Orbit Correction in ATF2 EXT

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Anthony Scarfe (CI)
Yves Renier (LAL), Glen White (SLAC)

Requirements

- Accurate control of correctors
- Accurate online model
- Accurate readings from cavity BPMs

- Accurate readings from stripline BPMs

ATF2 is not yet ready for successful tests of the orbit correction software

Software Status

- Both me and Yves have extraction line orbit steering codes

- Both are considered to be ready for use on ATF2

- Both work in the simulation mode of Flight Simulator

- The difference between the two codes is derived from how the response matrices are formed

Simulation Results: My Code

- The codes have been tested experimentally (see Yves' previous talk)
- The current of ZH2X was increased by 0.3A
- The calculated corrections were between 150% and 200% of the desired correction
- The tests were performed in simulation
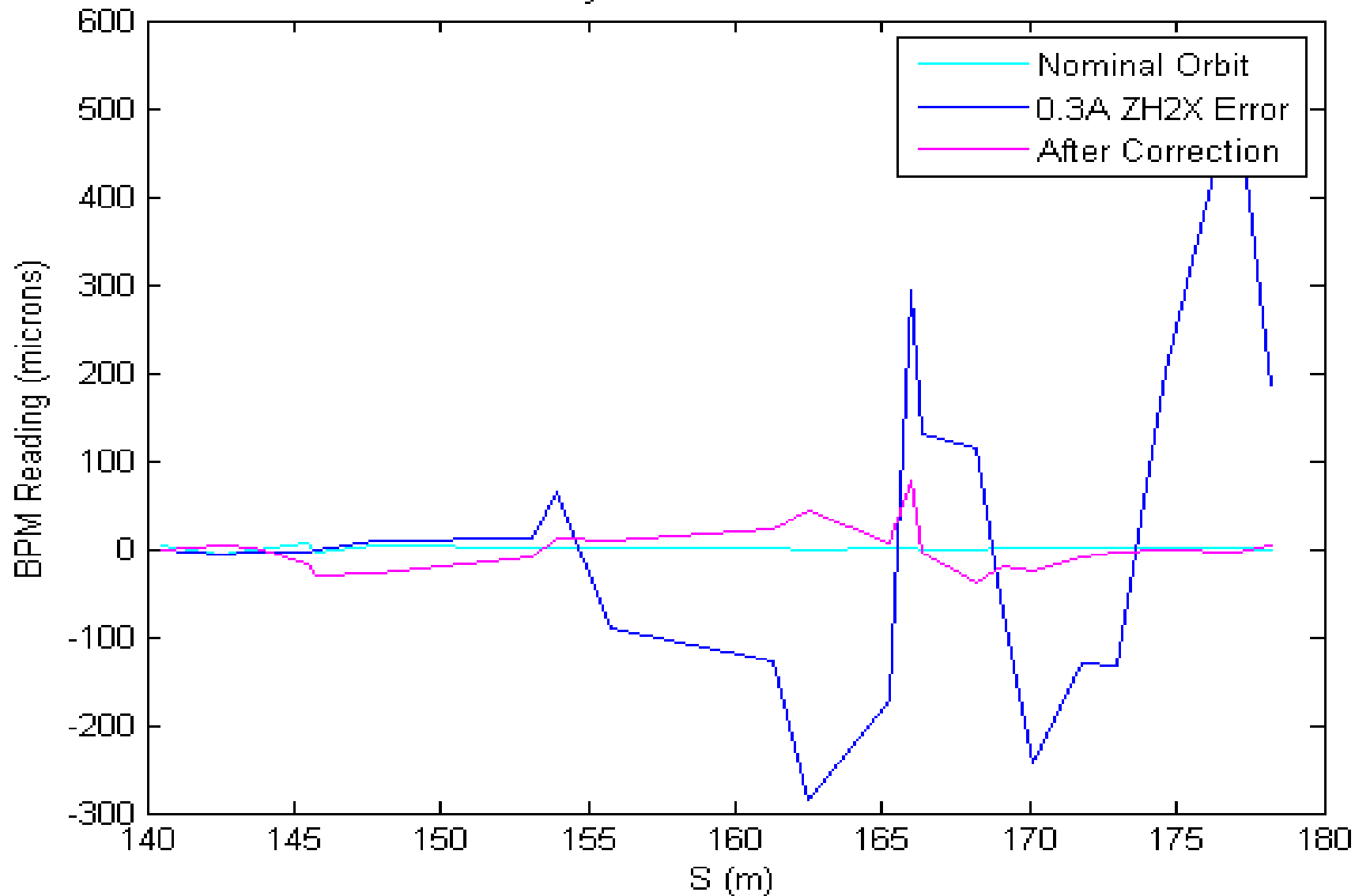- The correction was as desired

Using ZH2X Only

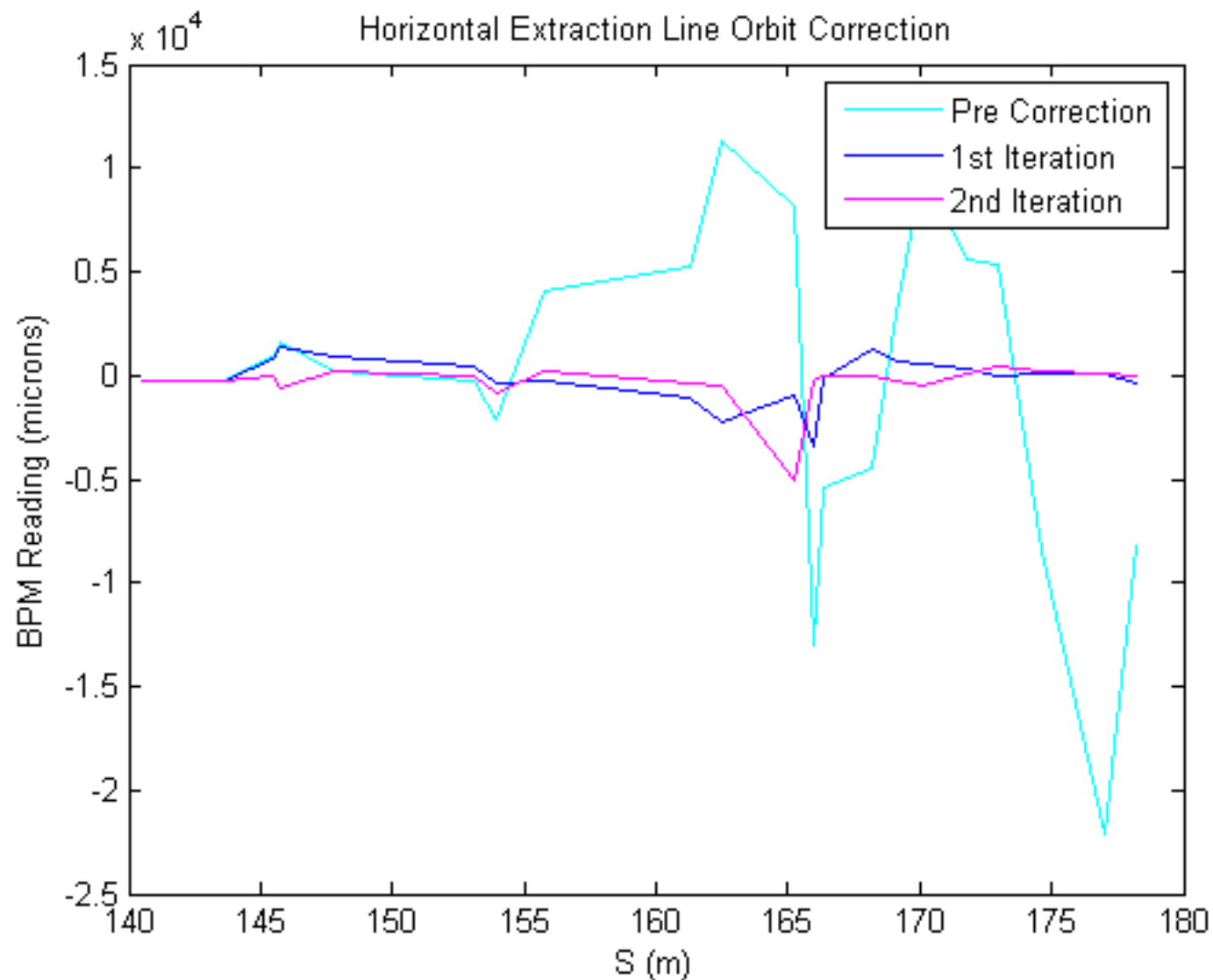
Single Corrector Horizontal Extraction Line Orbit Correction
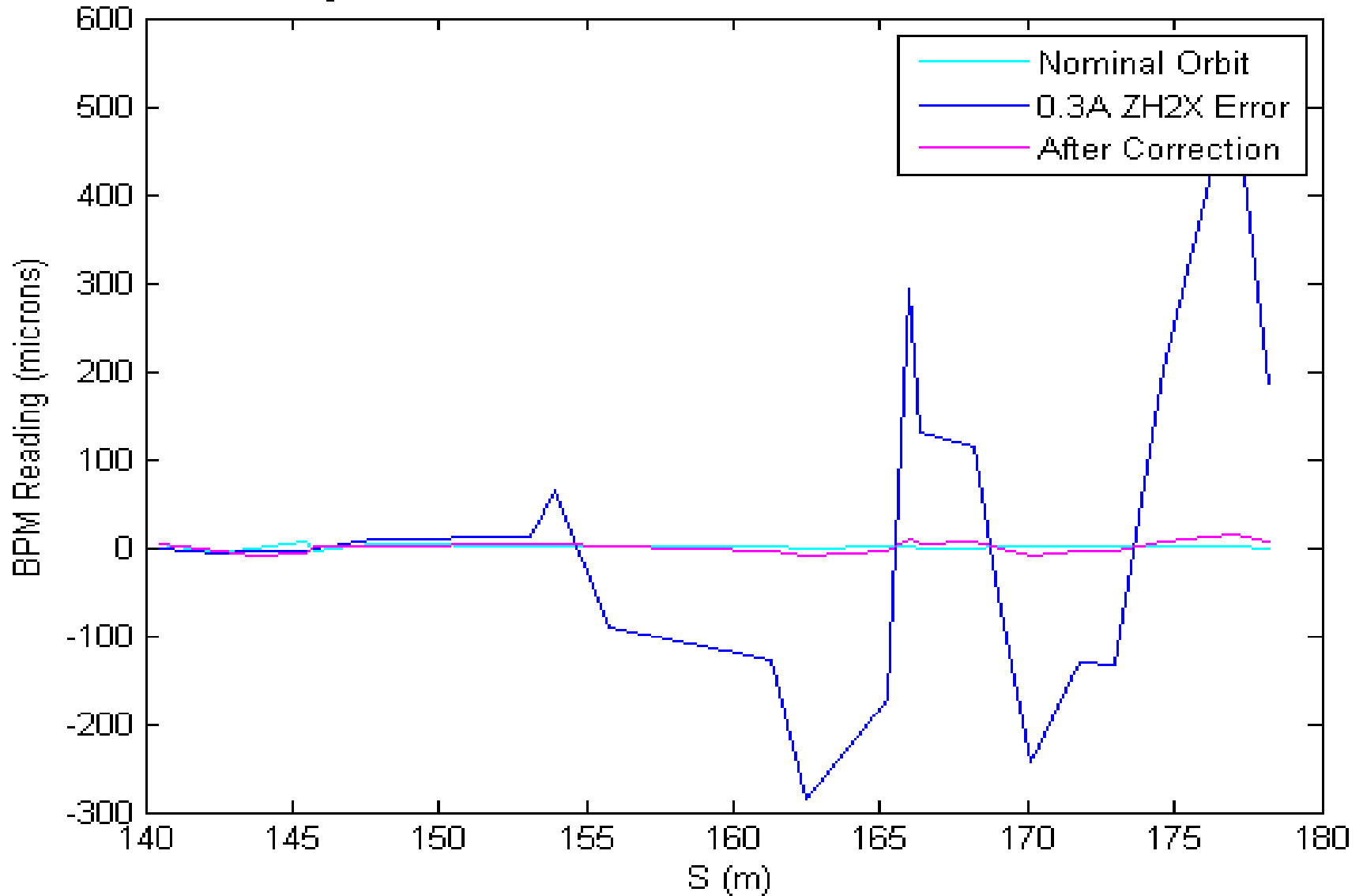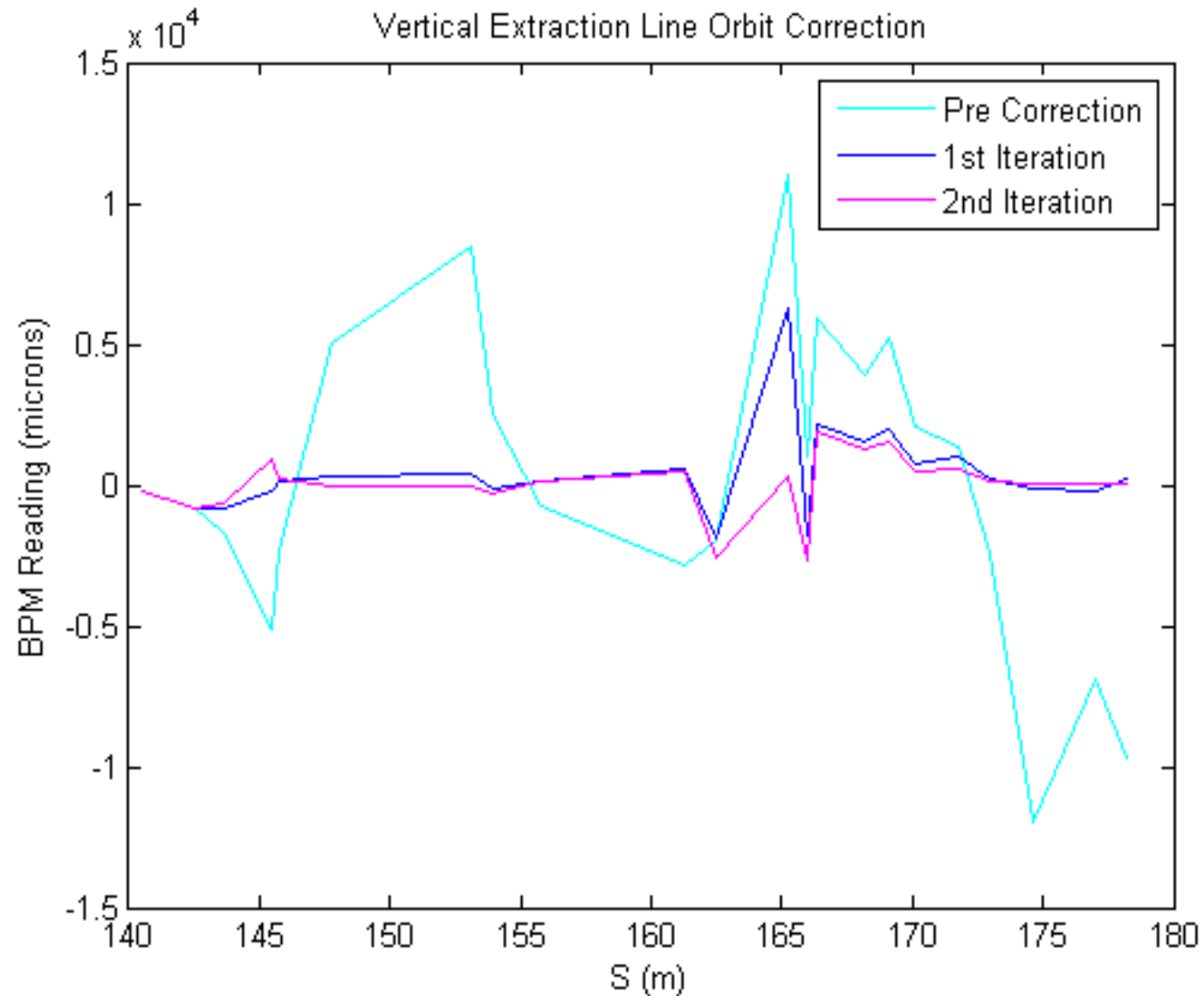
Using All Horizontal Correctors

Horizontal Only Extraction Line Orbit Correction

Orbit Correction with Full Errors

Orbit Correction with Full Errors

Final Focus

- Simulation tests were successful
- Experimental tests were unsuccessful
- The cause of the discrepancy is currently unknown

Conclusion

- The algorithms used in the software work
- The problem is with ATF2
- The software is now available for everyone
- The software does not work on ATF2
- Software commissioning shifts will continue after the summer shutdown