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6 August 2024

## Minutes

Committee: TC-2; Electromagnetic Compatibility (EMC) Measurements  
Place: Room 123B, Phoenix Convention Center,  
100 N 3<sup>rd</sup> St, Phoenix, AZ, United States.  
Date: 6 August 2024 (Tuesday)  
Time: 7:00 to 9:00 AM MST  
Webex login info: <https://ieee.webex.com/ieee> Meeting number = 2632 243 1463

### 1.0 Call to Order/Introductions

The meeting had 18 attendees.

Quorum Check: TC-2 Meeting Quorum shall be 20% of the membership. Ballots for new officers shall have minimum voting participation of 50% and may include email ballots in the participation count. Candidates (those who have attended only a single meeting on or after 2021 prior to the start of this meeting) who are attending this meeting may be considered now considered members.

13 of 19 members, (68% of membership) attended. No remote attendees.

### 1.1 Charter Reviewed

The committee reviews the adequacy of measurement procedures and measurement instrumentation specifications for radiated and conducted emission and immunity tests. Also discussed is the rationale for product emission limits and immunity test levels including performance requirements. The committee also supports EMC standards and procedures that deal with measurements and their uncertainty and how they are interpreted and applied.

2.0 Minutes from IEEE EMC TC-2 meeting (1 Aug 2023) at the IEEE EMC+SIPI 2023 Grand Rapids Symposium were unanimously approved.

3.0 TC-2 Election Status was communicated by the Chair as follows:

TC-2 officer election was held in person during the August 1<sup>st</sup> 2023 TC-2 meeting and the members elected the following officers: Monrad Monsen (Chair), Ahalya Srikanth (Vice Chair) and John Kraemer (Secretary). Our next election will be held in summer of 2026 with the next officer transition occurring on 1 January 2027.

4.0 Privacy statement was communicated by the Chair as follows:

Personal data will be handled in accordance with the IEEE Privacy Policy which can be found at: <https://www.ieee.org/security-privacy.html> . The TC-2 minutes will have list attendee names unless you contact the TC-2 secretary to ask for your name to not be mentioned. The information you provide in the sign-in roster (including email and company) will be used by the chapter officers for TC-2 related notifications/communications.

*Note: For any attendees that are participating remotely, please ensure that your full name appears on the Webex call. Also, please send the secretary an email ([John.Kraemer@ieee.org](mailto:John.Kraemer@ieee.org)) with your name, company and email address prior to the adjournment of today's meeting. (This will ensure that you are included in the attendance and will be on the distribution list for future TC-2 email news and meeting announcements).*

5.0 Committee Membership Status was communicated by the Chair as follows:

5.1 Removal of non-active participants from membership roster.

Membership indicates that you have attended the TC-2 committee meeting at least two (2) or more times in the last four (4) years; candidates are shown as attending a single meeting on or after 2021 and no other. By committee rules, these candidates are not members of TC-2 unless they attend a second TC-2 meeting within a four-year period.

All attendees will initial the sign-in roster or add their name if it is not on the roster. After the August 2024 TC-2 meeting, those that have not attended a TC-2 meeting since 2021 will no longer be a TC-2 member but will remain on the list for one additional year (2025) to receive meeting announcements. Those that have not attended a TC-2 meeting since 2018 will be removed from the list. Any of those that are dropped from the membership list can rejoin TC-2 by attending the requisite number of meetings in the time frame noted above.

6.0 Current Symposium TC-2 Activity (IEEE EMC+SIPI 2024), August 2024

6.1 Symposium paper review status (top paper, top TC-2 paper, Round 2 reviewing, etc).

6.1.1 FULL PAPERS

- 1<sup>st</sup> round number submitted: 13
- Accepted: 11
- Rejected: 2

6.1.2 ABSTRACT REVIEW PAPERS

- 1<sup>st</sup> round number submitted: 12
- Accepted: 8
- Rejected: 4

6.2 Symposium Sessions sponsored by TC-2 as shown in the final program. TC-2 is to be congratulated for sponsoring or participating in the **eight** sessions/tutorials and workshops listed below.

- 01:30 PM-5:00 PM, Monday (8/05/2024): “Basic EMC Measurements”, Tutorial, 5 presentations, Monrad Monsen (Chair), Location: Room 127A
- 10:30 AM-12:00 PM, Tuesday (8/06/2024): “EMC Measurements for PCBS and Memory Components”, Technical, 3 presentations, Ghery Pettit (Chair), Ahalya Srikanth (Co-Chair), Location: 127B.

- 01:30 PM-3:00 PM, Tuesday (8/06/2024), “EMC Measurements for Wireless Communications, Pulsed Interference and Transistors”, Technical, 3 presentations, Tom Braxton (Chair), Location: 127B.
- 03:30 PM-5:00 PM, Tuesday (8/06/2024), “EMC Measurements – Probes”, Technical, 3 presentations, Ghery Pettit (Chair), Monrad Monsen (Co-Chair), Location: 127B.
- 08:30 AM-12:00 PM, Tuesday (8/7/2024), “EMC Testing Basics”, Technical, 5 presentations, Jack McFadden (Chair), Bob Mitchell (Co-Chair), Location: 125AB.
- 08:30 AM-10:00 AM, Thursday (8/8/2024): “EMC Measurements – VHF-LISN Termination, Current Coupling and Capacitive Coupling”, Technical, 3 presentations, Monrad Monsen (Chair), Ahalya Srikanth (Co-Chair), Location: 125AB.
- 10:30 AM-12:00 PM, Thursday (8/8/2024): “EMC Measurements: Pulsed RFI in Motors, Multi-Tone Susceptibility Impact, and Bench to On-Vehicle Emissions Comparisons”, Technical, 3 presentations, Ahalya Srikanth (Chair), John Kraemer (Co-Chair), Location: 125AB.
- 01:30 PM-5:00 PM, Friday (8/9/2024): “Effectively Navigating Measurement Uncertainties in the Real World”, Workshop, 6 presentations, Janet O’Neil (Co-Chair), Dennis Lewis (Co-Chair). Location: 127A.

## 7.0 Standards Sponsorship Support Review

Below is an excerpt of information from the full matrix from the EMC Society site communicated by the Chair...

Here is the part that standards play in Technical Committee activity. It is from the EMC Society Bylaws and in particular clause 10.3 which states:

### 10.3 Functions:

Each Technical Committee shall promote activities in its field of interest and shall provide expert knowledge and assistance to:

- a. Receive, generate, and review technical papers within its scope in cooperation with the Transactions Editor and/or the Technical Papers Committee.
- b. Organize and host sessions at meetings of the IEEE at all levels and at meetings of other organizations with which the Society is desirous of cooperating, in accordance with the rules in effect at such meetings.
- c. Arrange for publishing pertinent papers in IEEE publications.
- d. Generate and develop appropriate standards in its field for processing by the IEEE Standards Committee, through the Society’s Standards Committee and in accordance with IEEE policies.
- e. Evaluate "state of the art" in the area of committee interest.

Clause 10.3 d above is directly applicable to TC-2 (EMC Measurements).

A status of the EMCS standards as of July 9, 2024 is attached at the end of this agenda.

Note that by far the number of standards devoted to measurements is the vast majority.

Fred Heather asked for help on revision of IEEE STD 1688, and noted that IEEE STD 2838 needs reaffirmation.

Ross Carlton noted that IEEE standards committee meetings are open to all and the most committees have virtual meetings in addition to the meetings held during the symposium.

Attached is document provided by Karen Burnham showing the status of the IEEE EMC standards.

## 8.0 iNARTE Exam Question Review Activity

The Chair communicated that IEEE terminated their relationship with iNARTE / Exemplar Global for EMC engineer and technician certification. The IEEE EMC Society has formed a standing committee chaired by Tom Braxton for updating EMC professional certification processes (formerly known as iNARTE) with a target of having exams available at the 2025 EMC Symposium. The committee is evaluating three potential administrative partners to confirm to administrate this professional certification process. The committee is continuing to collect new EMC multiple-choice questions, with 40 questions expected from each TC.

Tom Fagan is the TC-2 representative for collecting questions. He spoke to the group about the types of questions being sought and took the action to put together a detailed communication for the TC-2 leadership to send to the membership regarding exam question submission.

## 9.0 Future Symposium Activity

- 9.1 Future topics and call for special sessions for the IEEE EMC+SIPI 2025 symposium in Raleigh, NC, USA on August 18 – 22, 2025, were discussed.

It was decided to continue with a TC-2 sponsored EMC Measurement Tutorial similar to what was presented this year.

It was also decided to consider offering a Military EMC Measurement Tutorial; John Kraemer took the action to coordinate a proposal for this. Carl Hagen and Sarah Seguin offered to help with this as well.

Special Session Proposal Schedule for 2025 Symposium

- Deadline: Dec 11, 2024

Special Session Papers

- Deadline: Jan 13, 2025

Workshop and Tutorial Proposals

- Deadline: Feb 3, 2025

## 9.2 Technical Program Responsibilities and session Chair reminders

The Chair communicated that we will not know how many sessions for 2025 that we will have until the paper reviews are completed.

## 9.3 2025 Paper Review Deadlines (as of Aug 6, 2024):

Proposed papers (full papers) due by Jan 13, 2025.

Acceptance or accept conditioned on changes will be issued by Feb 24, 2025.

Abstract review paper due March 10, 2025.

Revised full paper due March 24, 2025.  
Final decision notification is April 25, 2025.  
Final paper (adding author names, etc.) is due May 19.

#### 9.4 Paper reviewers

The Chair TC-2 members are welcome to be paper reviewers. If interested in reviewing papers, members should send Monrad their resume along with your subject matter strengths/expertise so we can identify the best papers for you to review. The TC-2 leadership team will send out the ScholarOne Abstracts link to the TC-2 distribution list to register for paper reviews.

Abstract reviewed papers were discussed and many present indicated it was difficult to review them, especially the ones that were academia focused. It was generally agreed by those present that this should be communicated to TAC with the recommendation that abstract reviewed papers be limited to those with a practical industry focus, and that the “abstract reviewed” nature of the paper be indicated in the program, as well as putting them in a session separate from the regular papers.

#### 9.5 New membership

The Chair announced that we are always looking for more members that engage in the activities noted above.

#### 9.6 New areas of interest

In discussion, suggestions included adding topics like measurement uncertainty and its impacts and how to reduce it, as well as methods to make better measurements.

#### 10.0 Any other business?

10.1 It was communicated the previous updates from TAC note that 2024 will be the last year that the EMC Symposium will use ScholarOne for the paper submission and reviews. However, more recent updates indicate that we will most likely continue the use of ScholarOne for at least another year.

#### 11.0 Action Items

1. John Kraemer to coordinate a 2025 Symposium tutorial session on Military EMI measurements.
2. Tom Fagan to put together a communication relating to the generation of EMC Engineer and Technician Certification questions which can be sent out to the TC-2 membership.

#### 12.0 Set meeting and agenda for next meeting(s)

12.1 Raleigh, North Carolina, USA, August 19<sup>th</sup>, 2025.

#### 13.0 Adjournment

*John G. Kraemer*  
*Secretary, IEEE EMC TC-2 (EMC Measurements)*



ATTACHMENT – IEEE EMC Standards Status Summary as of July 9, 2024



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240709.pdf