

**China HB-LED Standards Committee
Meeting Summary and Minutes**

China Spring Standards Meeting 2016

Thursday, April 21, 2016, 09:00 -13:50

Wyndham Xuzhou East, #16 Longhu West Road, Xuzhou, Jiangsu

Next Committee Meeting

Friday, Oct. 14th, 2016

Table 1 Meeting Attendees

Co-Chairs: Yong Ji (GHTOT)

SEMI Staff: Kris Shen – SEMI China, Daniel Qi – SEMI China, Richard Jiang – SEMI China, Mina Chen – SEMI China, Joyce Ji – SEMI China

<i>Company</i>	<i>Last</i>	<i>First</i>	<i>Company</i>	<i>Last</i>	<i>First</i>
AMEC	Steven	Lee	JingAn-OP	Mingxin	Chen
AMEC	Yingbin	Liu	JingAn-OP	Andy	Yang
AURORA	Hongbo	Zou	JingAn-OP	Andy	Xu
AURORA	Xinhong	Yang	GHTOT	Liuyun	Qi
AURORA	Xuejun	Zhang	Jeshine	Jinrong	Cai
AURORA	Zijian	An	Jingrui	Liang	Zhu
Aufirst	Bing	Liu	LC-Chaosheng	Zhechun	Wu
Aufirst	Shiwen	Lan	LGYL	Zhenjin	Huang
Hermes Epitek	Lilian	Xu	LGYL	Junping	Du
AST	Dawei	Zhuang	LBY	Haohan	Li
GRISH	Gangwei	Yan	MKS	William	Wu
CBVAC	Shenghui	Liu	MKS	Ivan	Zhu
CGEE	Xiaolu	Zhang	MKS	James	Yao
CGEE	Xiaohu	Wang	MKS	Alex	Yuan
DDXDF	SongBin	Zhao	NMC	Yang	Zhou
DDXDF	Wei	Zhen	Nanojoin	Hui	Wang
DDXDF	Jiaqi	Hong	NJC	Songsen	Zheng
DRE	Philip	Chang	NJC	Jiancheng	Lv
DIAT	Jiejiao	Kang	NJC	Jian	Wu
ETI	Phil	Wu	Phichem	Dora	Peng
E&R	Peter	Tung	Personal	Guoping	Li
Epitop	Zunxi	Li	Sidea	Amy	Zhang
ECEC	Jianzhe	Liu	SST	weihong	Song
ECEC	Jackie	Zhou	Nanowin	Ke	Xu
TRUSTEC	Eric	Qin	CMIIt	Renzhu	Jiang
TRUSTEC	Yishan	Dai	CMIIt	Junqin	Huang
GAT	Zhenxing	Zhou	SVECK	Fei	Tang
GCL	Yifeng	Liu	RMEC	Leo	Yu
Gdnano	Xiaohua	shi	TDG	Feng	Shao
Gdnano	Shaohan	Liu	TDG	Zhiyan	Yao
GAPSS	Richard	Wei	TDG	Shengzhu	Liu
GAPSS	Liang	Tu	Tianlong	Yanping	Pan
GAPSS	Gang	Wang	Union-diamond	Sen	Zhu
GAPSS	Benjamin	Huang	Union-diamond	Jun	Li
GAPSS	Weiyue	Li	Winifred-HK	Buddy	Feng
Gemsung	Jun	Song	Wuxisj	Jianliang	Yang
HC SEMITEK	Jiangbo	Wang	Wuxisj	Xixing	Dong
HT-STEK	Tao	Huang	XEDZ	Funing	Zhang
HIT	Aili	Song	XEDZ	Jie	Yang

HIT	Yang	Gan	XEDZ	Jiang	Lu
iStarwafer	Dong	Zheng	XEDZ	Vincent	Li
INJET	Cai	Chen	XEDZ	Chen	Zhu
INJET	Tao	Chen	XEDZ	Shufeng	Liang
INJET	Jinjie	Chen	ZZGrandeur	Honghui	Li
INCN	Feng	Liu			

Table 2 Leadership Changes

<i>Group</i>	<i>Previous Leader</i>	<i>New Leader</i>
GaN based LED Epitaxial Wafer Task Force	Donghai Wu (THTF)	Jiangbo Wang (HC SEMITEK)

Table 3 Ballot Results

Passed ballots and line items will be submitted to the ISC Audit & Review Subcommittee for procedural review.

Failed ballots and line items were returned to the originating task forces for re-work and re-balloting.

<i>Document #</i>	<i>Document Title</i>	<i>Committee Action</i>
5723	New Standard: Specification for Single Crystal Sapphire Intended for Use for Manufacturing HB- LED Wafers Discussion /	Failed and return to TF for re-work
5775	New Standard: Specification for Sapphire Single Crystal Ingot Intended for Use for Manufacturing HB-LED Wafers Discussion	Failed and return to TF for re-work

Table 4 Authorized Ballots

<i>#</i>	<i>When</i>	<i>SC/TF/WG</i>	<i>Details</i>
5723A	Cycle 5-2016	Single Crystal Sapphire Task Force	New Standard: Specification for Single Crystal Sapphire Intended for Use for Manufacturing HB- LED Wafers Discussion
5775A	Cycle 5-2016	Sapphire Single Crystal Ingot Task Force	New Standard: Specification for Sapphire Single Crystal Ingot Intended for Use for Manufacturing HB-LED Wafers Discussion
5945	Cycle 5-2016	Sapphire Single Crystal Orientation Task Force	New Standard: Test Method for Determining Orientation of A Sapphire Single Crystal

Table 5 Authorized Activities

<i>#</i>	<i>Type</i>	<i>SC/TF/WG</i>	<i>Details</i>
None			

Note: SNARFs and TFOFs are available for review on the SEMI Web site at:

<http://downloads.semi.org/web/wstdsbal.nsf/TFOFSNARF>

Table 6 New Action Items

<i>Item #</i>	<i>Assigned to</i>	<i>Details</i>
ChinaHBLED-0416-01	Hongbo Zuo from Aurora	Take over the SNARF # 5629, New Standard: <i>Guide for Identification of Features on the Surface of Sapphire Wafers</i> from NA, to complete the standard.
ChinaHBLED-0416-02	Jiangbo Wang from HC SEMITEK	Take over the SNARF # 5776, New Standard: Test Method for Detecting Surface Defects of GaN based LED Epitaxial Wafer Used for Manufacturing HB-LED, since the previous author was left from THTF.

Table 7 Previous Meeting Action Items

<i>Item #</i>	<i>Assigned to</i>	<i>Details</i>	<i>Status</i>
None			

1 Welcome, Reminders, and Introductions

Committee co-chair Yong Ji chaired the meeting and welcomed all attendees, all the attendees introduced themselves. Kris Shen called the meeting to order at 9:45 AM. The meeting reminders on antitrust issues, intellectual property issues and effective meeting guidelines were reviewed.

Agenda was reviewed.

2 Review of Previous Meeting Minutes

Minutes were reviewed. No change was made.

Motion: To accept the minutes of the previous meeting as submitted

By / 2nd: Yang Gan (HIT) / Yifeng Liu (GCL)

Discussion: None

Vote: 44-0. Motion passed

Attachment-1, China HB-LED TC Meeting Minutes 20150918.pdf

3 Staff Report

Kris Shen (SEMI) gave the staff report. Highlights

- Overview the SEMI Global 2016 Calendar of Events
- SEMI standards publication update
- Overview recent published standards from HB-LED TC
- Reminder to enhance task force management
- Showed the updated SEMI standards website

Attachment-2, SEMI Staff Report 20160421.pdf

4 Liaison Reports

4.1 North America PV Materials Committee

Kris Shen (SEMI) reported. Highlights:

- The co-chairs of North America HB-LED TC are Chris Moore (BayTech-Resor) , Iain Black (Philips Lumileds), Mike Feng (Silian)
- There are 8 task forces under the TC
- Doc 5916 published in March 2016, Doc 5818 submitted for A&R approval
- Request China chapter to take over the SNARF #5529, and China chapter discussed on this, Dr. Hongbo Zuo from Aurora will lead to continue this SNARF.
- Next meeting - Thursday, July 14, San Francisco Marriot Marquis Hotel in San Francisco, CA

Attachment-3, NA HB-LED Liaison Report April2016.pdf

4.2 Korea HB-LED Working Group

Kris Shen (SEMI HQ) reported. Highlights:

- The leader of the Korea HB-LED working group are HyeongSoo Park (SEMES) and Jong Hyeob Baek (KOPTI)
- 2 teams under the working group
 - Source Materials TF
 - HB1 Review team
- 5818 (HB1 Revision) in cycle 9. The result will be reviewed in 2016 Spring NA HB-LED TC Chapter meeting
- 5 SNARFs were approved by GCS on Jan 25

Attachment-4, KR HB-LED liaison Mar_V1.pdf

5 Ballot Review

5.1 Cycle 8-2015: Doc. 5723, New Standard: Specification for Single Crystal Sapphire Intended for Use for Manufacturing HB- LED Wafers Discussion

5.1.1 Document failed and return to TF for re-work.

5.2 Cycle 8-2015: Doc. 5775, New Standard: Specification for Sapphire Single Crystal Ingot Intended for Use for Manufacturing HB-LED Wafers Discussion

5.2.1 Document failed and return to TF for re-work.

6 Task Force Reports

6.1 *Single Crystal Sapphire Task Force*

- Introduced the task force's leaders and members
- Doc5723 have been balloted on cycle-8 2015, voting interest accepts 92.59%, rejected 3 ballots. Received many comments from individual expert, after discussion and communication, we recall the document and revised by task force. TF revised the document to 5723A which request to ballot on next cycle in this China HB-LED standard committee.
- Additional one Doc 5946 Test Method for Grain Boundary of Single Crystal Sapphire by Optical Homogeneity Technique (OHT), still working on the draft.

[Attachment-5, Single Crystal Sapphire TF Report-2016-4-21.pdf](#)

6.2 *Sapphire Single Crystal Ingot Task Force*

- Introduced the task force's leaders and members
- Working on: Doc. 5775, New Standard: Specification for Sapphire Single Crystal Ingot Intended for Use for Manufacturing HB-LED Wafers, modify the standard content according to the suggestions from global vote

[Attachment-6, Sapphire Single Crystal Ingot TF Report 20160421.pdf](#)

6.3 *GaN based LED Epitaxial Wafer Task Force*

- None, the task force leader absent the TC chapter meeting due to internal meeting conflict, the China chapter discussed the continue work for this task force, and Dr. Jiangbo Wang from HC SEMITEK will take over the SNARF # 5776 and lead to reorganize this task force.

6.4 *Sapphire Single Crystal Orientation Task Force*

- Working on : Doc 5945, and gave a progress overview for this doc.

[Attachment-7, Sapphire Single Crystal Orientation TF Report20160421.pdf](#)

7 Old Business

None

8 New Business

8.1 *Request for Ballots in cycle 5-2016*

- Doc. 5945, New Standard: Test Method for Determining Orientation of A Sapphire Single Crystal

Motion: To approve the Doc 5945 for ballot in cycle 5-2016

By/2nd: Jiaqi Hong(DDXDF)/ Mingde Wei (GAPSS)

Discussion:

Q: Is the standard applicable to one certain apparatus or all apparatuses?

A: This standard is applicable to one certain and some other similar types of apparatuses.

Q: Is the standard applicable to all shapes of sapphire single crystals, such as sapphire ingot and Sapphire wafer?

A: Yes, it is applicable to all shapes of sapphire single crystals, since the theories and methods are same.

Q: Is Section 5 Terminology essential here?

A: We think it is better to have these Abbreviations, Acronyms and Definitions.

Q: There is no need to define the purity of X-ray tube anode material Cu in 7.1.1.

A: Yes, we agree.

Q: What about the security problem?

A: The security problem is not required to discuss in such a SEMI standard, which is illustrated during application of this standard. Anyhow, the radiation dose of the apparatus must comply with the ISO standard.

Vote: 28-2, Motion Passed

- Doc. 5723A, New Standard: Specification for Single Crystal Sapphire Intended for Use for Manufacturing HB-LED Wafers Discussion

Motion: To approve the Doc 5723A for ballot in cycle 5-2016

By/2nd: Liuyun Qi (GHTOT)/ Yang Gan (HIT)

Discussion: None.

Vote: 30-0, Motion Passed

- Doc. 5775A, New Standard: Specification for Sapphire Single Crystal Ingot Intended for Use for Manufacturing HB-LED Wafers Discussion

Motion: To approve the Doc 5775A for ballot in cycle 5-2016

By/2nd: Zijian An (Aurora)/ Yang Gan (HIT)

Discussion:

Yang Gan (HIT): Space should be added between digital and unit.

Yang Gan (HIT): Micron unit should be represented by 'µm' instead of 'um'.

Hongbo Zuo (Aurora): Surface roughness should be represented by 1.0 instead of 1.

Other: The diagram including position information of all the under test data should be added in front of the section of 'Requirements'.

Vote: 30-0, Motion Passed

9 Action Item Review

9.1 Open Action Items

See Table 7.

9.2 New Action Items

See Table 6.

10 Next Meeting and Adjournment

The next meeting of the China HB-LED Standards committee will be on Oct. 14, 2016, Friday, Dandong, Liaoning, China.

Respectfully submitted by:

Kris Shen
SEMI China

Minutes approved by:

Yong Ji (GHTOT) , Co-chair	2016/04/28
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Weizhi Cai (SANAN), Co-chair	2016/04/28
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Table 8 Index of Available Attachments #1

#	<i>Title</i>	#	<i>Title</i>
1	China HB-LED TC Meeting Minutes 20150918.pdf	5	Single Crystal Sapphire TF Report-2016-4-21.pdf
2	SEMI Staff Report 20160421.pdf	6	Sapphire Single Crystal Ingot TF Report 20160421.pdf
3	NA HB-LED Liaison Report April2016.pdf	7	Sapphire Single Crystal Orientation TF Report20160421.pdf
4	KR_HB-LED_liaison_Mar_V1.pdf		

#1 Due to file size and delivery issues, attachments must be downloaded separately. A .zip file containing all attachments for these minutes is available at www.semi.org. For additional information or to obtain individual attachments, please contact [SEMI Staff Name] at the contact information above.