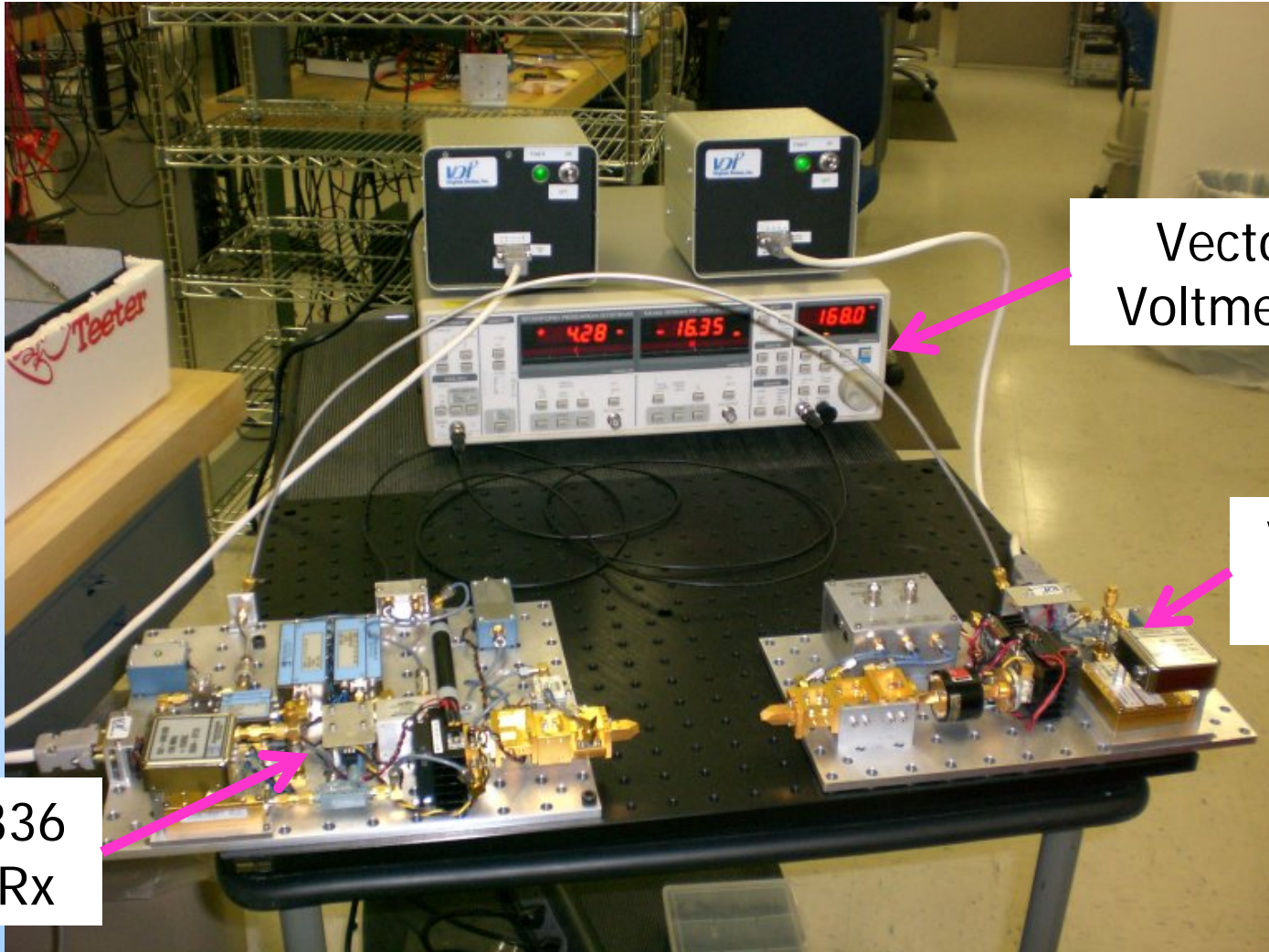


336 GHz Phase Sensitive Transceiver

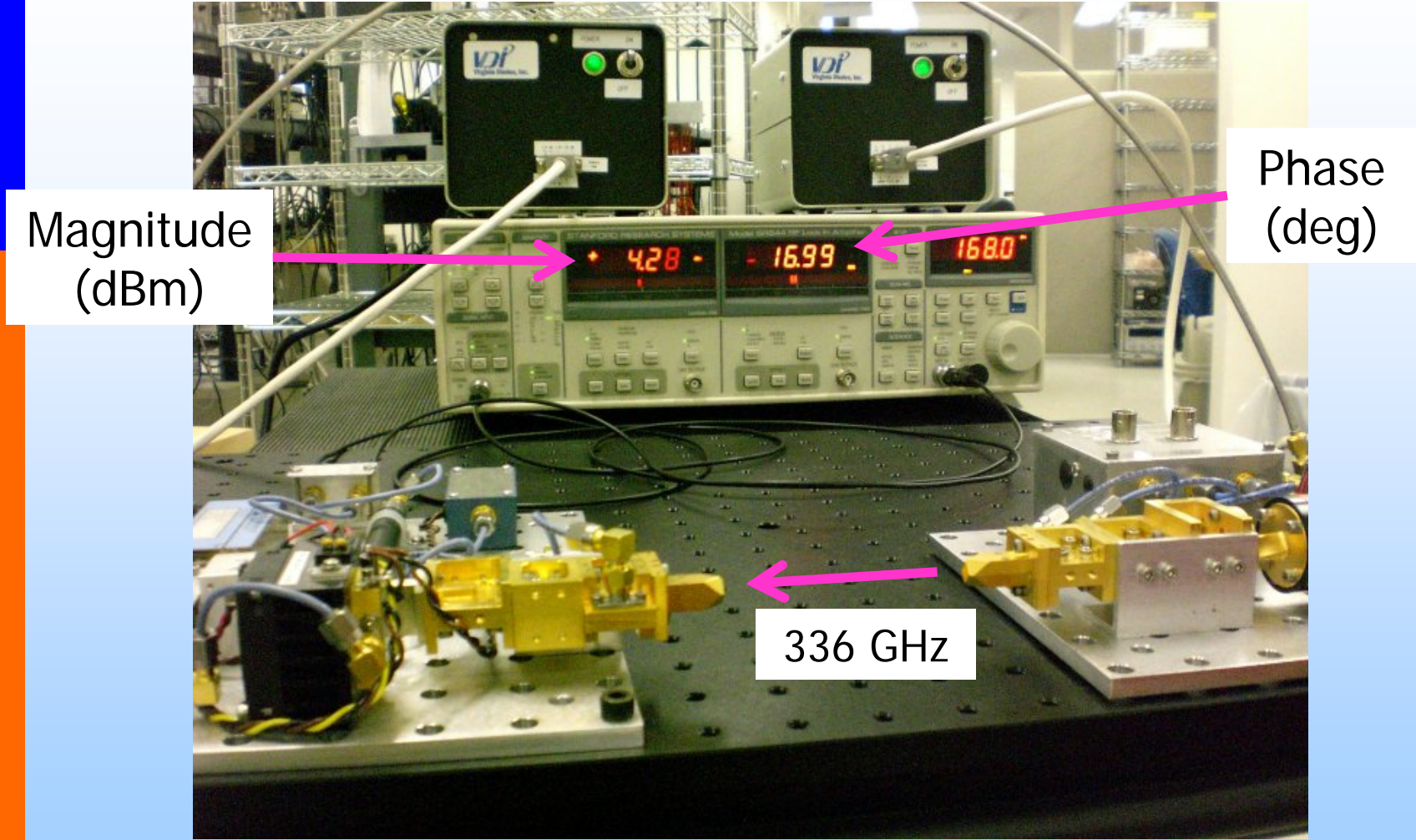


Vector
Voltmeter

VDI 336
GHz Tx

VDI 336
GHz Rx

336 GHz Phase Sensitive Transceiver

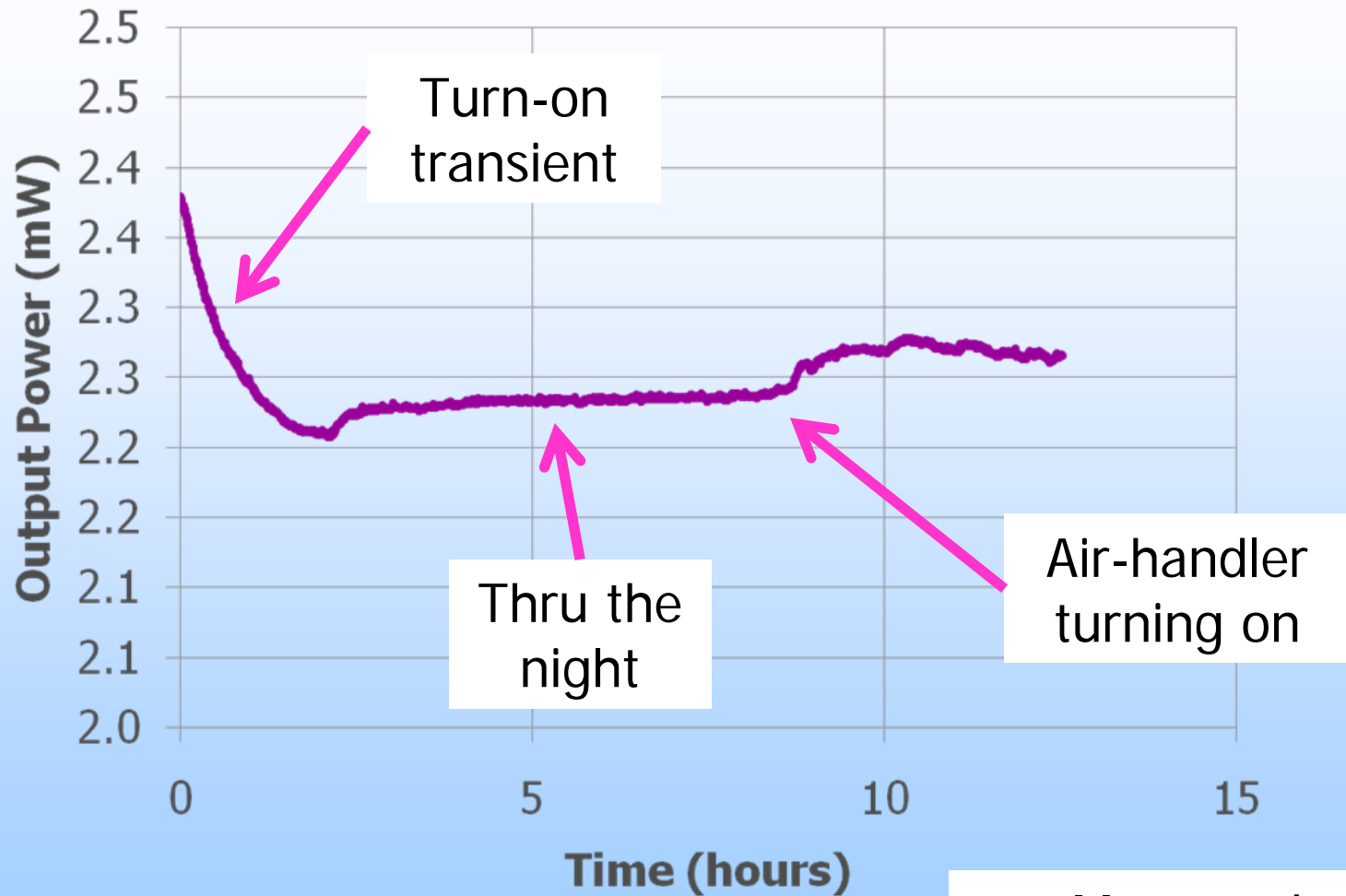


336 GHz Phase Sensitive Transceiver

- 336 GHz Transmitter
 - 17 mW output power
- 336 GHz Receiver
 - Mixer conversion loss 10.5 dB (SSB)
 - Mixer noise temperature 1300 K (SSB)
- Fully phase-locked system
- System dynamic range 94 dB
 - Up to 104 dB with slight compression
 - Dynamic range limited by Lock-in noise floor
 - VDI Tx-Rx has much larger dynamic range (at least 20 dB higher)

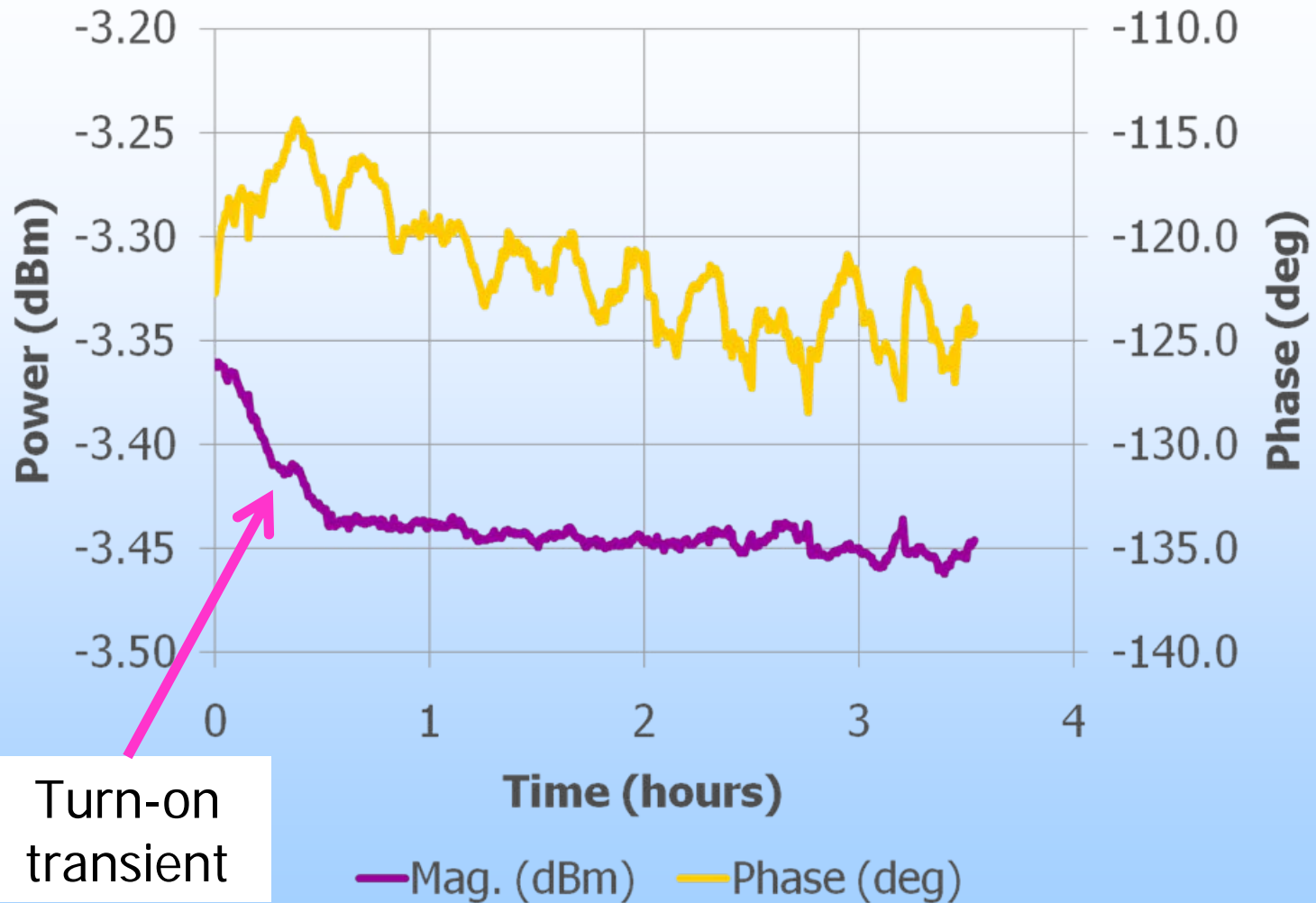


Tx-only Amplitude Stability



Measured with
Erickson calorimeter

Full Tx-Rx 336 GHz Stability



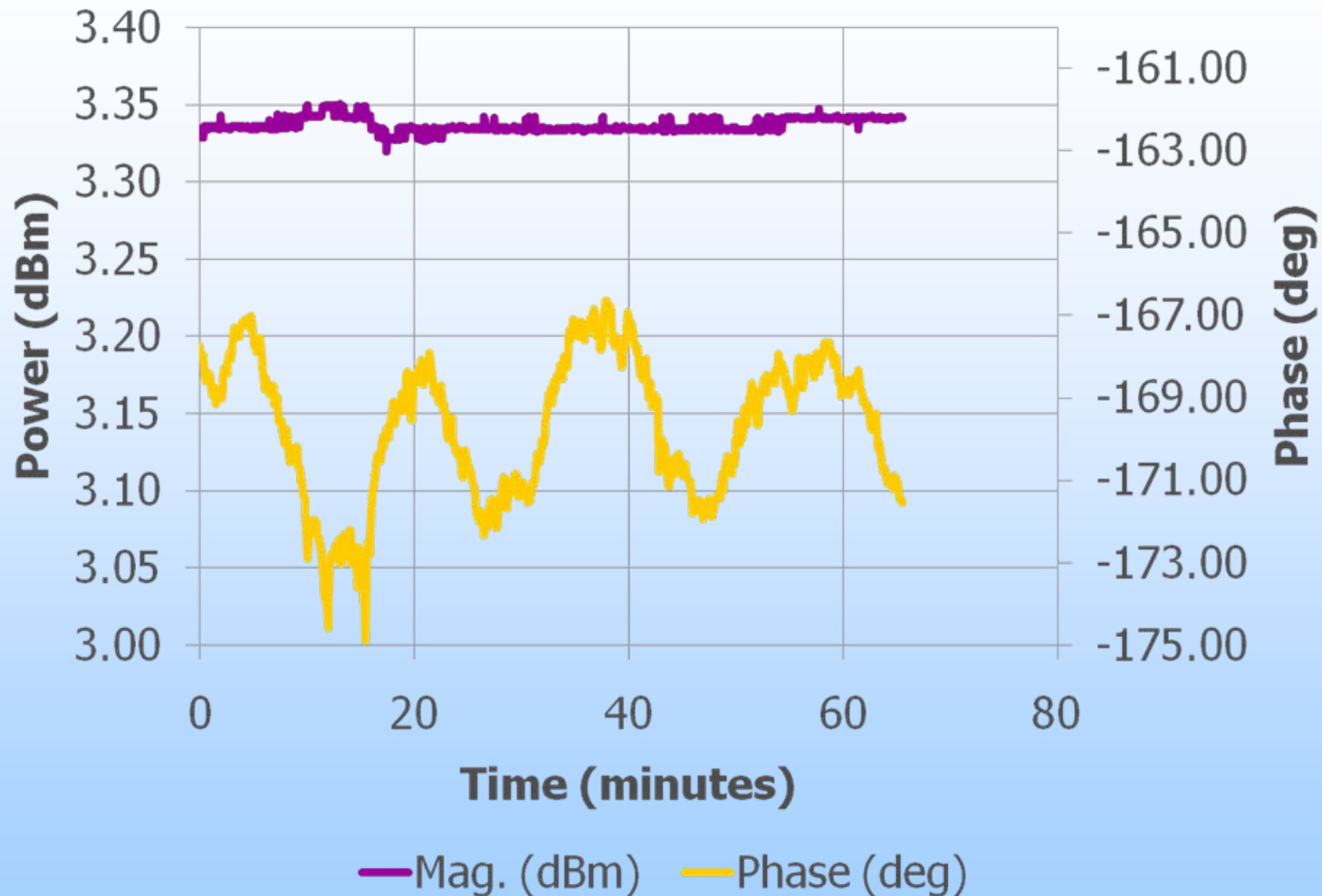
Turn-on
transient



Virginia Diodes
www.vadiodes.com

Stability of full system
with Lock-in

Full Tx-Rx 336 GHz Stability



336 GHz Phase Sensitive Transceiver

- Systems show excellent stability after initial warmup
- Amplitude stability
 - Standard deviation ~ 0.005 dB
- Phase stability
 - Standard deviation ~ 0.4 deg over minutes
 - Long term phase drift 3-5 degrees over hours

