voltage</b>	1.2 A @7.4 V
<b>Capacity</b>	5350 mAh
<b>Voltage</b>	15.2 V
<b>Battery Type</b>	LiPo 4S
<b>Energy</b>	81 Wh
<b>Net Weight</b>	462 g
<b>Max Flight Time</b>	Approximately 28 minutes
<b>Operating Temperature</b>	-10°C to 40°C
<b>Max Charging Power</b>	100 W

## CAMERA

<b>Sensor</b>	CMOS 1/2.3" Effective pixels: 12.4 M (total pixels: 12.76 M)
<b>Lens</b>	FOV 94° 20 mm (35 mm format equivalent) f/2.8, focus at $\infty$
<b>ISO Range</b>	100-3200 (video) 100-1600 (photo)
<b>Shutter Speed</b>	8s - 1/8000s
<b>Image Max Size</b>	4000 x 3000

**Still Photography Modes**

- Single Shot
- Burst Shooting: 3/5/7 shots
- Auto Exposure Bracketing (AEB): 3/5
- Bracketed Frames at 0.7EV Bias
- Time-lapse

**Video Recording Modes****Phantom 4**

UHD: 4096x2160p 24/25, 3840x2160p

24/25/30

- FHD: 1920x1080p 24/25/30/48/50/60
- HD: 1280x720p 24/25/30/48/50/60
- 2.7K: 2704 x1520p 24/25/30 (29.97)

**Supported SD Card Types**

Micro SD

Max capacity: 64 GB. Class 10 or UHS-1 rating required

**Max Bitrate of Video Storage****Phantom 4**

60 Mbps

**Supported File Formats**

- FAT32/exFAT
- Photo: JPEG, DNG
- Video: MP4, MOV (MPEG-4 AVC/H.264)

**Operating Temperature**

0°C to 40°C

**Max Velocity**

Less than 8 m/s (when 2 m above ground)

**Altitude Range**

30 cm-300 cm

**Operating Range**

50 cm-300 cm

**Operating Environment**

Surface with clear pattern and adequate lighting (Lux > 15)

<b>Voltage</b>	17.4 V
<b>Rated Power</b>	<b>Phantom 4</b> 100 W
<b>Mobile App</b>	DJI GO
<b>EIRP</b>	100mW
<b>Power Spectral Density</b>	6.9mW/MHz
<b>Live View Working Frequency</b>	2.4GHz ISM
<b>Live View Quality</b>	720P @ 30fps (depending on conditions and mobile device)
<b>Latency</b>	220ms (depending on conditions and mobile device)
<b>Required Operating Systems</b>	iOS 8.0 or later Android 4.1.2 or later

#### **UAV, Controller & FPV Device Images:**

#### 8.7

##### **Security Plan**

Before a flight session is commenced, the pilot/operations officer and visual observer scout the area to gain knowledge of the surrounding area, and to look for emergency landing zones. In the event of a situation that involves the UAV failing to respond to pilot commands, the pilot will immediately take steps to safely land the aircraft. The ideal landing zone is where the aircraft initially took off from, the designated zone. Alternative landing zones will be noted before flight commences. A minimum of 100 lateral feet from buildings, vehicle, vessel or persons.

#### 8.8

##### **Emergency Procedures:**

In the event the UAV is no longer in visual line of sight of the pilot and/or the visual observer, the pilot will take action immediate to bring the aircraft back into line of visual sight and/or return the aircraft to the landing/takeoff zone.

If a loss of link event occurs, the UAV is pre-programmed to return to the home point location. As soon as a lost link occurs, the pilot will immediately notify the visual observer, and any

persons nearby, by repeating “LOST LINK”, three (3) times in a clear and loud voice. The pilot/operations officer will continually attempt to gain control of the UAV and bring it back to a safe flying distance. If the event happens more than twice (2x) in a flight, the pilot will take immediate action to land the UAV, power down as per operational procedures, and re-evaluate the operation.

In the event of a fly-away, and/or a mechanical issue that results in a crash, the visual observer will immediately sound an air horn three (3) consecutive long sounds, followed by a continuous sound, as soon as it becomes apparent that the UAV is coming down uncontrolled.

- (a) Lateral fly-away procedures within 10nm of a class C, D or E airspace and a loss of control has occurred
  - (i) Contact the nearest aerodrome, FSS or tower. Pilot to have the local numbers on hand at all times during the flight for the area they are flying in (as per the **Canada Flight Supplement (CFS)**)
  - (ii) Contact the ACC (Area Control Centre) Shift Manager. (For the Toronto Region call 905-676-4509)
- (b) Vertical fly-away procedures within 10nm of a class C, D or E airspace and a loss of control has occurred
  - (i) Contact the ACC (Area Control Centre) Shift Manager. (For the Toronto Region call 905-676-4509)
  - (ii) Contact the nearest aerodrome, FSS or Tower. Pilot to have the local numbers on hand at all times during the flight for the area they are flying in (as per the **Canada Flight Supplement (CFS)**)
- (c) When operating in Class G airspace only and a loss of control has occurred
  - (i) Contact the ACC (Area Control Centre) Shift Manager. (For the Toronto Region call 905-676-4509)
  - (ii) Contact the local Flight Information Centre. Pilot to have the local numbers on hand at all times during the flight for the area they are flying in (as per the **Canada Flight Supplement (CFS)**)

Once a crash has occurred, the pilot/operations officer and/or the visual observer will immediately seek out the crash site. In the event of the aircraft coming down in a populated area, the pilot or the visual observer will dial 9-1-1 to report the incident and provide authorities with necessary information.

As soon as the immediate situation is under control, the pilot/operations officer will report the incident to the Transportation Safety Board at 1-800-387-3557 and the Transport Canada Ontario Regional Office at 416-952-0230. These phone numbers are located on a sticker on the side of the UAV carrying case.

Personnel injuries - Contact local emergency numbers (911 or the local RCMP) based on the area you are in.

**11.6(A)(1)** Although the pilot/operations officer adheres to the rules and regulations pertaining to flight in and around controlled airspace, should the UAV inadvertently enter airspace outside of the SFOC, the pilot/operations officer will immediately undertake actions to notify the



appropriate airport authority, and return the UAV to the takeoff/landing zone. If this is not possible, the pilot/operations officer will land the aircraft safely and report the incident to the necessary authorities, including the Transportation Safety Board, Transport Canada, Local Airport Authority and local police.

All crew members will be required to fully complete and comply with any request for truthful statements about the incident with any Government agency as required by law.  
A class A, B, C fire extinguisher is to be stored in the vehicle of the pilot at all times.

UAV operations will be a minimum of 5nm away from any Forest Fire, Natural Hazard or Disaster Areas. NOTAMs will be checked.

## 8.9

### **-Ground Supervisor-**

**Name:** Tony Slavin

**D.O.B.:** October 6, 1954

**Address:** 29 Lawson Rd Coutice,  
ON L1E 2K3

**Telephone:** 905-767-0101

**Email:** tony@allaboutwebservices.com

### 11.6(2)(ii)

Tony has been involved with the operations of UAV for over four (4) years and has served in the capacity of flight assistant on multiple occasions. He has helped contribute to an ongoing incident free record and helps ensure safe operations. Tony is always available by cell phone and 2-way radio when on site.

## 8.10

Location is 658 Crimson Crescent, Oshawa, Ontario

The UAV will take off from the red dot located on the driveway. Proceed to a height of 30 metres. Here it will take pictures and fly the front half of the property. After completing the front pictures, I will land at red dot on driveway. I will then take off again from the red dot in the rear yard to ensure visual line of sight at all times. If at anytime the landing space is compromised for any reason the pilot will use the location indicated by the yellow dot.

The Oshawa Executive Airport is located .80 NM from this location. I will email Mark Telewiak@navcanada.ca with my dates, times and GPS coordinates of this mission and asked if a NOTAM is required or if a call to Oshawa airport Operations contact person Muni 905-5768146 Ext 3 making them aware of my mission dates, times, location and altitude is fine.

### 8.10(2)

This area is located in Class "D" airspace

### 11.6(2)(iii)

System Maintainer- The UAV is maintained by Hobby Hobby in Mississauga. Inspections, small repairs, software updates and other general operations are handled by Tony Slavin, Pilot. If anything is required beyond that it is taken to qualified DJI staff.

### 11.6(2)(b)

#### **Airworthiness Procedures:**

In order to ensure the UAV is deemed airworthy, the pilot, in conjunction with the visual observer, will inspect the aircraft to determine that:

- Ø All batteries (craft, controller, & FPV device) are intact and fully charged;
- Ø Firmware is current on all devices;
- Ø Maintenance is complete, as per the maintenance schedule;
- Ø GPS signals have minimum of seven (7) connections;
- Ø Communications systems are checked and tested;
- Ø Compass calibration has taken place;
- Ø Home point is established;
- Ø Physical condition of the aircraft is intact (clean rotors and motors, no broken parts).

Should any of the aforementioned conditions not be met, the flight will not take place until the deficiency is corrected. All deficiencies are to be recorded as per the flight records and maintenance procedures.

(iv) to date there have been zero (0) accidents. This unit has appropriately 60 hours total since new

#### **UAV Maintenance**

- (1) general maintenance is performed by Pilot
- (2) inspections are performed by pilot on a daily basis as per manufacturer specs and manual. The pilot fills out a maintenance log that is kept on file.
- (3) Maintenance schedule is set by manufacturer
- (4) logs are kept on file and then scanned to USB stick for storage.

### 11.6(2)(c)

## **Operations**

The pilot/operations officer and crew adhere to safe and responsible flying practices in order to mitigate any potential risks and to ensure public safety. To ensure constant and clear communications between the pilot and visual observer, the use of 2-way radios is employed. To date, the applicant has had zero (0) incidents involving fly-aways, crashes, and uncontrolled actions.

The following is a list of policies, practices and procedures that are adhered to and records maintained of:

### **Flight Parameters:**

- Ø Flight only occurs when the pilot and visual observer have each had a minimum of eight (8) hours of sleep in a twenty-four (24) hour period;
- Ø Flight only occurs after a twenty-four (24) hour period has elapsed since the pilot and visual observer has last felt the effects of alcohol consumption;
- Ø Flight only occurs once pilot has conferred with the Toronto VFR Navigation Chart & the Canada Flight Supplement to determine location of aerodromes, airspace rating and confirm operational compliance;
- Ø If necessary, notify the operator of aerodrome, if we will be operating within close proximity (in accordance with Transport Canada Regulations);
- Ø If necessary, issue Notice to Airmen (NOTAM);
- Ø Flight only occurs systems checks are conducted by both the pilot and visual observer;
- Ø Flight only occurs once the pilot/operations officer recaps safety considerations with the visual observer;
- Ø Flight only occurs in calm weather with winds under 25 km/h;
- Ø Flight only occurs in daylight hours;
- Ø Flight only occurs with visual line of sight (VLOS) of the UAV;
- Ø Flight only occurs once pilot and visual observer agree on acceptable environmental conditions;
- Ø Vertical height is limited to one hundred (100) metres AGL and distance is limited to five hundred (500) metres;
- Ø Batteries must be fully charged and not to operate below thirty percent (30%).
- Ø Minimum Weather requirements as follow:
  - Ø 3 miles visibility
  - Ø No less than 1000 foot ceiling
  - Ø no precipitation

### **Pre-Flight Procedures:**

- Ø Obtain permission from property owners if UAV is flying on private property;
- Ø Confirm weather forecast;
- Ø Conduct site survey, observe and survey geographical location and surrounding area;
- Ø Take note of any visible obstructions that could pose a threat to safe operations;
- Ø Inspect UAV to ensure physical integrity;
- Ø Check battery levels (craft, controller, & FPV device) and GPS signal;
- Ø Observe man-made and natural obstructions, including other aircrafts;

- Ø Locate and establish optimal take-off, landing & emergency landing zones;
- Ø Verbally notify any nearby people of flight;
- Ø Erect easily visible signage within ten (10) metres of designated landing zone that indicates a UAV flight is in progress.

#### **Take-off & In-Flight Procedures:**

- Ø Pilot/operations officer will confirm with visual observer that they are ready to commence take-off;
- Ø Maintain visual line of sight of the UAV at all times;
- Ø Check battery levels and GPS signal at thirty (30) second intervals;
- Ø Ensure that UAV is a safe distance from any obstructions and structures, including other aircraft;
- Ø Monitor height and distance of the UAV at all times;
- Ø Fly under one hundred (100) vertical meters AGL and no more than five hundred (500) meters away;
- Ø Keep look out for people nearby;
- Ø Bring UAV into landing position when battery level reaches thirty percent (30%).

#### **Landing & Post Flight Procedures:**

- Ø Ensure landing zone is clear and ready for UAV landing – Confirm with visual observer;
- Ø Once on the ground, wait for rotors to stop;
- Ø Ensure camera footage is saved to SD card, via the DJI Go app (on FPV device);
- Ø Turn power off to UAV first, then remote control & DJI Go app;
- Ø Inspect UAV to evaluate for any wear/damage;
- Ø Secure camera and prepare for storage.

## **Operational Regions & Nature of Work**

As a videographer and Real Estate Representative, the applicant's primary UAV operations are to gather aerial video and photo footage of real estate listings, promotional videos and general marketing usage. The primary geographical area of UAV operations will take place in Central, Eastern and Southern Ontario, including (but not limited to) the following cities and surrounding areas:

*Durham Region and GTA (Greater Toronto Area)*

*Peterborough*

*Kingston*

*Kitchener/Waterloo*

*Belleville*

*Ottawa*

## **Organizational Structure:**

The applicant/pilot/operations officer is the leader and chief individual in charge of the operations. He is in charge of all communication with clients, regulatory bodies, and those responsible for air traffic control.

As the person in command, the pilot/chief operations officer give direction to a visual observer, who will be used during all operations. The role of the visual observer is primarily to assist the pilot/operations officer in maintaining visual line of sight of the UAV while in flight.

## **Standard Operating Procedures**

The pilot/operations officer and crew adhere to safe and responsible flying practices in order to mitigate any potential risks and to ensure public safety. To ensure constant and clear communications between the pilot and visual observer, the use of 2-way radios is employed.

To date, the applicant has had zero (0) incidents involving fly-aways, crashes, and uncontrolled actions.

The following is a list of policies, practices and procedures that are adhered to and records maintained of:

### **Flight Parameters:**

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## **Flight Logs & Maintenance Records**

### **Flight Logs:**

In order to ensure the UAV is operating efficiently and safely, the pilot is responsible for keeping a record of each flight that includes:

- Ø Date, location and time of flight
- Ø Pilot Name
- Ø Visual Observer Name
- Ø Weather and light conditions
- Ø Checks on battery strength, controller connection, and rotor blade condition
- Ø Total flight time
- Ø General notes on flight

This flight information is kept on file in the locked UAV carrying case until they are moved to the applicant's home office.

### **Maintenance Records:**

Regular maintenance is performed in accordance with the manufacturer's user manual by the pilot/operations officer and consists of checking and cleaning the overall physical condition of

