Hi, Manual --

Thank you for your interest.   You are correct.

The 3x3 axx "cal file" correction matrix transforms XYZread into XYZcie, where
$Xcie = a11 * Xread + a12 * Yread + a13 * Zread$
$Ycie = a21 * Xread + a22 * Yread + a23 * Zread$
$Zcie = a31 * Xread + a32 * Yread + a33 * Zread$

Yes, some of the "axx" values can be negative.
The diagonal values a11 a22 a33 are all close to "1"
The off-diagonal values are small but can be positive or negative.
The exception is our 'lux' cal file where we add a diffuser to the K10 when we calibrate that one.

Theory:
If the Klein filters pass too much light at a wavelength a display has a lot of energy, the reading (X for example) would be too high for that display compared to its initial values from our reference display, and something needs to subtract off of the value. The alternate filter (Y or Z) would get some indication of how much to subtract off, so a portion of those readings affect the correction for X.

I thought about it a lot, began using an iteration method, then recalled matrix math, determinates etc from High school, looked into it, and HEY.. here is a use for something learned long ago and almost forgotten.

The a11..a33 3x3 matrix is created from solving (using determinants) equations obtained from reading XYZ of red, then green, then blue.. with a reference device, and also the K10 to be calibrated.

Luhr Jensen
President
Klein Instruments

From: Tom [mailto:tom@kleininstruments.com]
Sent: Wednesday, December 11, 2013 1:52 PM
To: Jensen, Luhr
Subject: Re: Website Inquiries Form Submission

Luhr,

Could you answer this. I wasn't following so well and have me example it to him.

Thanks,
Tom

> On December 11, 2013 at 2:51 PM Manuel Spitschan <mspits@sas.upenn.edu> wrote:

From: **Tom** tom@kleininstruments.com 📎
Subject: Fwd: FW: Website Inquiries Form Submission
Date: November 26, 2013 at 1:26 PM
To: mspits@sas.upenn.edu

Manuel Spitschan,

This should be what you are looking for.

Tom
> ---------- Original Message ----------
> From: Klein Sales <sales@kleininstruments.com>
> To: tom@kleininstruments.com
> Date: November 26, 2013 at 12:17 PM
> Subject: FW: Website Inquiries Form Submission
>
> From: mspits@sas.upenn.edu [mailto:mspits@sas.upenn.edu]
> Sent: Tuesday, November 26, 2013 7:58 AM
> To: sales@kleininstruments.com
> Subject: Website Inquiries Form Submission
>
>
> There has been a submission of the form Website Inquiries through your concrete5 website.
>
> Your Name
> Manuel Spitschan
>
> Your Email
> mspits@sas.upenn.edu
>
> Your Phone
> 267 770 9273
>
> Your Inquiry
> Hi,
>
> We recently purchased a K10-A for the lab.
>
> I am interested in measuring luminance and have found the comparison chart of Klein vs. CIE 1931 functions on your website (http://www.kleininstruments.com/curve/). I was wondering whether it would be possible to get the sensitivity of the Klein filters in tabulated form. This would be of immense help.
>
> Thanks in advance
>
> Manuel Spitschan
>
>
>
> To view all of this form's submissions, visit http://www.kleininstruments.com/index.php/dashboard/reports/forms/?qsid=1337587168
>
>