RODE C37.68 Controls Working Group
Meeting Minutes
October 8, 2019 – San Diego, CA

Chair: Paul Found **Secretary**: Karla Trost

Meeting Minutes

1. Call to Order Paul Found
The meeting was called to order at 2:02PM.

2. 6.3.2 Call for Patents Paul Found

3. Introduction of Members and Guests
Self-introductions with affiliations

4. Attendance and Quorum Check Karla Trost
Of 16 members, 13 were present; Quorum was achieved.
18 guests attended with 3 requesting membership. Membership was granted.

5. Approval of Agenda Paul Found
F. Soulard made a motion to approve
P. Meyer seconded

6. Approval of Previous Minutes Paul Found
http://www.ewh.ieee.org/soc/pes/switchgear/minutes/2019-1/S19RODEa4REV0.pdf
M. Feltis made a motion to approve
P. Meyer seconded

7. Review Action Items Paul Found

- It was announced that the review (from Spring 2019 meeting) of C57.148 and IEC 60068-2-38 is now available in imeetcentraldesktop.
- A comparison was done between IEC60068-2-30 and -38 regarding heat generation. The comparison was presented.
  - IEC 60068-2-30 has a scope focussed on surface condensation, humidity >=95%. Moisture penetrates due to breathing - condensation on internal surfaces. IEC 60068-2-38 is referred to be used for small, low mass specimens.
  - IEC 60068-2-38 has a scope where 5 of 9 cycles are sub-zero temperatures. There is a greater cyclic range, greater number of variations, higher cyclic rate of change of temperature, 'breathing effect' more apparent in large air-filled voids.
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  - Additional review suggested that 60068-2-2 should remain (for the purpose of testing static high temperature.)
  - The WG needs to decide between using 60068-2-30 or 60068-2-38 (section 7.5 of Draft 1.7).
    - Some manufacturers noted that they have been using -30 (not -38).

        - Two utilities have experience with -38. One shared an example of a recloser control tested to -38.
        - It was noted that neither standard defines the "Pass/Fail" criteria. The WG will need to define this criteria.
        - WG Manufacturers need to review if this test is feasible. **Action Item:** Manufacturers to review the standard and report back in the spring regarding the feasibility.
- **Action Item** for 6.1.4 (Battery Charger Design Requirements) – All send to Karla Trost. **Karla did not receive any input. She will reach out to manufacturers for specific input.**
- Ensure we include a definition for Current Powered – Complete
- For IEC 60255-26 ensure published and correct year / clauses. – All were changed to "2013" as the currently released version with a comment to confirm prior to balloting. (Complete)
- Discussion on 7.3.2.1 – Recommendation to use the manufacturer's documented time. Manufacturer must document which options are included on this test. **Action Item:** Chris Ambrose and Karla Trost to put together a list of standard and options and send out for fill-in by the group (what are the bare requirements.)
- Action Item for 7.3.3. – "If the relevant equipment standard does not cover, then, the following are applicable". – Complete
    - Follow-up action item to clarify section 7.3.3. usage.
- Action Item for 7.3.4 – Will need to define Healthy or "New" Action Item: Karla Trost to add spot for definitions for this section. - Complete
    - Discussion on changing "alarm for low battery condition" for "alarm for abnormal battery condition". - Complete
    - Add definition for Battery Charger/ Battery Management system - Complete
- Action Item change 7.6.1 to 7.6.2 and 7.6.3 - Complete
- Action Item for 7.6 – Request to add an informative annex and table showing the IP ratings? Can we do this without copyright? Can we create a table only showing the ratings we are using? – The WG can not create their own table. We can request copyright if we wish to show the table in our annex.
    - Discussion on if the WG would like to pursue copyright permission.
    - Action is closed, we will not pursue copyright on this topic.
- Action Item: Add statement that normal service conditions from apparatus standards apply. (Abnormal service conditions are out of scope.) - Complete
- Action Item for 7.6.3.1 Change to be IP63 or higher since IP33 already minimum stated. - Complete
- The Design Requirements and Production Test Requirements need to be worked on.
    - Design Requirements Group: Francois Soulard (lead)
        - The group reviewed the Design Test Requirements (Section 7) to understand the Design Requirements (Section 6.)
        - Discussion about testing for transportation and what is appropriate (within packaging, without packaging) and form of transportation and what this standard should include. Further discussion on the possible need to require in the standard for the manufacturer to note "which removeable items" are not to be installed until the control reaches it's final installation site. (eg: batteries.)

        - The group will continue working on this for the Spring meeting. Francois Soulard (lead), Travis Johnson, Pete Meyer, Robert Hanna, Benson Lo, Jeff Mizener, Kate Cummings, Paul Found.
    - Production Test Requirements Group: Paul Found (lead)
        - Burn-in testing –
            - Do any manufacturers do this today?
                - One manufacturer noted they do this (elevated temperature) on production units. 3-4 Noted they do not (only during development.)
            - Do manufacturers retain and report Time to Failure data? It was noted that users would need to provide failure and usage data and manufacturers data is limited by feedback received from users.
            - Costs would need to be considered (vs benefits). WG consensus to the benefits of this type of test? No consensus reached.
        - Communications –
            - Discussion on who is responsible for testing the physical ports/protocols within the control; who is responsible for confirming any wiring modifications, communication additions (radios/modems/etc)?
                - The WG does not want to create tests to validate protocols/port design. It is preferred to perform some manner of confirmation that ports work and that wiring is correct.
                - One option might be to allow for sub-suppliers to test ports/items which are not integrated in a further manner.
                - Is a certification for the purchased component enough?
                - Recommended to use verbiage similar to: The manufacturer is expected to test the communications' port "intended functionality".
        - Insulation Resistance –
            - Discussion to use IEEE1613 Clause 6.6 (vs C37.90).
        - Timing Tests –
            - C37.60 require timing tests. Do other applications/controls need this? (C37.62 does include timing.) Discussion that as long as we are testing the CT inputs and tripping outputs, the equipment apparatus standards could cover the timing portion.
            - Discussion that rather than calling performing logic based timing tests, we should call out to functionally verify "anywhere a connection is made" during production testing.
        - Sensor calibration – proposed topic
            - Discussion on if this could be done at the manufacturer or if it would have to be done at the usage site. Some items are just "settings". Most likely this would not be applicable to just the control. WG concensus was that this was site applicable only.

8. New Items

- Need to complete the following by the end of the next meeting:
  - Service Conditions (Section 4) - One suggestion would be to reference the apparatus service conditions. **Action Item: Karla Trost to review/compare service conditions in the apparatus standards and 100.1 to determine if they cover all possible locations.**
  - Table 1 – Design Requirements – **Action Item: Karla Trost to complete once Section 6 is drafted.**
  - Application of Temperature Testing **See separate Action Item.**
  - Design Requirements (Section 6) **See separate Action Item.**
    - It was noted that the original Control Task Force had design suggestions for connectors/cables and entrances.
    - We need to focus on Section 6: Francois Soulard (lead), Travis Johnson, Pete Meyer, Robert Hanna, Benson Lo, Jeff Mizener, Kate Cummings, Paul Found. Added Mark Feltis, Karla Trost, Srikant Venkutch
  - Production Tests (Section 8): Paul Found (lead), Anil Dhawan, Ian Rokser, Chris Hastreiter, Don Martin, Nenad Uzelac, Mark Feltis
- Section 7.6 Enclosure Scope and Content: The PAR excludes enclosure mounting, latching, or user accessibility. What is called out in 7.6.1 as written could conflict. Decided to take the informative/example section and make it an informative Annex. **Action Item: Karla Trost**

9. Next Steps

- Project Milestones
  - Draft verbiage: Fall 2019
  - Complete draft: Spring 2020
  - Working Group Comments Summer 2020
  - Resolutions/ Draft: Fall 2020
  - 1st Ballot: December 2020
  - Comment Resolution: Spring 2021
  - 2nd Ballot (if needed): Summer 2021
  - Final Resolutions: Fall 2021

10. Next meeting: is scheduled to take place in Reno, NV with the Spring Switchgear Committee meeting.

11. Adjournment.

The meeting was adjourned at 5:45 PM.

Post-Meeting Request: It has been requested to develop the definition of a "Control". **Action Item:** Paul Found, Karla Trost, Mark Feltis, Don Martin

Annex 1: Attendance

Role	First Name	Last Name	Company	10/8/2019
Chair	Paul	Found	BC Hydro	X
Member	Peter	Agliata	Hubbell Power Systems	X
Member	Edwin	Almeida	Southern California Edison	X
Member	Chris	Ambrose	Federal Pacific (Div. of Electro-Mechanical Corp.)	X
Member	Katherine	Cummings	G&W Electric	Excused
Member	Anil	Dhawan	ComEd	X
Member	Mark	Feltis	Schweitzer Engineering Laboratories, Inc	X
Member	Travis	Johnson	Xcel Energy	X
Member	Brendan	Kirkpatrick	Southern California Edison	X
Member	Benson	Lo	Toronto Hydro	Excused
Member	Donald	Martin	G&W Electric Co.	X
Member	Peter	Meyer	S&C Electric Company	X
Member	Jacob	Midkiff	Dominion Energy	X
Member	Stephen	Pell	Siemens	X
Member	Caryn	Riley	Georgia Tech/NEETRAC	X
Member	Ian	Rokser	Eaton Corp	X
Member	Francois	Soulard	Hydro-Quebec	X
Member	Nenad	Uzelac	G&W Electric	
Secretary	Karla	Trost	G&W Electric	X
Guest	Thomas	Ballard	Hubbell Power Systems	X
Guest	David	Beseda	S&C Electric Co.	X
Guest	Antone	Bonner	PAS Consulting	
Guest	Dan	Busilan	Dominion Energy	X
Guest	Mohit	Chhabra	S&C Electric Company	X
Guest	Randall	Creach	AZZ Switchgear Systems	
Guest	Frank	DeCesaro	Eaton's Power Systems Division	
Guest	Edgar	Dullni	retired	
Guest	Ken	Edwards	FirstEnergy Corp.	X
Guest	Nadia	El khattabi	Hydro-Quebec	X
Guest	Michael	Flack	Southern Company Services, Inc.	
Guest	Jeffrey	Gieger	Thomas & Betts	
Guest	Jodi	Haasz	IEEE	
Guest	Robert	Hanna	ABB INC	X
Guest	Christopher	Hastreiter	Eaton	
Guest	Christian	Heinrich	Siemens AG	
Guest	Harold	Hirz	G&W	X
Guest	John	Kaminski	Siemens	
Guest	Ryan	Kowdley	Pacific Gas & Electric	
Guest	Robert	Lau	nVent Hoffman	X
Guest	Bradley	Lewis	AEP	
Guest	Benjamin	Marx	Sargent and Lundy	

Guest	Jeff	Mizener	Siemens Industry, Inc.	X
Guest	Ashley	Moran	IEEE Standards Association (IEEE-SA)	
Guest	Roberto	Olivares	Siemens	
Guest	Al	Pruitt	The Durham Company	X
Guest	Larry	Putman	Powell	
Guest	Mark	Roberson	AZZ/Calvert	X
Guest	Kevin	Rogers	University of Wisconsin	X
Guest	Erin	Spiewak	IEEE	
Guest	Srikant	Venkatesh	Schweitzer Engineering Laboratories	X
Guest	John	Webb	ABB	
Guest	Michael	Whitney	CSA America	
Guest	Robert	Wolf	Hubbell Power Systems, Inc.	X