















**Table 1: Test execution time comparison between IRWindows4 and IFTE V5.**

Test	Execution time on a NGATS station under IRWindows control	Execution time on a IFTE V5 station under ATLAS control
Boresight	Approx. 45-60 sec	Approx. 2-3 min
Manual MRTD (with the caveat that it can take as long as you want it to)	Approx. 2 min	Approx. 5-6 min
Modulation Transfer Function	instant	Approx. 2-3 min

Note: Continuous Boresight and MTF aren't comparable since there is no correlating functionality on V5.

TPS Development Time comparison:

CROWS TIM TPS on IFTE V5 --> 9-12 months

CROWS TIM TPS on NGATS/IRWindows --> 5 weeks

TPS Runtime comparison:

CROWS TIM TPS on V5 --> 45 min

CROWS TIM TPS on NGATS/IRWindows --> 15 min (including additional testing)

## 6. SUMMARY/CONCLUSIONS

By taking advantage of updated test development models and an environment designed and developed to operate EO tests, the TPS developer working with IRWindows has many advantages:

1. Faster learning curve (graphical user interface is easier than test line interface)
2. Faster TPS development time (real time changes and asset control interface allows for faster development)
3. Asset control panel allows user to control assets real time and monitor all asset functions during development
4. Unit Under Test (UUT) image viewer allows user to set test parameters like Region of Interest more easily and more precisely
5. Continuous mode tests (like MTF allows user to real time adjustments)
6. Open architecture for test modifications

We were able to demonstrate these advantages in the case of the CROWS TIM TPS development. IRWindows 4 running on the NGATS EO interim solution test station shows significant savings in TPS development and execution time. Additionally, this application was able to take advantage of IRWindows remote interfacing so that NI TestStand could serve as the executive controlling the overall operation.

## 7. REFERENCES

- [1] Irwin, A., LaVeigne, J. and Nehring, B., "A common architecture for TPS development", Proc. SPIE 8014, (2011)