SETTING FOCUS SYSTEM PARAMETERS IN THE FIELD

Background

This procedure provides guidance on how to deal with service calls prompted by improper focus system parameter values. **Note**: Consult with the media spreadsheet for details on specific SR numbers for your media types, since SR can vary from batch to batch: http://techplanet.creo.com/output/heads/thermal/nav/troubles.htm#media

Context

Thermal Exposure Heads 1.0 and 1.7x

Relevant documents

Procedure for cleaning the final lens of the thermal head: (http://techplanet.creo.com/idoc/77/0125A/B/77-0125A-B-PR01.pdf).

Procedure

The two parameters in question are `fheadcal` (focus head cal) and `sr` (surface reflectivity). They are described as follows in TechPlanet:

> **fheadcal**
>
> Sets the amplifier gain of the returned focus signal amplifier. The sum signal level depends on both the "media sr" and the "fheadcal" settings. The head dependent adjustment should be made with fheadcal while the media dependent adjustments belong in the sr setting.
>
> Automatically set by the "focus cal" and "focus cal fhead" commands.
>
> There should be no need to adjust this parameter during normal operation of the head.
>
> **sr**
>
> The surface reflectivity quantifies the reflectivity properties of the media.
>
> This parameter was moved to hdm from the media subsystem

Practically, this means the `sr` value determines the output power of the focus laser and the fheadcal value determines the gain of the focus system sensor. These parameters should be optimized to provide a sum signal of 1000 when the head is installed properly. If one or the other is misaligned, there is a potential for the focus system to not operate properly. For example, if the laser power and/or sensor gain is too high, the sensor will saturate and not provide the full range of measurement.

Another important point to understand is the relative role Engineering has decided these parameters play in the operation of the focus system. The `fheadcal` parameter is used to characterize the thermal head's part in focusing. The `sr` parameter is used to characterize the media. Therefore, there is one `fheadcal` for the head and an `sr` value for each media (8 or 16 different values). So, historically, we have set `fheadcal` in production and discouraged any adjustment of it in the field. Any adjustment that needs to be made in the field can be done by adjusting the `sr` value of the media being imaged (using focus cal reflect to determine best value). The reasoning behind this is that adjusting `fheadcal` will change focus system performance for all media types (whether it needs adjustment or not), whereas adjusting `sr` would only affect the media in question.

Normal `sr` values for each media type are determined by the media group and easily referenced on TechPlanet (see the Technical Note for each media type).

We are now seeing situations where the `fheadcal` value has apparently been misadjusted in the field or not set properly during production or integration. In these situations, it may be necessary to adjust `fheadcal` in the field to achieve optimal device performance. For customers using multiple media types this may result in multiple subsequent `sr` adjustments. If it is determined that adjusting `fheadcal` is necessary, please use the following procedure:

Note: This procedure assumes both `fheadcal` and `sr` are set incorrectly.

1. Clean the final lens of the thermal head (see http://techplanet.creo.com/idoc/77/0125A/B/77-0125A-B-PR01.pdf).
2. Load the media most frequently used by the customer.
3. Enter and save the `sr` value for that media type published by the Applied Imaging and Media group (see tech notes on the TechPlanet Media site: http://techplanet.creo.com/consumables/media/nav/index.htm
4. Use **`>>head install on`** to verify that the error signal is to spec. Adjust `fheadcal` until the focus sum signal is approximately 1000. Re-verify **`>>head install on`** error is to spec.

   Note: Subsequent to Step 4, only media `sr` values should be adjusted (use command **`>>focus cal reflect`** to determine best `sr` value).
5. Verify that other media types will produce a sum signal of approximately 1000 by loading media and checking sum signal.
   Use **`>>focus cal reflect`** to determine optimal sr setting.

This process will not give the absolutely correct value of `fheadcal`, but will give an approximation that will allow normal operation.

Check the focus sum after the lens cleaning procedure

After the lens cleaning procedure, the focus sum value could change due to increasing light passing through the final lens. The focus sum could be too high or maxed out.

Please be sure to check the focus sum after each lens cleaning procedure.

Check the SR and focus sum for new heads

Due to the change of the surface reflectivity, the default `sr` value for the Kodak media is now changed to 0.10. However, there are still some heads integrated with the 0.16 default value in stock. Please be sure to check the `sr` value upon receiving new heads.