



First Person View Proficiency Test Guide

Revised 13/03/2018

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1 - INTRODUCTION

Due to the unprecedented and ever increasing popularity of the FPV flying, it has become necessary that this form of RC flight be incorporate into flying at SAMAA Registered flying fields.

The FPV proficiencies are intended as “extensions” to existing LOS proficiencies and each proficiency level has a corresponding minimum LOS proficiency requirement.

FPV Solo – Fixed wing or multicopter solo

FPV Advanced – Fixed wing Silver or Multicopter Advanced

FPV Instructor – Fixed wing Silver or Multicopter Advanced

FPV Demonstration – Fixed wing Gold or Multicopter Advanced

NOTE: FPV flights must always be undertaken with a spotter assisting the pilot. The spotter must maintain direct line of sight visual contact with the model at all times.

In the interest of the hobby and safety, it is essential that:

- An adequate standard be achieved before a beginner be allowed to fly on his own without a qualified instructor in attendance.
- Further challenges must be set to ensure and entice the model pilot to improve his flying skills.

With these two main objectives in mind this booklet’s main functions are:

1. To outline some of the basics of FPV flying.
2. To define many of the terms used or applied to the hobby.
3. To help ensure that the pupil pilot is given a grounding in the SAMAA, FLYFPVSA and club safety rules and the etiquette applicable to the flying field.
4. That he be taught to fly in an acceptable and structured sequence with milestone targets.
5. To ensure that at the end of this learning or teaching period, he will have achieved a level of competence —solo exemption that will allow him to fly safely, without a club instructor in attendance when other members, spectators or people are present.
6. To define the test manoeuvres which he must perform in front of the judges to be awarded his solo proficiency rating.
7. To define further tests which allow him the opportunity, if he so wishes, to progress on and achieve higher levels of proficiency.
8. To define the requirements needed to:
 - Fly at air shows and demonstrations
 - Become an Instructor.

This document will set down the guidelines for the checking of equipment and the stages suggested for a FPV pilot to learn to fly and at a later stage improve, advance and as his competence increases, obtain higher merit qualifications.

For the average pupil pilot it is necessary to give the very basic explanation of how FPV flight.

FPV or First Person View flight is where the aircraft is guided by the pilot by means of on board video equipment which transmits a live video feed to a pair of goggles or a screen which the pilot uses to guide the aircraft as if he were physically in the aircraft

.2 - DEFINITIONS

Pupil Pilot - A Pupil Pilot is a member who is learning to fly a FPV. He will have SAMAA membership but has not as yet obtained his Solo proficiency. HE SHALL ALWAYS BE ACCOMPANIED BY AN EXPERIENCED SAMAA REGISTERED AND QUALIFIED CLUB INSTRUCTOR.

Pilot - A member who is in charge of a FPV, who can fly and has achieved the minimum qualifications of Solo. When he switches on his radio transmitter he becomes a Pilot.

SAMAA - South African Model Aircraft Association. It is the Coordinating and Controlling Body for Aero modelling in South Africa. All SAMAA Rules and Regulations are to be incorporated in and enforced at SAMAA registered clubs.

FAI - Federation Aeronautique Internationale. The international sporting body for all competitive aviation activities.

LOS – Line of sight. In direct view of the pilot without the assistance of any mechanical or electronic devices with the exception of glasses or contact lenses.

FPV – First Person View.

Member - A fully paid up member of FlyFPVSA and SAMAA.

Pilot Box/Pilot Area - The designated area from which pilots fly their FPV aircraft.

Pit Area - The area between the club house and the Pilot boxes on the runway nearest to the club house.

Transmitter - A purpose made, commercially manufactured unit which shall have been designed and manufactured to work within the tolerances of the frequency band without interfering with the adjacent frequency bands. It is used to control radio controlled aircraft.

Buddy Box - Two transmitters connected together via a cable, whereby the Instructor has the master transmitter and can assume control of the aircraft as required. This system avoids the traditional method of grabbing the transmitter from the pupil when a mistake is made.

Rules and Regulations - SAMAA Manual of Operations, FLYFPVSA Rules and Safety Regulations, the Club Rules and Regulations. Club By-Laws (which have been specifically written to accommodate any club or external restrictions or requirements).

3 - FPV PROFICIENCIES

The proficiencies have been split into four types; Solo, Advanced, Instructor and Demonstration Proficiencies. An advanced proficiency is required for a pilot to be eligible to motivate an instructors or demonstration proficiency.

The primary purpose of solo proficiency testing is to confirm the pilot has adequate control over his aircraft to maintain safe flight under varying conditions and to ensure he has sufficient knowledge of the rules and regulations to safely operate his aircraft.

Proficiency tests must be judged by two Instructor Rated judges who were not the pupil's primary instructors

3.1 The Model

The test can be performed with virtually any suitable aircraft and must be able to fly the manoeuvres required by the test.

The Judges do not have the authority to alter the required manoeuvres to suit a model. If, in the judge's opinion, the model is unsuitable for the test, then it should be explained to the pilot that the model available is unsuitable for the test. The supply of the model to do the test is the responsibility of the pilot and it is pilot's ability that is being testing, not the model.

All FPV proficiency tests must to be done without GPS, altitude hold or any other form of automated flight assistance.

Pilots should be prepared to explain the capabilities of the system they are using and show that it does not take over control from the pilot and that automated flight will not be achieved during the test.

3.2 THE PROFICIENCY TEST

The Proficiency test is made up of three sections, all sections are equally important and a lack of knowledge in any one section will require a retest. The sections are;

3.2.1 Oral Test

The pilot must answer a minimum of eight questions on Safety matters from the SAMAA and FLYFPVSA Safety Codes and local flying rules. Please note that a minimum of 8 questions are compulsory, and that any pilot not knowing the answers to these questions will automatically fail.

A pilot who has done a flying test which was found to be only just acceptable and who lacks knowledge on the questions, should be asked more than eight questions and if the judges are still not satisfied that the pilot has actually read the safety codes, you should not hesitate to fail him.

The proficiency scheme is a test of both flying ability and knowledge

3.2.2 Pre-flight Inspection

The pilot is to go through his preflight checks as if the test was his first flight of the day.

Points the judges should look for are that the pilot has a steady and regular ground routine and is in full control of what he is doing whilst preparing the aircraft for flight.

Electric powered models must be carried out from the pit area to a safe point before the flight battery is connected and the model MUST be considered live as soon as the flight battery is plugged in. Great care should be taken at this point and any help given to the pilot should be in the interests of safety.

A poor performance in this section is not direct grounds for failing the candidate but must certainly be part of a cumulative fail if other aspects of his performance is below the standard required.

3.2.3 Flight Test

There is no requirement for the fixed positioning of manoeuvres relative to the wind direction in the FPV flight test.

The pilot must ensure that the model stays at a reasonably constant height and heading and moves at a constant speed through the manoeuvres as required. All deviations from steady and well controlled flight should be noted as they will form part of your examiner's judgement of the test flight. Good use of the controls to maintain a constant height throughout the test is something both the judges and the pilot must watch carefully.

The pilot should also be aware that the onus is on him to commence with the next manoeuvre. However, the pilot may ask the Instructor to indicate when he is satisfied that previous manoeuvre has been completed, to help him to decide when to move on. This is quite permissible if requested by the pilot.

3.3 REQUIREMENTS FOR THE FPV “SOLO” PROFICIENCY TEST

A minimum of a LOS Solo Proficiency is required for the aircraft type that the FPV proficiency is being flown for.

The Solo Proficiency Test consists of an oral test, a pre-flight inspection and a basic flying test.

The pre-flight inspection will be as for the LOS solo test for the specific aircraft type being flown with additional checks for the FPV equipment on the aircraft.

This qualification fulfils the minimum requirement of the SAMAA Insurance to fly a model under FPV at a Club field without an instructor present.

Solo proficiency does not authorize the pilot to fly his FPV model from the Club field runway, when general flying is in progress or without a spotter to assist.

The first two test items, Oral (general and safety) and Pre-flight, will require some homework from the pilot, the third item, the flying test, needs to be flown twice during the proficiency test.

Failing the oral section constitutes failing the test.

Each manoeuvre is marked out of 10.

The pass mark is an average of 50 %, with no less than 3 out of 10 for any individual manoeuvre.

The Judges pass/fail decision is final and not open to discussion.

If a pilot fails the test, he may be re-tested once on the same day, if time allows.

The Solo Proficiency Test will be arranged and conducted in a formal manner, with at least one Advanced and one FPV Instructor for the specific aircraft type being tested on.

The duly completed and signed test papers must be forwarded to SAMAA and the FlyFPVSA committee.

3.4 REQUIREMENTS FOR THE “ADVANCED” PROFICIENCY TEST

A minimum of an Advanced LOS Proficiency is required for multirotor and a Silver Proficiency for fixed wing aircraft is required to be eligible.

All requirements for the Solo FPV proficiency test apply.

The pass mark is an average of 60 %, with no less than 4 for any individual manoeuvre.

The Judges pass/fail decision is final and not open to discussion.

If a pilot fails the test, he may be re-tested once on that day, if time allows

The Advanced FPV Proficiency Test will be arranged and conducted in a formal manner, with a minimum of two FPV Instructors present and the duly signed test papers will be forwarded to the FlyFPVSA committee.

The Advanced Proficiency qualifies a pilot to become a Club Instructor, and teach members to fly when accredited to do so by the relevant club.

A pilot holding an Advanced Proficiency level is permitted to fly at a FPV display under the direction of a pilot with a demonstration proficiency.

3.5 REQUIREMENTS FOR A DISPLAY PILOT

A Display Pilot Rating is attainable. Any Pilot who wishes to organise public displays regularly must hold a minimum of an Instructor FPV Proficiency rating, and have received the rating of FPV Display pilot from the FLYFPVSA committee. For fixed wing aircraft the pilot must have a minimum of a Gold fixed wing proficiency rating.

A pilot holding an Advanced FPV Proficiency level is permitted to fly at a FPV display under the direction of a pilot with a demo proficiency.

NOTE: SAMAA permission is required to be obtained for any pilot to fly at any Display or Flying Event at a non-SAMAA registered site.

3.6 REQUIREMENTS FOR A FPV INSTRUCTOR

As an instructor the level of competence you should expect of a pilot before awarding a solo is that in your opinion the pilot is capable and competent to be allowed to fly on unsupervised.

3.6.1 Club FPV Instructor

A person, who in a Club's views, is qualified to assist a beginner to learn to fly and who has passed a FPV Advanced Proficiency Test.

Note this is an accreditation awarded by the club to an advanced proficiency pilot.

3.6.2 FPV Instructor

A Pilot who has satisfactorily obtained his FPV Advanced Proficiency and who has demonstrated to the FlyFPVSA Committee that he has a thorough understanding of building and setting up a FPV model, and has an interest in training a pupil to fly a FPV model, may apply to the FLYFPVSA committee to be appointed as a FPV Instructor. This application must be in writing, giving his modelling and judging experience.

The applicant should meet the following criteria to be considered by the FLYFPVSA committee.

- a.) He shall be a fully paid up member of FLYFPVSA and SAMAA and be in good standing with regards to payments.
- b.) He shall have a minimum of one years' exposure to FPV or other RC model flying. (Fixed wing or helicopter proficiencies will strongly advantage the application)
- c.) He should have knowledge of how to set up FPV systems, and have an understanding of FPV requirements
- d.) Should have knowledge on how to setup BUDDY BOX systems.
- e.) He shall be mature and unbiased.
- f.) He shall be respected in the flying fraternity.
- g.) He must be willing to train a pupil to fly a FPV model.

The pilot's Application shall be submitted for approval to the FLYFPVSA Committee and ratification by SAMAA when required.

It is at the FLYFPVSA committee's discretion as to how many Instructors are required in an area or province based on the number of active members and pilots in that area or province.

4 – FLIGHT TEST SCORE SHEETS

Completed test score sheets must be forwarded to the FlyFPVSA committee who will then forward them to SAMAA for accreditation to the pilot's SAMAA membership.



Multicopter FPV Proficiency Test Solo

(Solo Line of Sight Proficiency Required)



Manoeuvre	Flight 1	
	Judge 1	Judge2
1 - Safety Questions (Pass/Fail)		
2 - Flight planning & flight area check (Pass/Fail)		
3 - Emergency Procedures (Pass/Fail)		
4 - Pre-flight Check (Pass/Fail)		
5 - Arming and take Off		
6 - Straight Line Flight		
7 - Two consecutive figure 8's around markers		
8 - Landing and disarming		
Score Sub Totals		
Score for each flight		
Percentage		

Pilot Name:	Club Name:
Pilot's Address:	Date:
	Tel No (W)::
	Tel No (C):
Pilot Signature:	SAMAA No:
Judge 1 Name:	Signature:
Judge 2 Name:	Signature:
Club Chairman:	Signature:

All flight tests to be conducted under FPV flight unless otherwise stated.
 Items 1 – 4 require a pass/fail only, minimum score of 3 for items 5 – 10 is required
 The overall average pass mark for both flights is 50%

1. **Safety Questions**

The pilot will be asked 10 questions related to the safe operation of his FPV multirotor craft. Questions should include, but not be limited to, the restrictions applicable to park flying. Questions specific to the club or location where the test is being held may also be asked.

2. **Flight Planning**

The pilot must demonstrate an understanding of basic navigation of the area to be flown, pointing out landmarks to be used as reference points during FPV flight. The pilot must also indicate where no fly areas are and how they would be identified during FPV flight.

3. **Emergency Procedure**

The pilot must explain what procedures he would follow in the case of partial and full video signal loss, loss of radio control, intrusion into the flying area by non-participating people as well as the role of his spotter under such circumstances.

4. **Pre-flight Check**

The pilot must demonstrate a pre-flight check, including but not limited to the following items as is specific to his aircraft:

- Frame integrity
- Motor and component security
- Propellor attachment and direction
- Battery level check and battery installation integrity
- Radio function check
- FPV equipment function check

5. **Arming and Take-off**

The pilot must demonstrate safe battery connection and arming procedure followed by a smooth takeoff and transition into forward flight.

6. **Straight Line Flight**

The pilot must demonstrate the ability to follow a straight flight line while flying FPV following a natural reference line or a line between two points of reference. Altitude should be consistent and the demonstration should be at least 20m long dependent on the type of aircraft flown.

7. **Figure 8**

The pilot must fly two figure consecutive 8 manoeuvres between two markers demonstrating both left and right hand co-ordinated turns at each end and maintaining a reasonably constant altitude.

8. **Landing and disarming.**

The pilot must demonstrate the ability to land and safely disarm his aircraft within a reasonable sized, previously agreed, area suitable for the type of aircraft flown. Landings can be performed either under FPV or LOS.



Multicopter FPV Proficiency Test Advanced

(Advanced/Silver Line of Sight Proficiency Required)



Manoeuvre	Flight 1		Flight 2	
	Judge 1	Judge2	Judge 1	Judge 2
1 - Safety Questions			Use flight 1 score	
2 - Flight planning & flight area check			Use flight 1 score	
3 - Emergency Procedures			Use flight 1 score	
4 - Pre-flight Check				
5 - Arming and take Off				
6 - Straight Line Flight				
7 - Two consecutive figure 8's around markers				
8 - Navigate through obstacle				
9 - Landing and disarming				
10 - LOS to FPV to LOS transition				
Score Sub Totals				
Score for each flight				
Percentage				
Average Percentage for both flights				

Pilot Name:	Club Name:
Pilot's Address:	Date:
	Tel No:
Pilot Signature:	SAMAA No:
Judge 1 Name:	Signature:
Judge 2 Name:	Signature:
Club Chairman:	Signature:

All flight tests to be conducted under FPV flight unless otherwise stated.

A minimum score of 7 must be attained for 1 - 4, a minimum score of 4 for items 5 - 10

The overall average pass mark for both flights is 60%

1. **Safety Questions**

The pilot will be asked 10 questions related to the safe operation of his FPV multirotor craft. Questions should include, but not be limited to, the restrictions applicable to park flying. Questions specific to the club or location where the test is being held may also be asked.

2. **Flight Planning**

The pilot must demonstrate an understanding of basic navigation of the area to be flown, pointing out landmarks to be used as reference points during FPV flight. The pilot must also indicate where no fly areas are and how they would be identified during FPV flight.

3. **Emergency Procedure**

The pilot must explain what procedures he would follow in the case of partial and full video signal loss, loss of radio control, intrusion into the flying area by non-participating people as well as the role of the spotter under such circumstances.

4. **Pre-flight Check**

The pilot must demonstrate a pre-flight check, including but not limited to the following items as is specific to his aircraft:

- Frame integrity
- Motor and component security
- Propellor attachment and direction
- Battery level check and battery installation integrity
- Radio function check
- FPV equipment function check

5. **Arming and Take-off**

The pilot must demonstrate safe battery connection and arming procedure followed by a smooth takeoff and transition into forward flight.

6. **Straight Line Flight**

The pilot must demonstrate the ability to follow a straight flight line while flying FPV following a natural reference line or a line between two points of reference. Altitude should be consistent and the demonstration should be at least 20m long dependent on the type of aircraft flown.

7. **Figure 8**

The pilot must fly two figure consecutive 8 manoeuvres between two markers demonstrating both left and right hand co-ordinated turns at each end and maintaining a reasonably constant altitude.

8. **Navigate through obstacle**

The pilot should demonstrate the ability to navigate through an obstacle no larger than 3m x 3m square. This can be done at any speed as long as the aircraft does not touch the obstacle while passing through. Natural obstacles such as spaces between trees can be used.

9. **Landing and disarming.**

The pilot must demonstrate the ability to land and safely disarm his aircraft within a reasonable sized, previously agreed, area suitable for the type of aircraft flown. Landings can be performed either under FPV or LOS.

10. **LOS to FPV to LOS Transition**

The pilot must demonstrate the ability to take-off under LOS, then once airborne switch the FPV flight completing one predetermined circuit of the field after which switching back to LOS flight to complete a controlled landing within a predetermined area as suitable to his aircraft.



Fixed Wing FPV Proficiency Test

Basic and Advanced

(Fixed Wing Solo Proficiency Required)



Manoeuvre	Flight 1		Flight 2 (Advanced only)	
	Judge 1	Judge2	Judge 1	Judge 2
1 - Safety Questions			Use flight 1 score	
2 - Flight planning & flight area check			Use flight 1 score	
3 - Emergency Procedures			Use flight 1 score	
4 - Pre-flight Check				
5 - Take-off (Ground start or hand launch)				
6 - Straight Line Flight				
7 - Figure 8 around markers				
8 - Landing and disarming				
Score Sub Totals				
Score for each flight				
Percentage				
Average Percentage for both flights				

Pilot Name:	Club Name:
Pilot's Address:	Date:
	Tel No (W)::
	Tel No (C):
Pilot Signature:	SAMAA No:
Judge 1 Name:	Signature:
Judge 2 Name:	Signature:
Club Chairman:	Signature:

All flight tests to be conducted under FPV flight unless otherwise stated.

A minimum 7 for advanced must be attained for items 1 - 4, a minimum score of 3 for solo and 4 for advanced for items 5 – 10, items 1 – 4 are either Pass/Fail for the solo test.

The overall average pass mark for both flights is 50% for solo and 60% for advanced.

1. **Safety Questions**

The pilot will be asked 10 questions related to the safe operation of his FPV fixed wing aircraft. Questions should include, but not be limited to, the restrictions applicable to park flying. Questions specific to the club or location where the test is being held may also be asked.

2. **Flight Planning**

The pilot must demonstrate an understanding of basic navigation of the area to be flown, pointing out landmarks to be used as reference points during FPV flight. The pilot must also indicate where no fly areas are and how they would be identified during FPV flight.

3. **Emergency Procedure**

The pilot must explain what procedures to follow in the case of partial and full video signal loss, loss of radio control, intrusion into the flying area by non-participating people or full sized aircraft as well as the role of the spotter under such circumstances.

4. **Pre-flight Check**

The pilot must demonstrate a pre-flight check, including but not limited to the following items as is specific to his aircraft:

- Airframe integrity
- Motor and component security
- Secure attachment of flight controls
- Propellor attachment and direction
- Battery level check and battery installation integrity
- Radio function check
- Correct and free movement of flight controls
- FPV equipment function check

5. **Arming and Take-off**

The pilot must demonstrate safe battery connection and arming procedure followed by a smooth takeoff into wind. Take-off must be completed LOS then switching to FPV and completing one full circuit of the field

6. **Straight Line Flight**

The pilot must demonstrate the ability to follow a straight flight line while flying FPV following a natural reference line or a line between two points of reference. Altitude should be consistent and the demonstration should be at least 50m long, dependent on the type of aircraft flown.

7. **Figure 8**

The pilot must fly a figure of 8 demonstrating both left and right hand co-ordinated turns at each end maintaining a reasonably constant altitude.

8. **Landing and disarming.**

The pilot must demonstrate the ability to land and safely disarm his aircraft. Landings must be performed LOS with the pilot switching from FPV to LOS unassisted.



FPV Proficiency Test Instructor / Demonstration Pilot



	For official use		
	C1	C2	C3
FOR AN INSTRUCTORS QUALIFICATION			
ATTACH TO THIS FORM THE FOLLOWING:			
1.) A COPY OF THE PILOTS SIGNED			
—ADVANCED FPV PROFICIENCY TEST			
2.) A written application (motivation) for			
— Instructors qualification and/or			
— Display Pilot’s accreditation			
Sub Totals			

Pilot Name:	Club Name:
Pilot’s Address:	Date:
	Tel No (W)::
	Tel No (C):
Pilot Signature:	SAMAA No:
Judge 1 Name:	Signature:
Judge 2 Name:	Signature:
Club Chairman:	Signature: