



Why is Test Equipment Always Suspect?

By Dick Rieley, Mid-Atlantic Regional Sales Manager, Ophir-Spiricon

When a laser malfunctions and diagnostics begin, why is test equipment the first to be questioned for its accuracy when it was the laser that failed first ?

Recently, I had a customer with a 3D system designed to produce 25mW. However as tested on our 30A thermal sensor, it measured 75mW's! The customer called to complain that our sensor was not working. The sensor was calibrated, did not show any damage to the disc, but it was reading 300% high. "What was wrong with the Ophir test equipment?" we were asked.

After obtaining a clear understanding of the laser, beam size, measurement location, exposure duration, and condition of the sensor and Nova II power meter, I sent over a second calibrated 20C sensor for testing.

The results from the 20C matched the results from the 30A. However, the customer still would not believe the results and then blamed the failure on the Nova II. Following a thorough discussion of the <1% influence the meter can have on this measurement, the Nova II was still felt to be the culprit.

I then sent in a calibrated Nova II to be used with the customer's 30A and our 20C. 75mW's was measured again.

The customer was now more likely to believe our results, but he said it was still impossible for the 3D system to produce 75mW's according to their specifications. So there was still doubt.

How do you get beyond a person who refuses to believe quality test equipment validated by a world-recognized certification organization (NIST) vs a laser that only displays a CE or UL sticker?

The customer finally reported back that 75mW was indeed the true measurement, not the 25mW he was expecting to measure.



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The cause of the confusion was due to a typo in the laser manufacturer's User Manual. It stated maximum power output of 25mW, when in fact it should have stated 75mW. The equipment manufacturer was aware of the typo but had not issued an updated version or alerted their customers to the error.

Only after the customer believed in the accuracy of our test measurements did he turn his attention toward the laser and question the laser manufacturer to find the root cause.

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