Client and stakeholder update — Friday 22nd of September
AITC Stromlo
Chair: James Webb
Secretary: Chris

Summary:

All stakeholders, clients and group members updated on progress of the project and project scope

Actionable Items:

- Talk to Jak regarding coolers
- Talk to Mark about mechanical structure designs
- Keep going with the same course of action as each new bit of knowledge is helpful in the long run
- Get CAN open command page for EOS laser from James
- Run vibrational tests on the EOS laser in lab next week
- Back of the envelop measurements of the structure for FEA analysis
- Continue designing box for the laser, but there is a conflict in lack of data on maintenance and design for accessibility, temperature control and air quality

Attendance:

Steve (S), Paul (P), Chris Leow (CL), Celine d'Orgeville (CD), Wenjie (W), Alex (A), James (J), Mark (M)

Agenda:

Item	Discussion	Actions + Responsibilities
Meeting Open	11:34am	
Presentation + Questions	P+S+B+W+A: Present appropriate work packages J: Where do the breadboards sit? A: pointing things out with the mouse. Ensuring that the distance between breadboard M: Bonded and rivetted? A: Yup just not in CAD cause it takes forever. Looking into brackets on the side. M: You can use carbon fibre and lay it up yourself and put more resin. Can use an extra layer of material. CD: If you were the one doing it which one would you do? M: Has to be evaluated, but if you can just get away with off the shelf things it can be easy. A: Make your own carbon fibre sheet and cut it out M: Discuss further this afternoon. A: No time to use FEA cause there is no time. Preliminary analysis 1D element analysis. CD: Is it a reasonable approach.	

	M: You can apply a load test after it has been built, but having an estimate is helpful. Even if you have a few of the loads an expectation is helpful and makes it easy to model. Back of the envelop calculations. Get in touch with dragon plate they may have the information. B: How does the control system work? J: CAN BUS is the primary control interface. Ethernet is the engineering control interface. CAN BUS go through the auxiliary cable. 12mm diameter curk. 12mm hole of the CAN. S: Data rate over it. J: 125kbit/s CD: You already have the types of commands that are going to pass through. Can we use that information? ICD documentation. J: Can, but they are all source code and can be formalised for you. CD: Types of commands J: PDO format is what CAN open is a subset of CAN that gives temperature data all devices. I can write down the PDOs. CAN open command set A4 page. CD: can it be done soon? J: With IAC hard? But I can try. W: Chillers use CAN? J: I don't think the chillers will need CAN, but they will broadcast the data. It is intended to just broadcast. Don't think the laser will be controlling the chillers. Chat to Ian Price about it. M: operaed out of the SLR lab? J: It will be in a lab but that's as far as it's gone. Size of the bar fridge space isn't a problem. M: Length of fibre? J: It's not critical with the distance	

	M: Max distance if you use the main building, but shorter if you go to the Lab M: Confirm with Jack this afternoon cable wrap distance. J: 1342nm not an issue with get a straight answer from Yui Gao and go past James J: SERC have a Lockheed 10kW laser that has stuff up in the air about coolant. CD: Just need a flexible architecture J: 1kW capacity and switch between them and you are home and hosed M: Upper and lower limits of the chiller J: Go ask Yui Gao M: where is the hot air going from the chillers. That may affect the ambient temperature. Could exhaust some of the hot air. Don't know until you try it out. You could use the vents that could be opened. W: Chiller up there already? J: If it's small than it's probably a camera one. Go and ask Jak on chillers, he has a lot of knowledge. Andrew Gray (AGray@eos) S: No flow rates? J: Go to Yue. Rak mount units liquid to air 400W. Yue & Jak knows and Bayvoltex (liquid-to-liquid heat exchangers) M: Not as good as TurboTech that I like personally. CD: Specify with Yue and EOS would be happy to buy? J: There are dozens around already of the bayvoltex chillers that can be used. P: Sound frequency generator is vibrationally sensitive. Would it be ok go to into the lab attach vibration sensors and punch the table?	

	J: What is deemed a failure? Will it recover in millisecond, or a few seconds? CD: How does the laser deal with Madonna? J: Use a speaker and run whatever tests you want. S: What time is convenient? J: 3am is ok? Steve is in QLD. Only know a few days in advance. Friday's are good morning at 10am. Could be next week? Not coming down for the long while. Do it remotely. CD: Do a trial run and run the proper test with J's laser. Francis isn't available. Gaston you could talk to is John. S: Doing measurements on the dome P: Will it move when the laser is operational CD+J: yes J: It's track specific, making it hard to measure vibration. CD: Can we simulate a track and tell the telescope P: Worst case scenario J: Jak is the one that can drive the dome M: Is it useful. Vibration that are going to be passed to the laser. Isolation that is. J: Value I get out of it is the small things. Quantifying the telescope tier helps than any test you can run helps very much so. So don't feel disheartened. But shoot for the moon. A: Standard panel that you could use? J: How much the laser has cost don't rule out expensive solutions, but they are expensive. I have no preconceived ideas on it. Could be a giant HEPA filter. A: Air tight	

	J: Inhibit drafts and not a static air space M: Temperature regulation as well. CTE of everything else and need it stable. Thinking an insulated enclosure and modulate CD: Laminar flow is ideal of laser beams and try to minimise turbulence as much as possible. S: Changing it every 1-2minutes, it could disrupt it? CD: Temperature is the worst thing, and will influence how you will change the air. M: Specs for air changes is more rooms and if it's in an enclosed space you don't need to match the requirements to that. Going through the filter it will be clean. Without another experiment it's hard. CD: What has been done with existing lasers. Dry air coming in just so that you have positive pressure. Doesn't have to be too complicated. Just keep temperature stable. Filtered dry air. Unless we go back to the idea of tweaking. Insulate it and have dry air coming in. J: I don't object. CD: Decision that has to be made so that you don't have to tweak as frequently. J: Adjustment, calibration realignment, every month CD: Solution for that is remote control. Making it a nightmare if you plan to open the box J: Some are ok and some are not. Something to stress about 400 degrees of freedom	
	J: EOS laser have parts that generate heat and parts that are actively cooled and use the room as a heat reservoir to average out. But it all changes when it's in a box.	

	M: Anything that can be outside of a temperature controlled enclosure. J: Insensitive parts and intertwined with sensitive parts M: That's why I went with the room. Our laser physicists didn't want to take off a panel and just go into a room. Making it a challenge. If you go into the enclosure you need a clean room tent. J: Use a glove box. In a laser system the sound frequency generator have 4 vibrationally sensitive components. Each have 3 degrees of freedom. If you wanted to completely maintenance free of that. Rely on machining tolerance, and you need to tweak. Actuators can be used which are $1000 each degree of freedom $2000 use a clean room to save money. Get mechanical design better to remove the need for that. CD: Use the laser in the lab and not in the telescope. J: That is another possibility and we can do that. One of the original ideas is put them in the lab. Not enough data from experience or this laser. 2-year maintenance cycle. You can suck it up and try that. But there is no data on that. J: Running with the current course of action is ok. It is the desired form. CD: Plan B will be come up with P: What if you close it up again won't it decontaminate? J: This laser is tolerant to contaminants. It could be ok to run the filter and clean it out. CD: It could be the plan b M: Talk to Jak about chillers and cable wrap CD: Brian make sure to grab the sheet of J M: Feel free to email me any days	
Meeting Close	12:28pm	

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