

Draft Meeting Minutes  
ASC OP TF 6 – IR Materials  
Project Leaders Meeting  
Sunday, February 3<sup>rd</sup>, 2013, 13:30 PST

Nob Hill Room  
Intercontinental Hotel  
888 Howard St., San Francisco, CA

## 1. Welcome and Introductions

Gary Weise called the joint meeting to order at 13:38 with a brief introduction of all the attendees. In attendance were D. Aikens, N. Carlie, E. Stover, D. Hasenauer, Y. Guimand, A. Phenis, G. Boreman, E. Freniere, J. Stillman, I. Craig, W. Royall, L. Hanssen, H. Johnson, W. Czajkowski, R. Williamson, and D. Howland.

## 2. Approval of the agenda

Gary Weise presented the agenda. D. Aikens moved we accept the agenda, A. Phenis seconded. The motion carried.

## 3. Review of Minutes to August Meeting of TF6/IRMSWG

Gary Wiese reviewed the minutes from the previous meeting. D. Aikens moved that we dispense with the detailed review and approval of the meeting since this is not a general committee meeting, D. Hasenauer seconded and the motion carried.

## 4. Status of TF6 supporting standards

1. **ISO 17328 Review** E. Stover reported that the version of the standard incorporated many of the changes that the US has suggested. It isn't clear if we want to add other methods besides deviation method for index measurement. He provided a set of detailed comments that will be posted on the website. Specifically, we should recommend that section 4 be made an informative annex, rather than in the normative section. Section 5.2 on surface accuracy has a problem that it does not make the clear aperture impact the PV clear, and may need some work. We should also consider the impact of the number of data points, and consider changing to an rms wavefront requirement, and consider changing the PV to something tighter due to the impact on the RI.

May also need to consider the impact of power versus irregularity on RI.

Section 6, the test report requires capturing the temperature, but that may not be sufficient to control the temperature gradient. We might want to require a soak time for example, to stabilize the thermal gradients.

We also should broaden the error terms that need to be controlled, such as misalignment, collimation, SNR, and quality of focusing optics. It is also important to note that dispersion can contribute errors if the beam is not completely monochromatic.

Action: E. Stover to create comments for consideration at the next SC3 meeting.

Action: L. Hanssen/D. Aikens to get E. Stover designated as an expert to SC3.

2. **dn/dT** L. Hanssen reported that NIST is extending the index capability into the IR, and will participate in developing documentary standards. NIST has also submitted internally funded efforts to create a calibration service, and prepared an IMS proposal to address temperature dependence on index that would be a 3-5 year effort. Funding decision in April or May.

J. Burnett of NIST is working on the upgrades to the minimum deviation system at NIST for both range of wavelengths consistent with the ISO standard and including dn/dT.

For documentary standards for dn/dT, we probably don't want to use the NIST approach, since it is too complicated.

Action: L. Hanssen will look at ASTM standards and see if there is anything that is appropriate as a starting point.

Action: J. Burnett will propose a strategy for standardizing dn/dT.

3. **Transmittance** L. Hanssen reported that there is a standard ISO 15368 that can serve as a good starting point for transmittance measurements. It needs to be updated with additions to instrumentation, error sources, etc. There are also ASTM methods and a CIE which be considered as sources.

The strategy will be to revise ISO 15368 to accomplish what we want to cover, and then adopt it as an ANS.

Action: L. Hanssen to propose to SC3 that we revise ISO 15368.

4. **Inclusions Instrumentation** N. Carlie was not at the meeting, so we couldn't discuss his projects.
5. **Homogeneity** N. Carlie was not at the meeting, so we couldn't discuss his projects.
6. **Stress Birefringence** N. Carlie was not at the meeting, so we couldn't discuss

his projects.

7. **Spectral Bands** G. Wiese reviewed the bands in ISO 20473. He proposed a draft based on that format.

Action: D. Aikens to take G. Wiese's starting point and turn it into a draft ANS.

Action: G. Wiese to modify proposed standard to delete any reference to Military applications.

8. **Material Library for Design Codes** D. Hasenauer reported that he has an excel file as a starting point for standardizing the list of material properties that we want to put into an xml format for documentation and data transfer.

Action: D. Hasenauer to continue to refine materials properties list and when it is ready, circulate it to the committee for review.

9. **Material Specification and Grades** H. Johnson reported that OP3.001 for optical glass is probably not an appropriate starting point, but we can survey IR materials suppliers for drawing notations and content, including the grades, that need to be in the standard notation. W. Royall said he has seen several very nice written specifications on drawings, and could provide them to inform the revision process.

Action: J. Stillman to provide sample materials specifications to W. Royall.

Action: W. Royall to collect and get released some customer material standards and provide to Hal.

Action: Hal to solicit input from other IR materials suppliers.

Action: Hal to propose draft standard for notation and materials specifications.

## 5. Status of Measurement Tasks, Test Plans and SOWs

1. **Instruments** A. Qiao was not present, but we discussed a few different types of instruments that need to be available. Most of these systems already exist, but a couple (inclusions, stress birefringence) may need to be developed.
2. **Sampling Protocol** A. Phenis asked if we wanted a single sampling protocol, or if we need different protocols for different manufacturing method. There could be a significantly long list of samples needed for some of these methods. Czochralski process materials have issues both I and axial variations in materials.

Action: A. Phenis to develop a white paper/presentation for the different kinds of sampling protols for the various materials.

3. **Sample Specs/Procurement** J. Spilman is waiting on A. Phenis' work to start.

4. **Funding** G. Boreman reported that he needs guidance on how much money

we will need, what we need it for, and what timeline we need it over. Most likely funding source will be DoD, funding a special project. May need to be concerned about ITAR, however.

Action: G. Wiese to write up a one-pager describing our activities and intentions.  
Action: P. Hallet to discuss ITAR rules regarding this effort with State.

## **6. Other business**

G. Wiese asked if there were any other business to discuss. There was none.

## **7. Time and Place for the Next TF6 meeting**

The next meeting of TF6/IRMSWG is scheduled for Monday, April 29<sup>th</sup> 10:00 EDT

D. Aikens asked if it made sense to have more project leader meetings, or if this was a one-time deal.

A. Phenis moved that we meet again by teleconference in April 1<sup>st</sup>, 13:00 EDT. D. Aikens seconded, and the motion carried.

## **8. Adjourn.**

A motion was made to adjourn the meeting by D. Aikens, the motion was seconded by D. Hasenauer and it carried. The meeting was adjourned at 15:31.