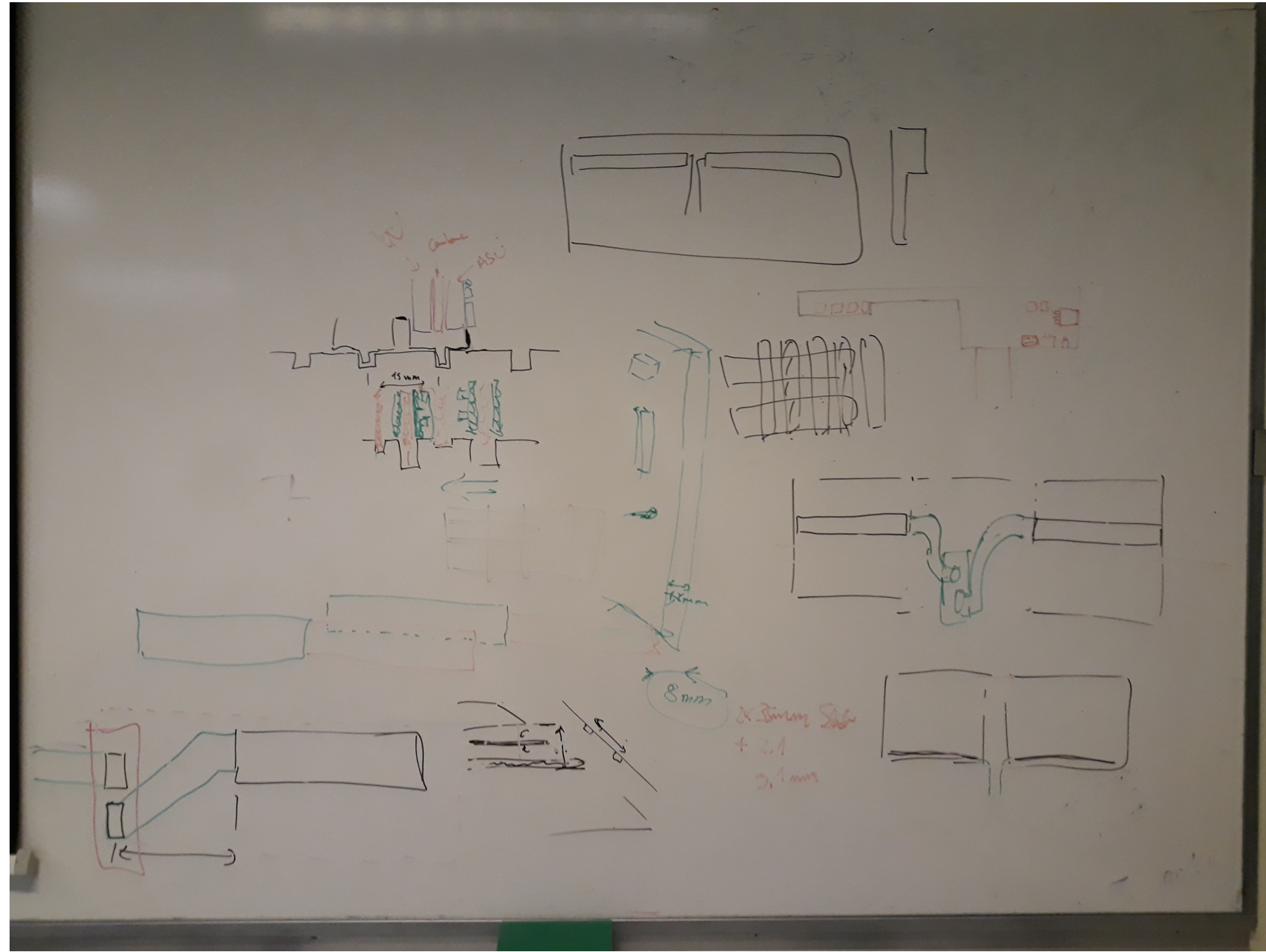
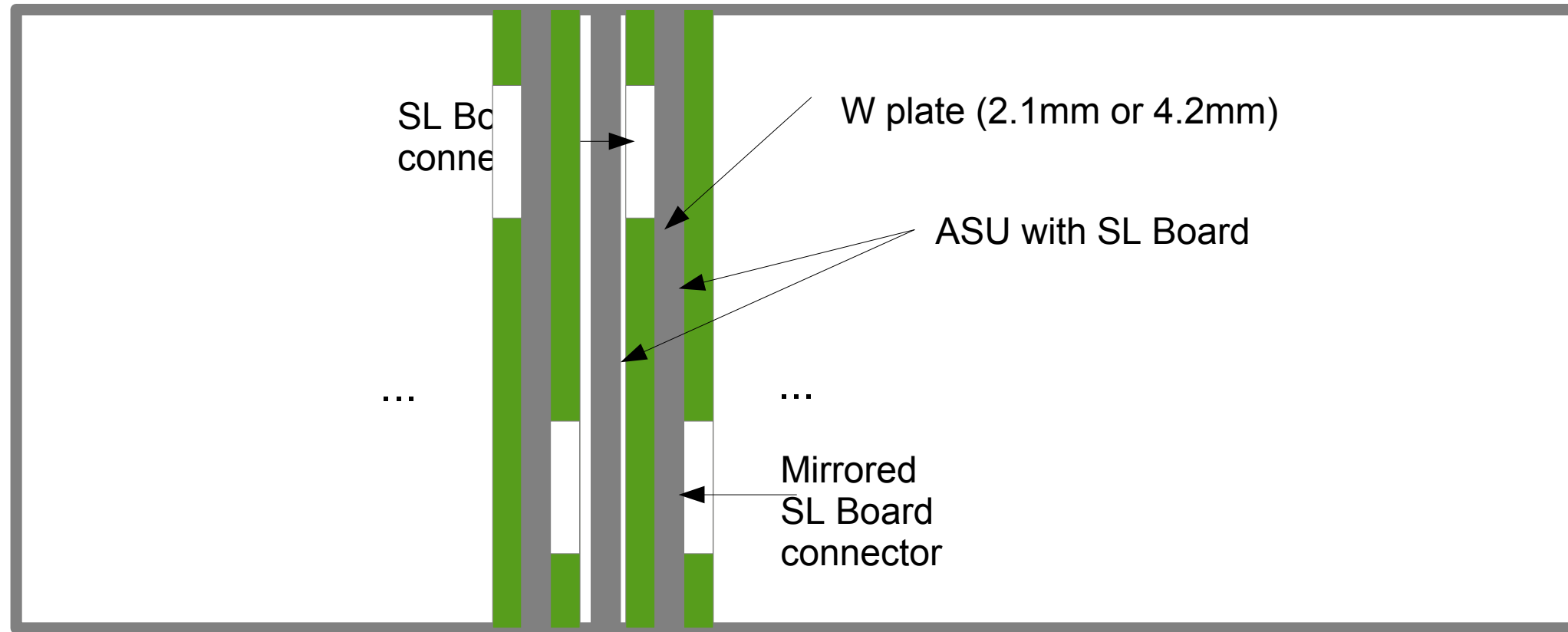


- **Three beam tests planned for 2022**
  - DESY 7/3/22 – 21/3/22
  - CERN 1 ~June/July 2022 (Schedule not yet known, personal guess)
  - CERN 2 ~September 2022 (Schedule not yet known, personal guess)
  - All three beam tests combined with AHCAL though Ecal specific running will be part of the programme
  - NB>: Note that the SDHCAL has also raised its hand for a combined beam test
- **Necessary modifications**
  - DESY: 15 layers \*and\* old structure
    - Tests of COBs (1-3 layers) and FEV13(?)
    - => No modifications to r/o system and mechanical structure
    - ... apart from updates following discussions/observations during/after november beam test
    - Test of common running with AHCAL
    - **Have to equip structure everywhere with 4.2mm W plates to have depths for shower absorption**
      - **Do we have the material?**
    - Integration with TLU to integrate with Telescope, and EUDAQ
      - NB:Check whether interfaces at DESY and at CERN are the same
  - CERN
    - Running with >> 15 layers (Mix of FEV10-13, COBs and FEV2.0)
    - => Updated mechanical structure and update of readout system
    - Don't forget mechanical integration with AHCAL

- CERN in Summer 2022 (Assumption: first test around mid/end of June 2022)
  - Too soon for a fully new mechanical structure and necessary developments of r/o system
  - Development of “mirrored” SL Cards takes time and the worldwide shortage of components is a risk
- Setup has be ready around mid-may 2022 in order to have sufficient lead time for testing
- Practical solution
  - Setup with **two** structures
    - One structure that hosts 15 slabs at the example of 2021
    - A second one that hosts for example 7 FEV13 (Risk: Kyushu may need FEV13 for setup at KEK)
    - Using the 7 FEV13 is the most realistic scenario to have a stack with >20 layers
  - Readout with a **single** CORE module (facilitates the synchronisation with other detectors)
    - Requires a special CORE Kapton that has to be put on the rails now!
- Important question for CERN 2022, will we test long layers in structure and if yes what means “long”?
  - Line of two (or three?) ASUs can easily be integrated in existing stack (might be interesting to test long layers in “realistic” dense environment



- Short term to do list:
  - Have to decide quickly who does what
  - Check W inventory (this is already important for DESY) -> **URGENT: Need answer until the end of this week**
    - If available, prepare (i.e. cut) W plates until ~end of January
  - Technical drawing of second housing and “CAD integration” with existing housing
    - Need to clarify with Kyushu whether “their” FEV13 will be at our disposal for the two CERN beam tests
    - Technical planning depends on Kyushu answer (-> contact Taikan and ask for answer until beginning of next week)
    - Btw: If we use the FEV13 we need to produce a sufficient amount SL-Adapt cards
  - Design of Kapton for second housing
    - --> Additional constraints by or for new housing
  - Is design of second structure (including integration with existing structure) and first design of CORE Kapton until 15th of February a realistic schedule?
  - Need soon a face-to-face meeting between engineers



- **Many open points**
  - What are realistic dimensions that fulfill all the guidelines see below?
  - Individual insertion of ASUs or complete cassettes with ASU-W-ASU sandwich?
  - How do we insert the layers
    - So far we've inserted “from the back”, this looks more involved now and is not the way one would do it in the final experiment
  - Planning above requires
    - Development of “mirrored” SL-Boards
    - Customised CORE Kaptons
    - Extension of CORE Module to 2x15 layer r/o + many software changes

- **Getting close(r) to final compactness**
  - Not a simple pile up of layers
  - 24X0 within around 20cm
- **Flexibility**
  - **A priori ...**
    - Exchange of layers and running w/ and w/o tungsten should remain possible
    - Possibility to insert at least semi-long layers (2-3 chained ASUs)
    - Note Demonstrating power pulsing under “real” conditions is a key R&D goal
  - **But ...**
    - How much flexibility can be maintained, the more compact we get the more difficult it will get to run w/o tungsten
    - Would compromise (exclude) “MIP running” at DESY but is this a problem?
  - **Orientation towards a “steady setup” (during a beam test) would have of course a major impact on design**