Template for comments and project leader observations

Date:	Document:	Project:

Reviewer[1]	Section	Sub-section	Paragraph/ Figure/ Table/	Type of comment[2]	Comments	Proposed change	Project leader observations
PM	3 4	3.13.4 4.5.4		te	The quality of the parabolic approximation depends on the speed of the part, the amount of imaging distortion, and the amount of alignment error to be removed. Simply assuming that it "differs negligibly from a true spherical fit" is dangerous. The ratio between the 4th order term and the 2nd order term is $NA^2/4$. If we instead look at Zernike PV (e.g. the PV of Z8 [3rd order Zernike spherical] and Z3), the ratio is approximately $NA^2/16$. For example, say we have a part of 20 mm radius and 30 mm diameter. Such a part is R/0.75 and has a 0.667 NA. Suppose we have 2000 nm (2 um) of PV power in the measurement (from imperfect alignment nulling – or perhaps we wanted to measure exactly at the prescription radius rather than nulling, as would be the case if using a test plate). The residual Z8 PV due to alignment error would be 2000 nm * (0.667)^2 /16 or 56 nm – very nearly 1/10 of a HeNe wavelength (and larger than a green wavelength). This calculation assumes perfect sine distortion (characteristic of a well-corrected transmission sphere and interferometer mainframe); deviations from that would course change the result. I concede that the generic parabolic power approximation is extremely convenient, because it *allows the removal of alignment error without knowledge of the nominal surface shape* (radius and aperture). As interferometric measurements don't often include surface prescription information (as metadata to the phase map), the "exact" fit often cannot be performed anyway.	Perhaps a brief note suggesting when the approximation becomes invalid, possibly including the relatively simple equations to predict it. Note that I am more concerned with the impact of the fit approximation on the *residual*, not the actual sagitta estimation. I have seen spurious spherical aberration induced into irregularity measurements (especially on fast parts) as a result of a parabolic fit to power.	The existing footnote to 3.13.4 provides an implied warning that the approximation may not always be appropriate. The note has been made more explicit.
PM	4	4.7		te	While I have no objection to the equations listed, as a practical matter it makes me a little uneasy to see a default for a standard be something that commonly used metrology software doesn't calculate.	Not sure. I think people will resist a default standard that is not easily computable with the software they have. Having a little more mention of what I would consider the current default (low-pass filter followed by slope) might help.	No change made. There is commercially available software that makes the calculation exactly as described. The current

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					I believe that most slope calculations implemented in commercially software are via the 2 point method (though I am not positive). As I understand it, the most common method of evaluating slope specs today is to low-pass filter the data according to an integration length (often with a Fourier filter, but sometimes with a simple convolution filter such as a moving average), then apply the (2 point) slope calculation.		language describes a default and specifically allows for other algorithms (2 point, etc) to be specified.
PM	4	4.7		ed	Leftover comment "(Peter is sending me edits to equations)"?	Remove "(Peter is sending me edits to equations)"; make edits to equations if necessary.	Done
PM	4	4.7		te	"PV or rms slope deviation may be specified; in the absence of a specification, rms slope is the default. Bandwidth must be specified." I believe "Peak" slope is a more appropriate metric than "Peak-valley", especially when considering slope magnitude. While on the subject, I assume that the default evaluation is for slope magnitude (rather than X or Y slope), but I don't see this explicitly stated.	Change "PV" to "Peak", and explicitly state the default is for slope magnitude. This may require a reordering of the text, as slope magnitude isn't defined until the next paragraph in this section.	Accepted. Minor edits made
PM	4	4.8		ge	I personally applaud use of nanometers rather than waves or fringes. But I suspect others are more attached to those units. What does "normal unit of measure" mean, exactly, in the context of this standard? Can one no longer use fringes or waves in their specifications, or they simply need specify that they are doing so? Depending on what it means, you may get some resistance.	Not sure. I like nanometers, but if you take people's waves and fringes away, they probably won't be happy.	No change made. Nanometers are default; any other unit can be specified.

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