ATF2 Magnet Mover-Based BBA Software

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Overview

- Goal
  - **Use magnet movers to perform beam-based alignment (BBA) on quadrupoles and sextupoles – both for calculation of offset and correction.**
- Procedure
- Task List
- People involved
- Status
- Schedule

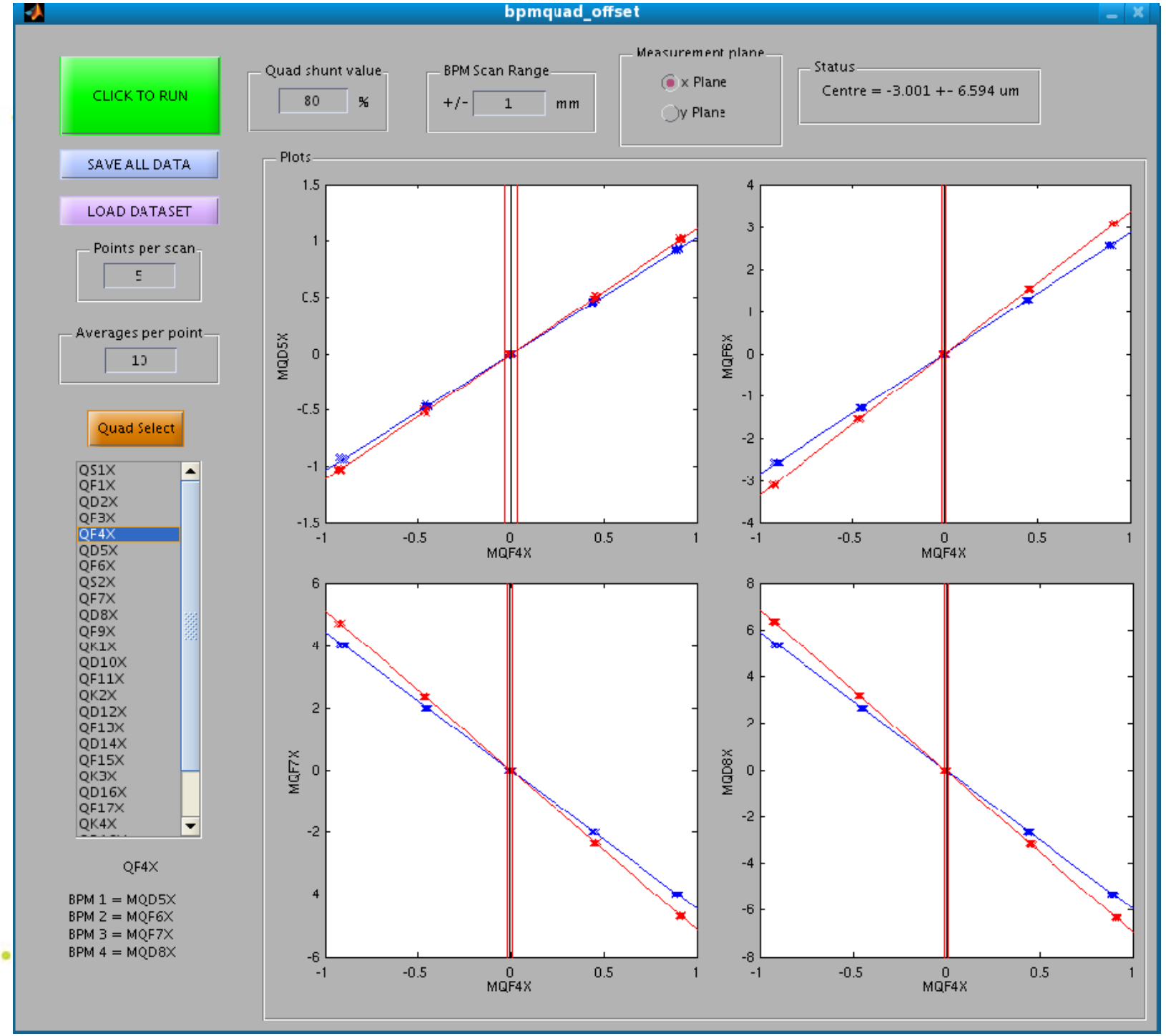
Procedure

- Quadrupoles – Shunting
  - **Measure orbit**
  - **Change quad strength by about 20%**
  - **Remeasure orbit**
  - **Using the difference between the orbits, calculate the offset at the quadrupole (via model fitting or bow-ties)**
  - **Offer to implement the change**
  - **Save data to a file for offline analysis.**
- Sextupoles – Parabolic Fit
  - **Move setupole through beam with mover**
  - **Measure orbit at IP BPM**
  - **Fit to a parabola – the minimum is the center of the sextupole**
  - **Offer the implement the needed mover change**
  - **Save data to a file for offline analysis**

Task List

- Setup basic IOC – probably like the existing mover code (Glen & Janice)
- Once each for quadrupoles & sextupoles
  - **Program algorithms (from Glen) and subroutines (Janice)**
  - **Make database as needed (Janice)**
  - **Make displays (Janice)**
  - **Test code with machine (Janice in November, Glen in December)**
  - **Fix problems found with tests**

Gui from flight sim-ulator



People Involved

- Glen White
  - **Setup of IOC, connection with magnets, algorithms used by simulator**
- Mark Woodley
  - **Model fitting and some subroutines**
- Stewart Boogert
  - **Connection with BPMs**
- Janice Nelson
  - **Everything else**
- Shigeru Kuroda
  - **KEK liaison**

Schedule

- October
  - **Get IOC going**
  - **Program algorithms & databases**
  - **Design displays**
  - **Janice leaves for Japan 10/29**
- November 17-21
  - **Test code at ATF2 – Janice's last week in Japan**
- December
  - **More code testing and perhaps use for actual BBA**
  - **Glen's in Japan, Janice is available via remote participation**

Conclusions

- Status
  - **Get group agreement on plan of attack**
  - **Write the software**