GREEN LASER POINTERS – NOT CLASS 2

In May 2015, a university department purchased two Logitech Professional R800 Green Laser Presenters — P/N 910-001350 — from an online-only distributor instead of from the university's recommended source. These specific laser presenters had been recommended by the university as Class 2 lasers from Logitech, a reputable manufacturer. Cost savings were only $10 per unit ($50 vs $60).

In July 2016, one of the users noted that the irradiance of the two laser presenters was not the same. The author was notified of the issue and requested to confirm that they were equivalent. The results of these tests are shown in the table below.

Neither of the laser presenters are Class 2 as advertised and labeled. Their emissions are over an order of magnitude higher than the 1mW limit. Additionally, they have emission beyond the visible range, 400-700nm. They are actually Class 3B and must be considered to be dangerous.

Measured Power	Presenter 1	Presenter 2
Total Power	22-26mW (100%)	12-14mW (100%)
532nm only	17-19mW (95%)	6-11mW (95%)
808nm only	6-8mW (90%)	2.5-3mW (90%)

The 532nm and 808nm wavelengths were separated out using long-pass and short-pass filters. The shortpass and longpass filters only transmit part of the available energy as indicated.

The author then purchased a R800 Logitech Laser Presenter from the originally recommended source. The total emissions of this laser presenter was 0.47mW. Since then, additional Logitech R-800 Lasers presenters have been purchased and tested (nine total). They all have measured between 0.37 and 0.54mW at 532nm, with no visible IR after filtering.

Nathaniel J. "Niel" Leon, Laser Safety Officer
Johns Hopkins University, Baltimore, MD 21218
Nleon1@jhu.edu

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Figures 1 and 2 demonstrate that the IR is strong enough on the non-compliant lasers to light up the indicator card. This condition does not occur when testing the compliant lasers. The size and shape of the spot demonstrate that there is no IR filter.

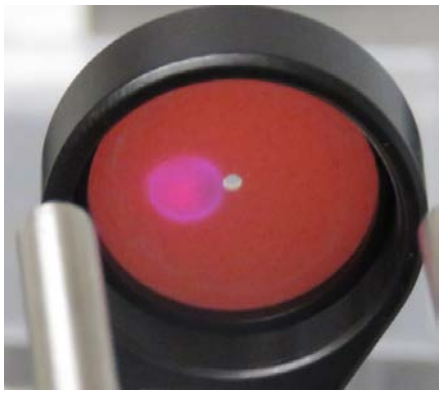

Figure 1: IR indicator Card - Room Lights On

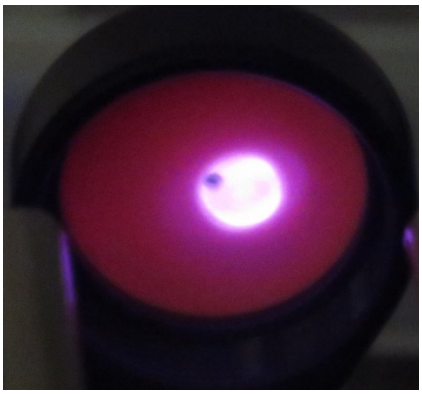

Figure 2: IR Indicator Card - Room Lights Off

In addition to the measurements, there were subtle differences in the laser presenters from the two different sources as shown in the figures below:

- Figure 3 – The pictograms on the control buttons are different
- Figure 4 – The FDA required warning labels on the outside of the case are different
- Figure 5 - The FDA required manufacturers labeling on the inside of the cases are different.

This is a validation of what NIST found and reported back in 2013 (http://www.nist.gov/pml/div686/pointer-032013.cfm). The vast majority of green laser pointers (90 percent) are out of compliance with federal safety regulations. About 44 percent of red laser pointers were not in compliance. They further determined that this issue was without regard to the original manufacture's labeling, the source, or the price of the laser pointer when purchased.

Nathaniel J. "Niel" Leon, Laser Safety Officer
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Nleon1@jhu.edu

Figure 3: General Labels are Different (Counterfeit Pointer on Right)

Figure 4: External Warning labels are Different (Counterfeit Pointer on Right)

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Figure 5: Internal Labels are Different (Counterfeit Pointer on Right)

RECOMMENDED PATH FORWARD

All laser pointers should be tested before use, regardless of the logos attached to them. This especially important if the laser pointers were purchased through a non-conventional channel, like an internet-only store. Basic testing can be easily done using a LaserCheck® or other simple laser power meter. If the measurements are in excess of what is expected, then more detailed measurements should be taken.

If you find that your laser pointer is out of compliance with it labeling do not hesitate to forward it to the FDA CDRH so they can be more aware of the extent of the issue that we are facing with these devices.

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