Update on the Two DP2 Lasers

- Photonics received the CERN PO for RH sensor installation in two DP2 lasers on Aug. 23, and issued an RMA for the 2nd DP2 (SN:12-658), following which the 2nd DP2 was shipped back from Caltech to Photonics.

- The RH sensor installation is finished for both lasers on Sept 23, 2013. While the QC process in on the way and the full test reports are not provided, Photonics released laser output power measurements as shown in the following slides.

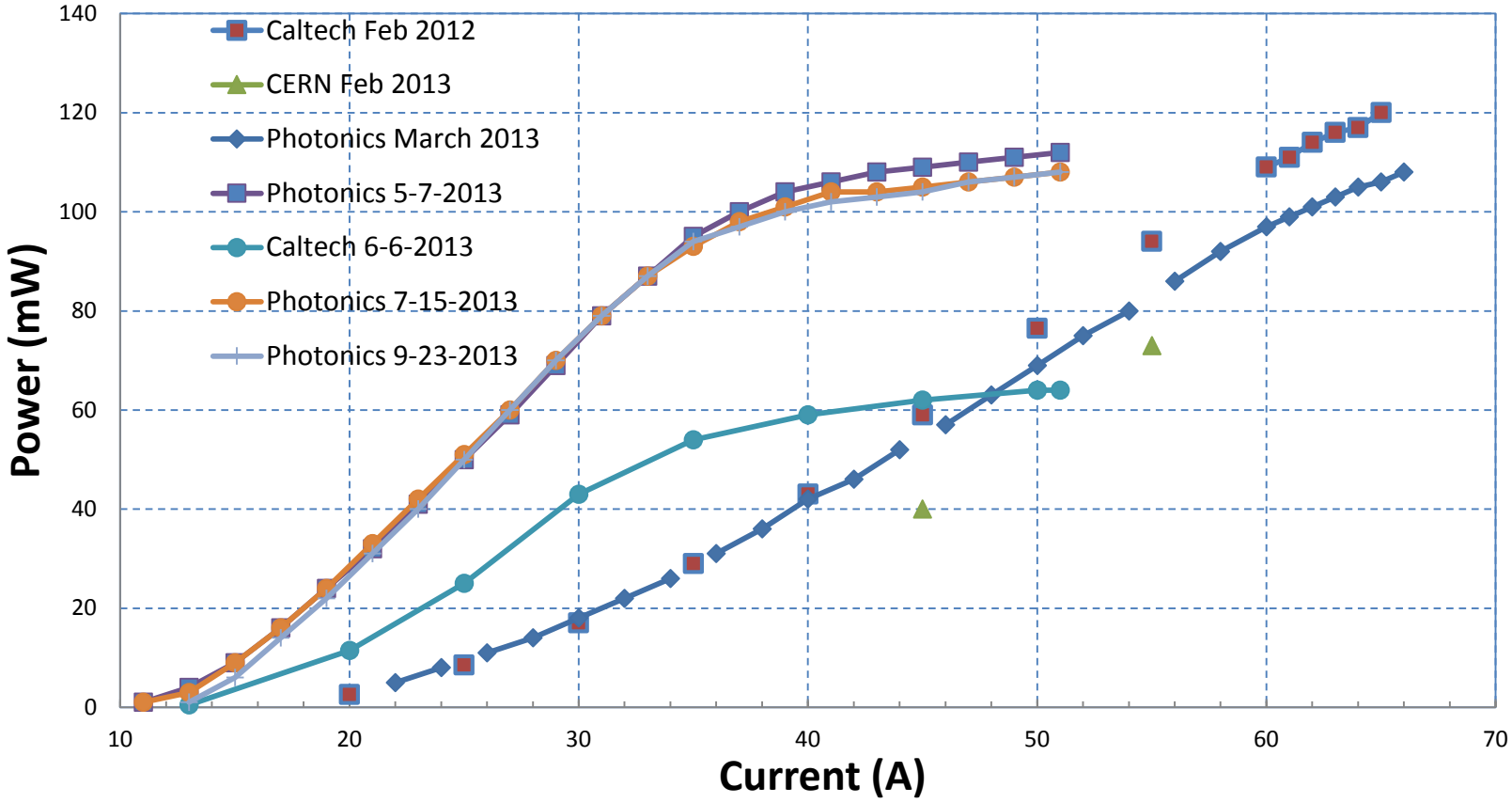
- The plan is to have the 1st DP2 shipped to CERN by the end of Sept and be commissioned at P5 in Oct for global runs in Nov.

- The 2nd DP2 will be shipped back to Caltech in Oct and be integrated with ancillary optics and a monitoring box. It will be tested with new laser DAQ software at Caltech. Aiming at commissioning the 2nd DP2 at P5 in Dec, the final decision will be made in late Oct.

Summary of the 1st DP2 Output Power

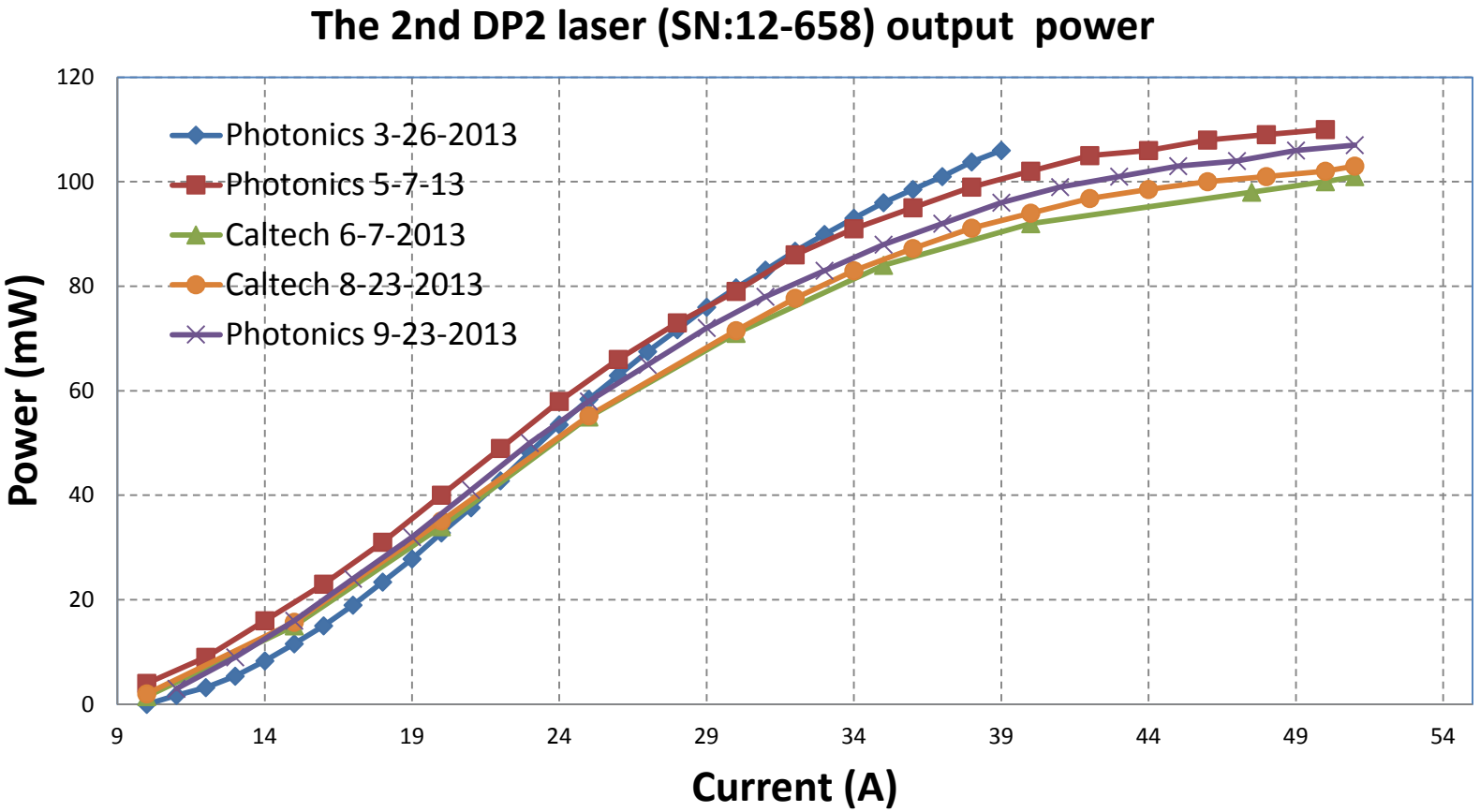
After the RH installation and a routine optimization, the output power of the 1st DP2 is consistent with July 15, but is a few percent lower than May 7.

The 1st DP2 laser (SN:11-381) output power



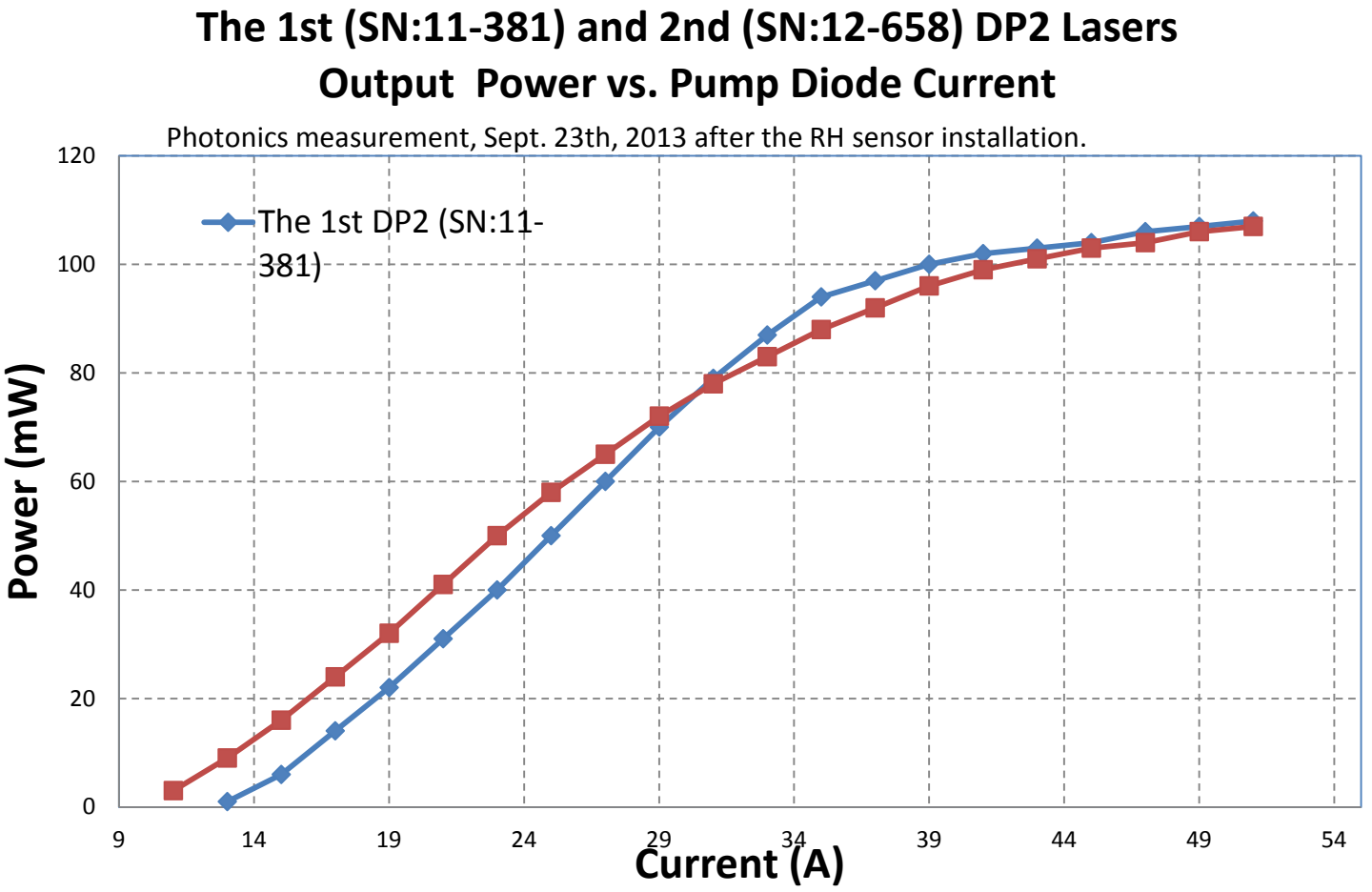
Summary of the 2nd DP2 Output Power

After the RH installation and a routine optimization, the output power of the 2nd DP2 laser shows a small increase. It, however, is still a few percent lower than May 7.



Comparison of the two DP2 lasers

Both DP2 lasers meet the 1 mJ specification at about 40A, which shows a significant improvement as compared to 60A for the 1st DP2 in 2012. Their power versus pumping current behavior, however, is slightly different, which may be caused by different diodes and optical parts in the laser cavity etc.



The 2nd DP2 (12-658) at Caltech

- **The 1st & 2nd DP2s were received at CERN and Caltech respectively on Oct. 10 2013. The tilt and shock monitors on both crates were triggered during shipments. Photonics: "I**f you have not observed any outward damage, I would say please document the shipping conditions through photographs and go ahead and test the laser. "
- **The 2nd DP2 was measured at Caltech with the same settings as that specified in the Photonics test report. Its output power is found to be about 9% less than that in the Photonics report, but consists with what measured at Caltech before the shipment.**
- **Photonics is contacted to understand this difference.**