

FPV & Multirotor Special Interest Group Meeting 20/4/2013

Held at BMFA Headquarters, Leicester.

Present

Manny Williamson	(MW)	BMFA Development Officer
Andy Symons	(AS)	BMFA Club Support Officer/Secretary ASRC.
Matt Chamberlain	(MT)	Experienced FPV Pilot.
Adrian Tomlin	(AT)	Multi-Rotor AP/AV Pilot & Commercial Operator.
Gareth Roberts	(GR)	University of Manchester UAV research group.
Richard Bloxam	(RB)	Experienced <u>LOS</u> /FPV/Multi-Rotor Pilot.
Chris Bradbury	(CB)	Experienced LOS/FPV/Multi-Rotor Pilot.
Stuart Marsh	(SM)	Multi-Rotor AP/AV Pilot & Commercial Operator.
Mick Forey	(MF)	Experienced LOS/FPV/Multi-Rotor Pilot.
Sean Garrity	(SG)	Experienced LOS/Multi-Rotor Pilot,

1 Introduction

MW explained the reasons behind the formation of a Special Interest group (SIG), the primary purpose being to bring together interested parties experienced in operating multi-rotor craft and model flying using FPV techniques, and also to discuss and monitor other emerging technologies and how they relate to recreational model aircraft flying of all types. The aims of the SIG are to feed back to the CAA where appropriate, help develop the BMFA Member's Handbook and formulate guidance that may be required now and in the future.

2 Summary of the aims of the group.

MW informed the group that the aim was to be inclusive of other associations as it was felt this would benefit all model aircraft fliers, Simon Dale (FPV-UK) and Simon Wythe (RCHA) were both invited to attend, unfortunately neither responded to the invitation. A standing invitation to any future meetings of the SIG will however be offered.

3 Current CAA exemption for FPV operation.

MW gave a brief explanation of why the Exemption had been re-issued recently. A number of clubs and individuals had raised a concern that the original exemption made flying FPV in a club environment difficult as one of the conditions prevented the takeoff and landing of an FPV flown aircraft unlawful if other club members were flying or nearby. The CAA were contacted and a form of words agreed to alter the exemption. This was then forwarded by the CAA to other associations for approval before the current exemption was issued.

The Exemption was then reviewed for areas where suggested changes could be made.

MW informed the meeting that there had been discussions in the BMFA office regarding clause 4c of the exemption relating to the 400ft maximum altitude when flying FPV under the terms of the exemption when LOS flying has no restriction for sub 7kg models. This had already been discussed with the CAA to obtain an idea of their position, which was that they would be receptive to a change if it was felt necessary and appropriate; however they indicated they would not want to see a complete removal of an altitude restriction at this time. After some discussion it was felt by all present that it is desirable that the restriction is relaxed as a first step but not removed completely as yet. RB commented that any new height restriction should not be seen as a target and that the LOS of the observer restriction must still be complied with. Further discussion took

place on what a suitable restriction should be, the majority felt that 1000ft was an appropriate restriction currently, with the long term aim to align with LOS flying and have no restriction on light weight models.

The suggestion of 1000ft will be fed back to the CAA.

Discussion then turned to the maximum take off masses specified in the exemption for fixed wing and rotor-craft, and whether there should be an aim to raise the maximum weight limits in place. AS suggested that it would make sense to have a single upper weight limit for all aircraft flown under the terms of the exemption. The meeting agreed with this and the experienced FPV flyers in the group all felt that if the limit was different it should be a higher limit for fixed wing due to the nature of fixed wing flight and construction of the aircraft. GR suggested that it would be desirable to lift the limit for both fixed wing and rotorcraft to 3.5kg. There was further discussion with some members of the groups suggesting that a limit of 2.5Kg for both was suitable.

The consensus of the group however was to suggest to the CAA that the limit was raised to 3.5kg for all aircraft flown FPV under the terms of the exemption.

4 Compliance with CAP658

RB felt that CAP658 and particularly clause 7.3 "Safety Concerns" clearly gives the impression that FPV is dangerous per se, and more dangerous than traditional RC model flying, and gives an unbalanced view of FPV flying. MW considered that clause 7.3 highlighted the issues for concern without particularly portraying FPV in a negative light. In general most thought that the emphasis was about right, however both MF and RB considered that a rewording could better reflect the concerns and risks involved especially in relation to peripheral vision and lack of spatial awareness.

MW tasked MF and RB to review the relative sections and circulate a rewording to the rest of the group for comment.

5 Use of RTH as a failsafe option for rotorcraft/FPV/general operation.

MW raised an aspect of CAP658 on which he has already had loose discussions with the CAA, namely the setting of failsafes, predominately in relation to rotorcraft. Currently CAP658 specifies the throttle is either cut, or set to idle for all capable aircraft, clearly with rotorcraft this will invariably lead to the aircraft falling out of the sky, and as such other options should be considered with the advent of newer technologies such as return to home etc. AS pointed out that the primary reason for the current specified settings is to bring the aircraft down in the near vicinity and out of the way of full size aircraft and any other options should still meet this requirement. SG suggested that many multi-rotors do not have RTH functionality and there are many available options for those that do. There was lengthy discussion on various modes available and suggested options.

MW suggested that 3 levels should be suggested to the CAA for rotor-craft, stage 1 which as is currently the case in that throttle is set to idle or off, level 2 should be a controlled descent if capable and level 3 should be a RTH function if capable.

MW suggested he puts together a form of words to then circulate amongst the group before submitting them to the CAA for their consideration.

In relation to FPV operation AS stated that it was not relevant if the aircraft was flown FPV or not, and the issue related to whether the aircraft was fixed wing or rotorcraft, all agreed with this statement.

MW suggested that at the moment for fixed wing operation the current specified settings are workable and perhaps at this point it is a discussion too far. However going forward it can be further considered and discussed at a future meeting of the group.

6 Description of Commercial activity/aerial work.

MW said this was on the agenda to discuss as a potential grey area between aerial work and sport and recreational flying. In CAA terms flights taking place for hire or reward (valuable consideration) are clearly aerial work and take place under the terms of an exemption. Most flights where the purpose is sports and recreation are easily defined too, however there are a growing number of flights taking place not for hire or reward but also where the purpose of the flight is not sport and recreation, equipment testing, education/research etc which fall in to the grey area.

There followed a discussion on various scenarios which fall in to the grey area and the legality is unclear. MW asked GR if he could with the help of the commercial operators present put together a paper explaining the issues regarding the "Grey Area".

MW also suggested that for future group meetings we should invite the CAA to send a representative.

7 BMFA Achievement Scheme for Multicopters

This was added to the agenda as a number of clubs had requested something is put in place specifically for multi-rotors. AS informed the group that the Achievement Scheme Review Committee (ASRC) had already discussed the issue and, in principle, were in agreement to introduce A and B certificates for multi-rotors with the A certificate being based on the current helicopter A in terms of manoeuvres. AS did raise the point that a fundamental principle of the achievement scheme was that it was the capabilities of the pilot that is tested and not the capabilities of the onboard electronics. There followed a discussion on the various modes the electronics can operate in and how much would be testing the pilot's skills or the electronics.

AS and CB agreed to work on A certificate wording for multi rotors to feed back to the group and the ASRC.

8 Autonomous flight and Autopilot

MW explained there had been some discussion regarding autonomous flight and consideration as to whether it could be considered as model aircraft flight. The conclusion reached was that as long as there was compliance with the ANO, it took place in visual line of sight of the pilot and the pilot had the ability to take control at any point that autonomous flight was a valid form of sporting/recreational model aircraft flying.

The group were in general agreement with this. GR enquired if there was any provision for beyond visual line of sight flying, MW said that in model flying terms it is clear that there is not.

9 Sense and Avoid Considerations

It was mentioned that currently there are no commercially available and usable systems for model aircraft available as yet, however the group felt that a "watching brief" should be kept as the technology is developing rapidly.

10 Public Relations Considerations

There was a discussion on PR considerations and the image that the general public have of multi-rotors as drones due to the capability for remote photography and video to affect an individual's privacy. AS informed the group that we have already had objections against some clubs planning

applications due to the ability of club members to “spy” on nearby dwellings. MW suggested that the only positive action we can do from a PR viewpoint is maintain the position that as long as the flight is carried out in a lawful manner that there is limited potential for “spying”. MW also pointed out that while there is the potential for negative PR in relation to some of the clearly illegal and unsafe videos that are published to YouTube, the vast majority of individuals flying FPV and with video/photo equipped aircraft do so in a responsible manner and it is up to the CAA/Ofcom to deal with unlawful operation.

GR suggested some effort is made to show this technology in a more positive light to counter the “paranoia” from some of the general public. MF also suggested that when articles and news stories are shown that are incorrect or project the wrong image that they should be challenged, MW said that this does happen to a certain extent.

There will be further articles about FPV and multi-rotors in upcoming editions of the BMFA news.

11 Future “Wish List”

MF had emailed raising questions regarding obtaining extra frequency or increased power limits for video transmission. The questions had been forwarded to the BMFA contact at OFCOM and while the replies were not especially positive they were looking at the matter. RB suggested that there was an amateur radio band at about 1.3 GHz that is underused and could perhaps be investigated for use in conjunction with amateur radio.

MW suggested that RB and MF put a rationale together for the use of the 1.3GHz band that could be passed on to the contact at OFCOM.

MF enquired if there was any need for an FPV achievement scheme, AS replied that as yet there has been no enquiry about or request for a scheme for FPV flying and no desire to introduce one unless there was a demand for one from members.

MF asked about developing a Q&A on FPV flying that could be available for clubs and individuals, both AS and MW replied that it would be a valuable resource that could be available on the website and as a pdf available to members; also going forward a section will need incorporating in to the member’s handbook.

GR asked if there the BMFA could look to engage with some of the online communities such as DIY Drones to ensure the users are aware that the BMFA is there to offer help and advice on UK regulation and offer insurance etc. MW pointed out that because of the status of the BMFA care has to be taken especially if they are commercial based communities.

AOB

MW briefly recapped on issues to raise with the CAA, height and weight limits and also failsafe operations. He also stated the meeting had been extremely valuable and consideration should be given to what happens going forward, he suggested that much of the group business could be carried out electronically with perhaps an annual face to face meeting, he also stated that the group would still be open to others and a standing invitation will be in place to FPVUK and RCHA who would hopefully be able to attend in future. The group was in agreement with this.

MW thanked all present for attending and their positive contributions to the meeting and going forward.

Meeting Closed 4pm

Post meeting note:

Following on from the SIG meeting and the paper subsequently produced by Richard Bloxam regarding access to the 1.3GHz band and also increased power on 5.8GHz I have discussed the matter with our contact at Ofcom and unfortunately the news is not particularly positive, I have copied some of the text from his initial response below in relation to 1.3Ghz (in red for clarity).

“It would not be for the amateurs to determine this change as they are not the primary user of this spectrum.

We suspect the proposal would not find favour with the wider amateur community, though this suspicion has not been tested.

There is also the issue that an amateur licence restricts the use to terrestrial”.

Following this brief response we had the opportunity to meet with the gent from Ofcom recently and I pushed him for a view on where the FPV community should be directing efforts in respect of spectrum.

Again his comments were not overly positive, he indicated that an increase in power on 5.8GHz for airborne use was unlikely and reiterated his comments regarding 1.3GHz.

He made it clear that the needs and wishes of the FPV community were on the Ofcom agenda, but that at this time they were struggling to come up with a meaningful solution or way forward.

It would seem that for the short term we are limited to the frequencies and power outputs already in use; however we maintain a good working relationship with Ofcom so there is the opportunity to maintain a dialogue in respect of this matter with a view to inviting the Ofcom representative to a future meeting of the SIG.

MW