

THE SOUTH AFRICAN MODEL AIRCRAFT ASSOCIATION



Operations Manual

**GUIDELINES FOR FLYING WITH FPV
(FIRST PERSON VIEWING)**

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To Management Committee,
for ratification.

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SAMAA GUIDELINES FOR FLYING WITH FPV

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This document forms part of the SAMAA Manual of Procedures. It is to be used by SAMAA Members and Registered Clubs in all activities associated with the flying of model aircraft in the RSA.

1. Description

For those newcomers to the hobby, and those who are only casual modelers, **FPV (First Person Viewing)** is the latest development in R/C model flying.

Presently it is still in the early stages of development, but due to the interest in something new for the pilot, and the potential market for the first retailers, the development is rapidly gaining momentum. First Person Viewing is a system which puts, you the Pilot in the Cockpit of your Model Aircraft, it is done by fitting a camera to the front of your model, facing forward, which transmits a live picture as seen by the onboard camera, back to either a computer screen on the ground, front of the model pilot, or to a set of goggled or a helmet, worn by the pilot flying the model.

You as the pilot fly the model in the usual way with your transmitter, except that you are now looking from the pilots seat. Some will say but it is like flying from a full size simulator, except that the field of view is very narrow, some distortion is apparent at the edges, depth perception is bad and peripheral vision is missing. One thing you can be sure of and that is that the reset button does noting for you after a crash!

Briefly the two extremes of the available systems are;

a.) The basic system

Consists of a Camera, and a camera picture transmitter and a ground receiver, the camera and camera transmitter are mounted onto the model, and the receiver is attached to your laptop computer on the ground shows the view from the front of the model.

b.) The full house system

Which consists of a camera, a GPS, a data recorder and a camera transmitter, which together with the camera is mounted on the model. The receiver goes into a helmet fitted with a heads up or cinema screen, used by the pilot to see the attitude of the model and remotely fly the model.

The accessories available for this system are limitless and the

information, the type of information available on the screen, includes compass bearing, an arrow showing the direction to home, the height, the distance from home, the attitude of the model, and the speed of the model. A novel feature is the return to home command, which works well but lands the model rather hard. Additional information is available such as voltage of battery, amperage being drawn, revolutions of the propeller and power left in the battery.

(for those interested a short movie, showing the system in operation is available on the Eagle Tree website, do be warned it is 30 plus Megs long.)

2.) Purpose of procedure

The purpose of this procedure is to, give a set of rules and guideline requirements that will ensure that model aircraft fitted with this equipment will comply with the CAA regulations regarding the use of airspace, as well as ensure the safety of persons in the area.

The following rules must be observed by any model flown with FPV (First Person Viewing) System. These rules have been borrowed from the AMA (Academy of Model Aeronautics in the USA, and the BMFA in the UK.

3.) Operating with FPV

- 1.) A FPV equipped model aircraft shall only be flown for sport or recreational purposes, and must always remain in the line of sight of the responsible pilot with the master Transmitter.
- 2.) It must be flown by two SAMAA Members utilising a buddy box System who have established a clear understanding and protocol for the flight.
The pilot, the person in Control, will be the responsible person, who must be on the primary master transmitter, and is responsible for maintaining visual contact with the model at all

times, and must be ready to assume control in the event of a problem.

- 3) The operational range of the model is limited to the pilot in command's line of sight, or as set out in (3) below.
- 4.) The limit of the flight path of model operations shall be limited to the boundaries of the designated flying site and the approved overfly area.
- 5.) the model weight and speed shall be limited to a maximum of 10 lbs and 60 miles per hour.(100 Km/h)

4.) Transmitting Frequency

At the time of writing, ICASA have been approached by SAMAA to obtain a **frequency and power output limit** for the model mounted transmitter equipment to downlink the video and data signals to the pilot or base station.

To date no answer has been received from ICASA and SAMAA can only sanction the use of this system on SAMAA Registered fields, if the transmission equipment complies with the existing ICASA model approved frequency transmission equipment.

The Americans are using the 1.2, 2.4, 5.8 Ghz as well as 900 Mhz for downlink transmission of the video signals from the model to the pilot, with a maximum signal output of 100 mw.