All we are really saying with the under two kilogram vehicles is that they are: to operate below 400 feet within a visual line of sight—and that does not mean using binoculars or telescopes; to stay five kilometres away from an airfield; and to stay away from people and buildings et cetera. In other words, these are much like the model aircraft rules. The principle is that this is the responsibility of the operator—the person flying this thing. They are the only ones who have direct control. They are the only people who can violate anything like that.

We have in recent times produced a safety pamphlet telling people that these are the conditions and how to operate within them, and the major toy stores and electronic outlets have those pamphlets available now. They issue them or give them out to people when they purchase these things.

But, of course, there is an issue around the availability of the vehicles. These vehicles can be ordered over the internet relatively easily and there is no control of them coming into the country. There is no requirement for anyone to tell us they are bringing them in and so, in some respects, the Customs and Border Protection Service has a role to play in that as well, if we wish to control all operations. Having said that, if it is a commercial operation then, even for vehicles under two kilograms, they do require our approval and we have much better control. But at the moment it is an education program to us—the principle being that we want people to enjoy flying technology and move forward. We are not trying to limit people but we have to be cognisant of the fact that we have to get more education out. We have an education program which we will continue to roll out over the coming years.

There is an exponential growth in the number of these things that are available and their variety. There is no build standard; there is no maintenance standard; there are none of the things we naturally associate with certified products. They do not exist. It is a little bit of a case of the horse having bolted, but we are cognisant of our responsibilities to the Australian public around safety.

Senator FAWCETT: Perhaps, Mr Mrdak, you might answer this one. From a whole-of-government perspective, what is being done in terms of the Customs and Border Protection Service to look at how we wrap some element of quality—I will not even say control—around this space in terms of import requirements, the requirement to register or the requirement of having things comply with software patches, for example? If I look at the maritime space, a person in a recreational boat has to have a licence, on the back of a training course, to use a VHF radio. What consideration has been given from a whole-of-government perspective to address this rather than seeing it purely through the lens of aviation?

Mr Mrdak: I am not aware of any whole-of government-consideration at this time. I will take that on notice and come back to you.

Senator FAWCETT: That would be good. Thank you.

Mr McCormick, may I move on to answers that you gave at estimates last year about the costs associated with an AAT case relating to colour vision deficient pilots. You indicated that, as of 1 December 2013, the costs were $43,500. Can you tell me, in terms of forecast costs, how many expert witnesses CASA plans to call for that inquiry or tribunal?

Mr McCormick: Are you talking about the upcoming O'Brien tribunal in July?

Senator FAWCETT: Yes.

Mr McCormick: I will ask the manager of the legal branch to give you that figure, Senator.

Mr Rule: There will obviously be a number of specialist witnesses called to give evidence.

Senator FAWCETT: Two? Ten? Fifteen?

Mr Rule: I am not across the precise number that would be—

Senator FAWCETT: Would I be wrong if I said 12?

Mr Rule: I could not say that that number is wrong. We are out of the ballpark, but I cannot give a confirmed number at this stage. The exchange of evidence between the parties only just finished at the end of last week, I believe, so there will be some to-ing and fro-ing as to which evidence and which witnesses are required. I can certainly take that on notice and provide a more settled estimate of that for you, if that would assist.

Senator FAWCETT: That would be good, but you must also have metrics from previous inquiries. Knowing what expert witnesses charge for their appearances, the travel and accommodation costs, the whole cost of conducting the inquiry in terms of transcript fees et cetera, have you made a provision in your budgeting for how much you anticipate this AAT case will cost?

Mr Rule: Obviously, we do do forward estimates of how much we think a case is likely to cost. Generally we do it across quarterly budget considerations, so total cost can get washed out as you conduct these cases piecemeal.

Senator FAWCETT: I am happy to add the figures up, Mr Rule, if you could give me the figures across those quarterly milestones.

Mr Rule: We can certainly take that on notice and provide those figures.

Senator FAWCETT: But would it be a reasonable expectation that it would be at least another $43,500 on top of what you have already spent, if not significantly more?

Mr Rule: It would not be out of the realms of possibility to accumulate another $40,000 in costs, no.

Senator FAWCETT: A very understated remark, Mr Rule, but thank you. Could I ask Mr McCormick or Mr Rule: in terms of whether or not you move ahead with this, my understanding is that you have an obligation, like any other Commonwealth department, to be a model litigant. As I look at this, there are about eight criteria to being a model litigant, and I see CASA is not performing particularly well on about five of them. Can I ask what the response has been to Mr O'Brien's request to reach a settlement before the hearing?

Mr Rule: A mediation was conducted in the early part of last year, which was ultimately unsuccessful. I was not aware of any other proposal to—

Senator FAWCETT: A letter from his lawyers written in, I think, February this year?

Mr Rule: I was not aware of the specific details of that proposal.

Senator FAWCETT: So you are planning to spend probably more than $100,000 and you are not aware of an opportunity to reach a settlement before the AAT hearing.

Mr Rule: I think that at different points along the way Mr O'Brien has suggested that he would be prepared to resolve the matter, but always on the basis that he have access to the privileges of his airline transport pilot licence. That, of course, has been the major sticking point from CASA's perspective, and the reason why those negotiations have not been successful.

Mr McCormick: I think we only have the legal costs as a total legal cost, but if you wish to give us on notice the specific areas in which you think we are not being a model litigant, then we will look at exactly what we have said in the past. As Mr Rule has said, my understanding is that up until now, there has not been any indication that Mr O'Brien wishes to retreat from the position of holding an ATP—

Senator FAWCETT: I guess I am interested in two counts. One is natural justice, and I will come to that in a minute. The second is value for money for the taxpayer in going down this path. You said in the last estimates that you did not believe that CASA needed to be bound by the Denison case, and that you looked at individual circumstances as opposed to looking at a generic ruling that would apply to everybody. You also mentioned that you would be happy to look at the concept of a practical test to satisfy the third level of testing for CVD, which is allowed for under CASA 67.156, sub-para(c). Where have you got to in that regard in terms of a practical test?

Mr McCormick: I will ask my Principal Medical Officer to come forward in a minute to maybe give you some more background on where we are. What 67 does say is that an applicant for a Class 1 or a Class 2 has to go through three stages of testing. The first stage is the Ishihara—if a person passes that, they get an unrestricted medical certificate; if they fail that, they have to do the Farnsworth Lantern test. If they fail that, there is a third level of testing available, and I think 67 says that is at CASA's discretion as to what that test is. This is what we discussed last time, using the CAD test in the UK CAA as that third level, or some other test, as may be applicable.

Before I ask Associate Professor Navathe if he wishes to add a bit more about this, it is interesting to note that since we spoke, the UK CAA has adopted the CAD test as their only test. If you fail that CAD test, you do not get a Class 1 certificate at all, let alone with restrictions.

CHAIR: Just for us mere mortals—what is that test? Do they run you up a flight of stairs, or see if you can drink two middies in a row, or—

Mr McCormick: I think they are all worthwhile tests, but this particular test is associated with what degree of colour vision deficiency you have, and the nature of it. Therefore the medical staff are able to make a better assessment of the effect, and that is where the individual assessment of the case comes in. But 67 does say that you must go through those three steps in that order.

Senator FAWCETT: I understand. You did also say in that period that you did not believe there was any intention to mandate the CAD test and that was not the direction CASA was going. But I have subsequently seen

a couple of examples where CASA refused to renew the medical of people who previously had multiple renewables of their medical unless they sat the CAD test. Does that not contradict your comment that that is not CASA's intended direction?

Mr McCormick: I will go back and check what I actually said at the time, my recollection of the conversation was that we were talking about using the CAD test as the principal test rather than the Ishihara test or something like that. As I said, I will check that on notice. Our view still is that anybody who is in the industry now and applies for a class 1 or class 2 medical certificate should follow those three steps in 67, and you have outlined how it should be done. The main difficulty with mandating the CAD test at the moment, apart from anything else, is the fact that it is available in only two places in Australia—Adelaide and Sydney. I believe it is quite expensive, so we do not necessarily want—

Senator FAWCETT: $440.

Mr McCormick: We do not want to get to a point of pushing people into that test when there are other things available in that third level of testing.

Senator FAWCETT: One of the other comments that you made during that estimates hearing was about the alternative tests that CASA makes available in the case of audio testing, which can include a flight test where people go up in the air and demonstrate their ability. You indicated that you would look into that kind of a test. Have you made any steps in that regard?

Mr McCormick: I will allow Dr Navathe to answer this more fully. We have looked at a practical test, but it would be supported by the clinical and empirical evidence that we get from the medical testing. It would not supplant the medical testing as such. I think that methodology of saying, 'This is what the medical shows. This is what the data shows us on the ground,' is the first step. The practical test cannot always override the indications from the clinical pathology.

Senator FAWCETT: Before we go to Dr Navathe on that, your previous principal medical officers—Brock, Liddell and Wilkins—have all had a different view. They respect the medical science but Brock, in particular, has gone to ICAO and some of his documentation indicates that at the vision and colour deficient working group they actually acknowledged that a lot of their current rule set was not necessarily good at determining whether a person was competent to fly an aircraft. It was just good at determining if they had a colour vision deficiency. It was for that reason that Mr Brock allowed people to do a flight test where they could demonstrate in an aircraft their ability to operate it. On that basis, there are now people who have CVD—that is proven, and they do not dispute that—who are now operating airline aircrafts as captains around the world. So CASA has in fact previously established a precedent that has shown there is an alternative third level of testing that accepts the fact that somebody may have CVD but that is not a determinant as to whether they can competently and safely operate an aircraft. My question is, with all due respect to the theoretical approach, which the CAA in the UK has taken: what steps have we taken to build upon Australia's 25 years of experience to provide an alternative means of demonstrating whether a person is safe in an aircraft and not whether he or she has a colour vision deficiency?

Mr McCormick: Again, I think Dr Navathe will be better able to expand on this. Of course, things evolve. As the medicine evolves and as the knowledge of colour vision deficiency increases in the medical community other things will evolve. Things will change. They will move forward. The thing about practical tests—and I assume you mean airborne flight tests—is that there are many, many conditions that come into play in the aircraft. A single test in an aircraft at any one time is not necessarily going to be indicative of their overall performance. It is an indicator. But, as I say, 67 at the moment has outlined quite clearly how we get there. Again, if you do not mind, I will ask Dr Navathe to give you the background on where we are from ICAO's or anyone else's point of view at the moment.

Senator FAWCETT: We will go to Dr Navathe. I will just repeat, as I think we have discussed before, Mr McCormick, that when I have given young people a command instrument rating, that award is given to them for 12 months based on their demonstrated performance on a day, or within a check and training system. It is no guarantee of their performance tomorrow. That is quite an accepted risk process that the aviation community has undergone. Dr Navathe, welcome.

Dr Navathe: The point that you made about our flight tests and the difficulty of tests identifying people who have got colour vision deficiency, but not identifying people who may or may not be fit because of that colour deficiency to operate an aircraft, was very true a few years ago. Around 10 years ago, the UK CAA, with the local university, undertook a project to identify the specific colours which are important to aviation. This was a three-phase project. The first phase was to look at the important colours outside the cockpit. The second phase was to identify the colours inside the cockpit, for which they used an Airbus and a Boeing cockpit. The third phase was

to identify a test which would separate people who had abnormal colour deficiency from those who had abnormal colour deficiency but who were not colour safe. That was the intent of the project. That is how the CAD test has been developed. What the CAD test does is to specifically identify those colours and people who are able to meet the colour requirements for aviation. As a result of that, about a third of the people who have previously failed tests like the Ishihara or other colour vision tests have now been able to pass the CAD test and are operating safely. As a result of that, in many jurisdictions in the world it is the primary test which is being used. In Australia, it has been proposed as being the tertiary level test if a person is unable to pass the Ishihara or the Farnsworth Lantern test.

What you mention about the use of a flight test has been done in some jurisdictions and they have been criticised for the difficulty of standardisation. The big difficulty about a colour vision test is that it is an input disability. When we are looking at an output disability, for instance a restriction to an arm or some sort of amputation or some output limitation, that is easily correctly assessed, like performance is assessed in a flight test or in a simulator test. The difficulty with trying to do that with an input is that you do not know where is the break in the link. Is it because it was not picked up, is it because it was not bright, is it because there was a distraction? There is a whole host of factors involved in that, as also inter-operator and inter-tester variability. That has been criticised in the US as well where they use medical flight tests. A recommendation in the US, which came out of a study last year, suggested that if a person fails the initial clinical test, the second test should be a precision test such as a CAD test. So the research which has gone in the last four of five years has changed the complete picture for that, and that is why the attitude is moving in that direction.

CHAIR: Could I just raise a procedure with you, with the guidance of the committee. We are going to do Airservices tonight. How much time do we need?

Senator FAWCETT: I probably have another 15 to 20 minutes and I thought that would be adequate for Airservices.

Senator STERLE: This is your mob. Don't look at me, I can put them on notice.

CHAIR: Senator Smith has a couple of questions for Airservices. We will say we will go to Airservices at 25 to.

Senator FAWCETT: Dr Navathe, there are two confounds with that approach. One very simple example is that in my past at military college they used to have language aptitude tests, theoretically derived tests. Our counterparts from countries in Asia were not normally sitting those. A Chinese origin Singaporean student sat the test, failed dismally, was told he had no aptitude for tonal languages. The similar confound for you is that pilots who had been safely flying for tens of thousands of hours have failed the CAD test and yet have demonstrated their ability to safely operate aircraft in not just one test but multiple check and training tests with multiple instructors.

So if the contention that Mr McCormick made is that CASA approached this on an individual capacity basis, as opposed to one rule, then you cannot discount the fact that a theoretical test will not necessarily determine an individual's ability to use other cues to operate an aircraft safely. You mentioned that they looked at internal and external lights. It is a proven fact that in aircraft that are modified for night vision imaging systems, where all the emitted light is filtered with something like a BG7 filter, the colour hierarchies are completely disrupted and yet air crew in fixed wing and rotary wing aircraft, normal colour pilots, quite safely operate those aircraft in terms of interpreting that internal information. Likewise with external information—the human body adapts. There are things like hypersteriopsis. For years we have said that that would make it impossible to fly, yet the body adapts to that. So what you are seeing, in the case of this pilot—I understand you attempted in 2009 to not renew his medical, but subsequently you gave it back to him to continue flying as a captain in an ATPL situation—is that he has not passed the CAD test but demonstrates that he as an individual is able to competently fly an aircraft by day, by night, in IFR conditions. From the point of view of procedural fairness and natural justice, is it a good use of taxpayers' money to take these issues through to well over $100,000 in an AAT hearing when there are proven methods of establishing the competence of an individual to operate an aircraft?

Mr McCormick: We do not know what the sum of money involved is but we will go with what you are saying at the moment. The overriding principle here, whether it is colour vision deficiency, hearing deficiency or any sort of impairment on the pilot, is safety. We are talking about going towards an ATPL, when there is no standard of which we are aware for issuing an ATPL anywhere in the world, for what would be the benefit of a number of pilots—I think we are talking about a few hundred pilots in total. I agree they should be able to do the best they can in their career but our responsibility is to maintain the safety of the Australian travelling public. When we get to the point where we are pushing the boundaries, where we are pushing the science, looking for other ways to get around what could possibility be indicated from the clinical side is a dangerous thing to do, we

are starting to impact on my ability to discharge my duties under section 9 of the Civil Aviation Act, and that is to provide safety as outlined in that act.

If we wish to go there, then we have to go there in a measured manner. We will not go there on one basic flight test. I am sorry, but we will research this as much as necessary and, with all due respect, I will not be issuing an ATPL to a person who has failed the test as outlined in 67. We intend to do nothing with those who already have their licence and have their privileges. We are writing to them, as I mentioned to you the other day, to say that if they have had some change in their vision or if they think something has changed that will affect them, then perhaps they should discuss it with their own doctor or with their own DAME. I agree we should move forward, but we are already way out in front of half of the world, if not three-quarters or all the world, and as we move forward we will do it at a measured pace. When O'Brien goes through the AAT, we will see what the AAT has to say, what their preferred decision is, and that will give us the basis from which we can move forward, whether it be a practical test or whether it be a clinical test or whatever combination is required. To do it now unilaterally would be dangerous.

Senator FAWCETT: If you are concerned about Australia moving ahead of the rest of the world, can I go to both the retirement age of pilots and also CASA's world leading work in the area of pilots suffering from depression who are able to fly while been treated with SSRIs. In both those cases, Australia was well ahead of the world and Australia did not end up saying, 'we are ahead of the world, therefore we shouldn't go here', but in fact Australia took that information to the world and now the world has changed its retirement age and has changed its approach to SSRI's, based on what Australia has done.

The point I want to raise with you is that if you look at how Australia established a research base to justify that, it went back and looked at pilots who had been flying over a 10-year period, whilst medicated, and the evidence, the outcomes, as Mr Navathe correctly points out you are looking for, were incidents and accident reporting. So, if we now have 25 years of flying, just like CASA sponsored a study to go back and review the safety outcomes, and the measures were accidents and incidents, and on that basis concluded that Australia should go to ICAO and the world and say, 'This is a valid and safe way forward,' then that is where we should be spending the money—that is, to go back and revisit the safety case. Because if we count up the number of accidents that have been attributed to people with mental health issues they far outweigh the one accident, and even that is disputed, where colour vision was a factor. Certainly, if we look at the record of Australians flying, there is a long history across a broad range of roles where that has been proven. If we have done that with SSRIs, why is CASA not taking that approach of using the data we have, and we are the only nation in the world with that data, just like we were with SSRIs, to prove that the world's thinking, based on theory, around CVD does not reflect the reality?

Mr McCormick: I appreciate what you are saying. As I said we can move forward with the science and with what we know—in other words, empirical and the other types of evidence we can gather. As far as doing that now and why we have not gone and done it, it is because we are looking at a very small number of pilots compared with the population of pilots in Australia. It comes down to resources. I cannot fund a study into colour vision deficiencies moving forward. As for increasing the age to 65, many countries in the world are involved in that. I was involved in that outside of Australia. In fact the interesting thing, just as an aside, is that one of the few countries that opposed it was an African country, where they pointed out that with the age of 60 for a commercial pilot now, their average life expectancy was 58, so what was the point of putting it up to 65. So there has been a great deal of discussion around the world about age. I agree that when it comes to treating depression—and Professor Navathe may wish to add more—we have done very well. There are people flying in Australia who I know would not fly in other jurisdictions. And I think it is a worthwhile project to review colour vision deficiencies and to review the data we have. I just cannot fund it and it is not a high priority to me.

Senator FAWCETT: Dr Navathe, the statement you made in your submission to the latest AET inquiry said:

> CVD pilots pose a significant risk to the safety of air navigation in any role and that risk can only be mitigated by imposing conditions that limit operations to those environmental conditions that limit the opportunity for errors.

That is a quote from your submission. Were a study to be done, as I have just discussed with the Director of Aviation Safety, that had a similar outcome that demonstrated, on the same basis that we did the SSRI study, that there was no decrease in safety, would you support colour-vision deficient pilots being able to exercise the privileges of the licence they hold?

Dr Navathe: Before I answer that I would just like to make one point about the quote you read from the O'Brien matter. I am unsure as to whether I am allowed to mention something that is in a tribunal, but what you have quoted is actually with reference to people who have not undergone testing for colour-vision deficiency. In Australia there are a large number of people who have failed the initial test, the Ishihara test, and have thereafter continued to fly and have not undergone any detailed testing that identifies what the level of colour-vision defect.

There used be a time when people said that people were colour blind. That is no longer the case. We have a spectrum of colour-vision deficiencies ranging from one-cone abnormalities and two-cones and so on. If we know that the size of the defect is then I have no difficulty about being able to make a specific decision in a specific case.

The other point you raised a little while ago about natural justice and the fairness of using of the CAD test. In Australia, on the occasions that the CAD test has been used, it has never been used as the end point, as it is used in other jurisdictions. In other jurisdictions you fail the test at the end of the story. As you know, in this matter the person in question has failed the CAD test and has been given a certificate, because we are looking at the extent of failure as one of the many factors you have identified as being useful in making a certification decision.

Talking about the depression test, the study done for depression was supported by all the other work that had been done on depression. A large amount of work has been done on depression that suggests—I do not want to go into detail about it—that for a person who has been provided with treatment for a particular period of time, the risk of remission dropped off. The main reason for allowing that to happen was that there was independent evidence that it was safe. It was then implemented and then we did a non-inferiority trial to show that it was not inferior and there were no greater accidents in that case. I am very happy for us to do that sort of a study, if we have the funding for it, but what will be required is that every colour-vision defective pilot in Australia will have to be colour-vision tested to know what is the actual deficiency. Some of them will then meet particular levels and some of them will not.

If we go down that path, depression is a single condition. We talked about uni-polar depression. But with colour vision we are dealing with eight or nine different diagnoses under the umbrella of colour-vision deficiency. That is the difficulty in what you have raised.

Senator FAWCETT: If the study indicated that for the range of people who have been tested there was no detrimental safety outcome, would you then support people, even those who had failed the three levels of testing, including the CAD, if they could demonstrate competence to fly the aircraft under a range of conditions that CASA specified, to exercise the privileges of their licence?

Dr Navathe: We support that today in individual cases. The study would be helpful, but today, when a decision is made on the basis of a test that has been done, we look at that test not in isolation but in the context of all the other things.

Senator FAWCETT: I mean to exercise the privileges of the licence. So, for example, if a captain, ATPL, has demonstrated over thousands of hours an ability to fly single pilot, as part of a crew, by night, in cloud, and that study was done, would you support that decision?

Dr Navathe: If you were able to do a study at that level of granularity then it would certainly be strong evidence to support that.

Mr McCormick: We would taking the assumption that the person does meet the requirements. We would be looking for the negative indicators, not saying to take something away. But as I said the other day, if there were such a study done, funded by the government, or whoever, and with everything else that Professor Navathe has added in there, I can see myself issuing it—following on from what I just said about not issuing it.

CHAIR: Mr McCormick, given that this is your last crack, do you have a lasting message for us?

Mr McCormick: No, thank you, Chair. I have thoroughly enjoyed my time here. I think the committee does good work.

CHAIR: On behalf of the committee my sincere thanks and congratulations, and thank you for your contribution to air safety over the years. I wish you well in your further career.

Airservices Australia

[22:29]

CHAIR: Welcome. I understand that the chief executive officer would like to make an opening statement.

Ms Staib: I want to touch on five critical areas, very briefly: safety, finance, productivity, culture and environment.

I turn to safety. As you know, safety is our reason for existence and therefore a key focus of my leadership. I am acutely aware of the safety challenges presented by the aviation growth here in Australia and, indeed, around the world. Just to put that in context for you, by 2030, we will need to move an aircraft in Sydney, Melbourne and Brisbane every minute for 17 hours a day, seven days a week, in all-weather conditions. Just to put that in context, that is double what we do today. Currently, we manage in excess of four million aircraft movements per year,