

MODEL AERONAUTICAL ASSOCIATION OF AUSTRALIA



FIRST PERSON VIEW (FPV) POLICY

MOP066

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This Policy and/or Procedure forms part of the MAAA Manual of Procedures. This entire document is for the use of all classes of members of the MAAA in the conduct of activities associated with the MAAA and is not be used for any other purpose, in whole or in part, without the written approval of the MAAA Executive.

FIRST PERSON VIEW (FPV) POLICY

1. INTRODUCTION

- 1.1 First Person View (FPV) flying makes use of video piloting equipment. It is a system whereby a radio control model aircraft is piloted, not through direct line of sight, but by using a live video downlink from an on-board camera allowing the pilot to experience a 'cockpit view' and to control the aircraft from the visual perspective of the on-board camera.

The latest generation of lightweight camera equipment combined with developments in data transmission have enabled this type of flying to be carried out cost effectively and with small lightweight airframes.

Equipment is now commercially available which allows the on-board camera to be gimbal mounted and driven by servo motors which are in turn linked to a gyro sensing headset worn by the operator. This allows the pilot to point the camera mounted on the aircraft in almost any direction with a head movement.

2. PURPOSE

- 2.1 The purpose of this publication is to document the MAAA policy with respect to First Person View (FPV) flying.

3. DEFINITIONS

AAAO	Approved Aviation Administration Organisation. CASA recognises the MAAA as an Approved Aviation Administration Organisation to administer and regulate the operation of Model Aircraft under CAR (1998) Part 101.
ACMA	Australian Communications and Media Authority
Affiliate Member	A person properly affiliated with a Club that is properly affiliated to an MAAA Ordinary Member
CAR	Civil Aviation Safety Regulations
CASA	Civil Aviation Safety Authority
Club	A Club properly affiliated with a State Association
Club Member	A financial member of a Club
FPV	First Person View
First Person View	A system whereby a radio control model aircraft is piloted, not through direct line of sight, but by using a live video downlink from an on-board camera allowing the pilot to experience a 'cockpit view' and to control the aircraft from the visual perspective of an on-board camera.

Pilot in Command	The sole pilot of the aircraft, or the pilot authorised on a Permit to Fly, or the supervising pilot if a pilot does not comply with the Bronze Wings requirement, or the supervising pilot if one is required under any MAAA MOP. In all cases the Pilot in Command shall be a current Affiliate Member of the MAAA.
MAAA	Model Aeronautical Association of Australia Inc.
MAAA Ordinary Member	A State Association properly affiliated with the MAAA Inc.
Model Aircraft	A miniature aircraft operated for sport and pleasure only
MOP	MAAA Manual of Procedures
Ordinary Member	See MAAA Ordinary Member
Return to Home	The capability to select a flight mode whereby the aircraft will automatically fly back safely to a predetermined location.
SGMA	Self Guided Model Aircraft.
Self Guided Model Aircraft ...	A model aircraft that has the capability of flying without the direct inputs of a human pilot including both general flight and the capability to Return to Home as a specific implementation.
State Association	See MAAA Ordinary Member
Visual Control Range	The maximum range at which the pilot in command can clearly determine the orientation and also manually control the Model Aircraft in sustained flight, without the aid of vision enhancing devices such as binoculars. CASA CAR (1998) Part 101 states that 'a person may operate a model aircraft only if the visibility at the time is good enough for the person operating the model to be able to see it continuously' (101.385).

4. GENERAL

As well as complying with this MOP, all operators of Model Aircraft using FPV techniques shall comply with all other relevant MAAA MOPs, as well as CASA and ACMA requirements. To comply with CASA's regulations, the person operating a model aircraft has to be able to see it continuously. Pilots flying FPV model aircraft, except in the manner outlined in the policy, cannot do this as they are virtually inside it.

The following MAAA documents are of relevance to FPV operations:
MOP008: Close Fields Operation Policy and Procedure, MOP014: General Rules and Guidelines for the Operation of Model Aircraft (which provides all Affiliate Members a ready reference to their obligations and to regulations as required under Commonwealth Law and MAAA Rules and Procedures, for the operation of Model Aircraft),

MOP044: Internal Navigation and Stabilisation Policy, MOP056: Safe Flying Code, MOP057: Insurance Conditions, MOP067 Self Guided Model Aircraft (SGMA) Policy and CASA CAR (1998) Part 101 and the ACMA Class Licence for the frequency band being used for the video down link.

5. SAFETY CONCERNS

- 5.1 The FPV equipment described potentially presents the pilot with the opportunity to fly the aircraft out of normal unaided visual range by utilising the 'cockpit view'.
- 5.2 Where an aircraft is being flown either using a headset or a monitor screen there is cause for concern in any emergency situation, either due to pilot error (disorientation, or unsure of position) or systems failure (loss of data link), as the pilot may not be able to re-acquire the aircraft visually with sufficient speed to prevent a crash.
- 5.3 The pilot using FPV has a view looking forward and to an extent to the right and left with head tracking, but is unable to see the big picture of what is going on around the model such as the location of other model aircraft and persons.

6. POLICY

- 6.1 An FPV equipped Model Aircraft shall be flown by two Affiliate Members utilising a buddy-box system, or equivalent. The Pilot In Command shall not use the FPV down link.
- 6.2 As an alternative to a buddy-box, it is acceptable that a Return to Home system is fitted and functional, and the model then controlled by a single transmitter. The Return to Home system shall conform to the requirements of MOP067. All other requirements of the policy in this MOP shall apply.
- 6.3 The pilot in command shall have flown the model prior to FPV operations and be of Gold Wings standard.
- 6.4 The Pilot In Command shall maintain the model within Visual Control Range and shall be able to immediately assume control of the model in the event of a problem without any action from the other party.
- 6.5 The operational range and flight path of the model shall be limited to the Pilot In Command's Visual Control Range.
- 6.6 The Pilot in Command shall be solely responsible for the safety of the flight.
- 6.7 FPV equipment shall only be used in aircraft that do not require either a Large Model or Gas Turbine Permit to Fly.
- 6.8 Reliable operation of the buddy-box, or Return to Home in accordance with the requirements of MOP067, and a clear handover protocol shall be established prior to every flight.
- 6.9 A successful radio equipment ground range check with camera equipment turned both on and off shall be completed before the first flight of the day. This shall ensure

that the range of the model control system is not significantly degraded by the operation of the FPV equipment.

6.10 In the event that an aircraft is operating as an SGMA aircraft and at the same time as an FPV then the conditions of both this MOP and MOP067 shall be complied with. In the event of differing requirements between the two MOP's then the most restrictive shall apply.

6.11 In the event that the definition of FPV in this Policy is not adequate to determine whether an aircraft is considered to be FPV equipped, the MAAA Secretary should be contacted to make a ruling

7. GUIDANCE

7.1 There is the potential for interference between the technology used in FPV systems and the basic radio system controlling the model, particularly if this uses 2.4 GHz. Precautions to be considered are included within MOP058 2.4 GHz Policy.