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# 1791 Tullie Circle, N.E./Atlanta, GA 30329

**404-636-8400**

**Approved**

# TC/TG/MTG/TRG MINUTES COVER SHEET

**(Minutes of all Meetings are to be distributed to all persons listed below within 60 days following the meeting.)**

TC/TG/MTG/TRG No. TC 1.11 DATE 16. June 2020

TC/TG/MTG/TRG TITLE Electric Motors & Motor Controls

DATE OF MEETING 4. February 2020 LOCATION Orlando, FL

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| MEMBERS PRESENT  (VM’s in **bold)** | YEAR APPTD | MEMBERS ABSENT  (VM’s in **bold)** | YEAR APPTD | | EX-OFFICIO MEMBERS AND ADDITIONAL ATTENDANCE |
| Robert Coleman | 2008 | Florian Antretter | 2012 | | Mr. Bevan Christiansen bevan.christiansen@us.abb.com |
| **Terry Davies** | 2009 | Kim Baker | 2015 | | Mr. Jeremy Dommu jeremy.dommu@ee.doe.gov |
| **Ken Fonstad** | 2012 | Dr Casey Briscoe | 2015 | | Mr. Chris Hans Chris.hans@intertek.com |
| Chandra K Gollapudi | 2017 | Dr Kelly Chandler | 2014 | | Ms. Sannece Iyama [ssiyama@lbl.gov](mailto:ssiyama@lbl.gov) |
| **Paul Lin** | 2012 | Dr Charles H Culp III | 2011 | |  |
| **Armin Hauer** | 2008 | Mark Doty | 2010 | |  |
| **Rick Heiden** | 2006 | Jerry Edwards | 2014 | |  |
| Robert Helt | 2000 | Nathan Fetting | 2018 | |  |
| Thomas Lowery | 1998 | David Lee | 2012 | |  |
| Timothy Mathson | 2016 | Tim Kline | 2017 | |  |
| Billy Rhinehart | 2003 | Rainer Grosse-Kracht (MNQ) | 2008 | |  |
| Nicolas Rosner | 2019 | Jing Li | 2018 | |  |
| **Kezhen Shen** | 2016 | Alex Lifson | 2006 | |  |
| Daryl Showalter | 2012 | Sally Anne McInerny | 1998 | |  |
| **Michael Todd** | 2008 | Nitin Naik | 2017 | |  |
| Gang Wang | 2019 | Eric Norstrom | 2018 | |  |
| David Williams | 2016 | Hermann Renz | 2000 | |  |
|  |  | Brian Reynolds | 2013 | |  |
|  |  | Robert Richard | 2006 | |  |
|  |  | Richard Robertson | 2014 | |  |
|  |  | Pavithra Santhanam | 2018 | |  |
|  |  | Vladimir Suslov | 2019 | |  |
|  |  | Colin Tait | 2010 | |  |
|  |  | William Tinsley | 1999 | |  |
|  |  | Sage Tomlinson | 2018 | |  |
|  |  | Thomas Watson | 2000 | |  |
|  |  | Grant Wheeler | 2018 | |  |
|  |  | Adam Willwerth | 2013 | |  |
|  |  | Michael Wolf | 2014 | |  |
|  |  | Craig Wray | 2007 | |  |
|  |  | Stephen Wren | 2017 | |  |
|  |  |  |  | |  |
|  |  |  |  | |  |
| **DISTRIBUTION: *All Members of TC/TG/MTG/TRG plus the following:*** | | | | | | |
| TAC Section Head: | | | | | [SH1@ashrae.net](mailto:SH1@ashrae.net) | |
| All Committee Liaisons As Shown On TC/TG/MTG/TRG Rosters (Research, Standards, ALI, etc.) | | | | | [TACchair@ashrae.net](mailto:TACchair@ashrae.net)  [CTTC1@ashrae.net](mailto:CTTC1@ashrae.net)  [RL1@ashrae.net](mailto:RL1@ashrae.net)  [HBS3@ashrae.net](mailto:HBS3@ashrae.net)  [SL1@ashrae.net](mailto:SL1@ashrae.net) | |
| Mike Vaughn,  Manager Of Research & Technical Services | | | | | MORTS@ashrae.net | |

**ASHRAE TC 1.11 Electric Motors and Motor Controls**

**Minutes for the Meeting at**

**Orlando, FL**

**Tuesday, February 4th, 2019**

1. **CALL TO ORDER**

**Introduction of Members and Guests.**

Technical Committee 1.11 was called to order at 1:10 PM by Chair Paul Lin. Paul first reviewed the ASHRAE ethics commitment. Technical Committee member and guest introductions were made and an attendance sheet was circulated. Paul asked for additions to the agenda and there were none. The membership list was reviewed and a quorum was established with 7 voting members present.

1. **APPROVAL OF MINUTES AND REVIEW OF ACTION ITEMS**

Paul asked if everyone reviewed the minutes from Kansas City and if there were any additions/corrections;

**VOTE**

Motion was made and seconded to approve minutes from Kansas City. There was no additional discussion and the motion passed 7-0-0-0-CV (Yes-No-Abstain-Absent)

1. **TC MEMBERSHIP and COMMITTEE APPOINTMENTS**

The membership roster shows 54 total members with 7 voting members.

Paul reminded everyone of their assigned committee positions for the 2019-2020 term as follows:

|  |  |  |
| --- | --- | --- |
|  | **Until June 2020** | **After July 1st 2020** |
| **Chair** | Paul Lin | Armin Hauer |
| **Vice chair** | Armin Hauer | Bob Coleman |
| **Secretary** | Rick Heiden | Rick Heiden |
| **Research** | Kezhen Shen | Kezhen Shen |
| **Programs** | Nick Rosen | Nick Rosen |
| **Handbook** | Tom Lowery | Tom Lowery |
| **Standards** | Armin Hauer | Armin Hauer |
| **Webmaster** | Paul Lin | Paul Lin |
| **Membership** | Michael Todd | Michael Todd |

1. **CHAIR REPORT: Paul Lin**

Report

Paul downloaded the latest roster to send out the agenda and minutes.

Discussion Topics

Chandra Gollapudi is resigning from TC leadership due to job change.

1. **SUBCOMMITTEE REPORTS**
2. **Standards: Armin Hauer**

Report

Do we need liaisons to certain PCs? TC 1.11 does not maintain official liaisons to ASHRAE PCs. However, …

* AHRI (and therefore its VFD section) is represented on 189.1, 90.2, and 90.1
* Armin Hauer is voting member in MSC 90.1
* We have CMs of this TC on other TCs.
* ASHRAE 205 <http://spc205.ashraepcs.org/>

Standard Representation of Performance Simulation Data for HVAC&R and Other Facility Equipment  
1. Purpose:

To facilitate sharing of equipment characteristics for performance simulation by defining standard representations such as data models, data formats, and automation interfaces.

2. Scope:

This standard applies to data used in the performance simulation of any HVAC&R or other facility system, equipment, or component.

90.1-2016   
Addendum CE removed sizing limits of fan motors that are applied to variable speed fan systems.

This TC is cognizant of standard 222. – Should we extend the scope to DC input power?

|  |
| --- |
| **Purpose:** To determine the performance of power drive systems for rating the energy efficiency and electrical compatibility with the power grid and with motor insulation.  **Scope:** 1. This standard is intended for HVACR applications that operate from low voltage (≤600 V ac). 2. This standard applies to adjustable speed electric AC power drive systems, which combine semiconductor power converters including means for their control, protection, monitoring, and measurement with connected electric motors. All electric rotary motor types are included. 3. This standard includes: a) Power converters that are completely integrated in motor casings. b) Remote power converters that are tested with motors defined in this standard. |

Discussion Topics

Armin uploaded the European motor regulation EU 640 to basecamp: <https://public.3.basecamp.com/p/D5MZgk4cQxaBjEZwsmVreQjB>

Status of small motor regulation in Mexico is to be determined.

Agreed to form a working group for potentially extending the scope of standard 222 to power drive systems that are operating from DC voltage. Bob Colman, Tom Lowery, Terry Davies, Ken Fonstad and Armin Hauer volunteered. Discussion and is being captured in basecamp:

<https://public.3.basecamp.com/p/zmncgBdkh8diKju1sNLUm1PL>

1. **Research: Kezhen Shen**

Report

WS 1793 Development of Method of Test for Motor Component Thermal Conductivity [TC8.2 lead, 8.1 & 1.11 co-sponsor]-

* TC 8.2 Mark Adams, research s/c chair met with RL and discussed tactics to progress WS. No action required by TC 1.11 at this time.

RTAR TBD - Estimating Variable Frequency Drive (VFD) and motor efficiency at any load and speed to determine overall system efficiencies of any VFD-motor and fan, pump or compressor combination.

* Rough draft on basecamp:

<https://3.basecamp.com/3106353/buckets/12617380/uploads/1884111874>

Discussion Topics

Interpolation of wire-to-shaft efficiency from few tested duty points. Contact with NEMA / IEC not yet established; TC 1.11 is interested in values up to 120 Hz.

1. **Programs: Chandra Gollapudi**

Report

CEC had rejected our submission for Orlando. It is saved at <https://public.3.basecamp.com/p/rvFMFC5vaZVfBBu3arZ6ZxHb>

Discussion Topics

The TC decided to NOT resubmit for Austin.

Nick Rosner (Eaton) takes over programs S/C chairmanship immediately.

Discussion with Bevan Christiansen (ABB) about potential motor presentation is ongoing.

1. **Handbook *Chapter 45*: Tom Lowery**

Report

Handbook liaison G. D. Mathur introduced himself.

Tom worked with staff on minor clarifications.

Planning to add a brief section about Fan Energy Index (FEI) to the chapter during the next revision.

Discussion Topics

None

1. **Membership: Michael Todd**

Report

54 total members

31 corresponding members

14 provisional members

7 voting members

Discussion Topics

Several committee appointment changes were made as noted in section 3.

1. **WEB SITE** [*http://tc111.ashraetcs.org*](http://tc111.ashraetcs.org)**: Paul Lin**

Report

Up to date.

Add approved Kansas City meeting minutes

Discussion

The committee will continue to increase use of BASECAMP for communication.

1. **LIASION REPORTS**
2. **Section Head: Jessica Leach**

Jessica was unable to attend.

1. **NEMA/UL Motor Committee Liaison – Chandra Gollapudi**

* Seeking a new liaison

1. **NEMA/UL Drive Committee Liaison – Terry Davies**

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**Report to ASHRAE Technical Committee 1.11**

**NEMA/UL joint meeting September 30, 2019 - October 3, 2019, At NEMA HQ**

SCt Adjustable Speed Drives

SC22G USNC Tag

Standards Coordinating Committee

Industrial Automation Control Products and Systems Section

UL 508C / UL 61800-5-1 STP

Possibility of using the Internet as the sole means for providing instructions for drives.

Extended the scope of UL 61900-5-1 to include medium voltage drives and replace UL347

* Common Bus DC drives-Short Circuit and Overload Protection.
* UL established ModularDrive requirements in annex G of 61900-5-1
* Many options to achieve short-circuit and overload protection of DC conductors
* Protection devices need to be designed and tested by device manufacturer to meet requirements.
* Identify minimum protection characteristics: max DC voltage, DC fault current and time constant to establish a standard device category based on application as was done with fuses in UL 248-19

Numerous Joint Working Group on Motor Drive Applications, pumps, motors, etc.

Updating IEC 61800-2 to integrate part 4 (IEC 61800-4 High Voltage Drives) so there is a single document for AC Drives.

Harmonization continues – now Harmonization of CSA C22.2 to IEC 61800

Next meeting is March 16 to March 19, 2020 in New Orleans

1. **OLD BUSINESS**

None.

1. **NEW BUSINESS**
2. **ANNOUNCEMENT OF NEXT MEETING**
3. **ADJOURNMENT**

**VOTE**:

A motion was made and seconded to adjourn, PASSED 7-0-0-7-CNV. The meeting was adjourned at 3:15PM.

Respectfully Submitted,

Rick Heiden

Secretary, TC 1.11