



**IEEE Electromagnetic Compatibility Society
Technical Committee 4: EM Interference Control
Annual Meeting**

Minutes of the Meeting (MoM)

Date: Wednesday, Aug. 2, 2023

Time: 12:00-2:00 PM (Pacific Time 12:00-2:00 PM (Eastern Time - USA))

Place: 2023 EMC+SIPI Symposium, Grand Rapids, MI

Room: Riverview Overlook D

Virtually: <https://ieeewebex.com/ieeewebex>, WebEx: 2634 894 8889, Pwd: Virtual2023

Attending: Matt Juszczyk, John Kraemer, Nick Orphanos, Mark Montrose, Jamal Shafii, Philipp Boettcher, Matt Halligan, Sarah Seguin, Tom Fagen, Pavi Radhakrishnan, Davy Pissoort, Kajsa Johnson, Chad Kiger, Marina Koledintseva, Yasaman Ardeshirpar, Daryl Beetner, Fin OConnor, Zachary Pearce, Karen Burnham, Anne Roc'h, William Enriquez

1. Welcome & Introductions

Round of intro (20 persons) – 1 person online.

2. Review and Approval of the Aug. 3, 2022 and Sept. 29, 2022 Meeting Minutes

Minutes accepted by acclamation.

3. Review of the Committee Membership

Explanation on the different volunteering action one can sign up for in the TC4 (TC4 membership, TC4 Reviewer, TC4 call for exam questions).

4. Items from EMCS BoD/TAC

a. iNarte

Certification process for EMC engineers and technicians is changing. EMCS cancelled its MOU with iNARTE and is planning to initiate a new examination/certification process with another company. EMCS is asking the TCs to supply questions for the Exam. Beetner asked for volunteers during the meeting. Additional volunteers are welcome. Beetner will send formal request later.

Discussion if we have access to the questions of previous years (answer: No because of an issue on IP ownership on the Questions/ Exams). The choice has been made to develop a new set of questions, which is being made. All TCs are asked to contribute, many questions are still needed. A special committee has been made to follow up on the iNarte certification program and is in contact with all TC-Chairs.

b. Web page of TC4

Changes are being made to the software managing the IEEE EMC webpages. The TC officers currently don't have access to make changes right now.

5. Standards

a. P2710 – Shielding of portable devices - Alistair Duffy

In development, looking for Volunteers – contact Chair! (see slides, below)

b. P2715 - Planar Materials – Davy Pissoort

Published early this year. Article coming in IEEE magazine.

c. P2716 - Board level shielding – Davy Pissoort

Published early this year. Article coming in IEEE magazine.

d. P1302 – P299 and 299-1 – Measuring the Effectiveness of Electromagnetic Shielding Enclosures and Boxes - Davy Pissoort

Std 299 has expired 3years ago and Std 299.1 will expire at the end of this year. Not possible any more to simply renew a standard. A new look is given at both. Under discussions. 2 meetings in IEEE EMC+SIPI 2023.

Write two new PARs and collection of comments from the EMCS. Call for comments within TC4.

e. P1128 - RF absorber evaluation – Zhong Chen

See slides. Paper recently published (contact Chair). Close to completion (expected first draft ready within a month).

f. P2855 - Cable Qualification Requirements – Huadong Li

See slides.

6. Summary of 2023 Conference Activities

EMC+SIPI 2023

See slides

+ 1 workshop (Monday – Standards and Emerging topics in Shielding)

Authors of several accepted papers did not “accept” the presentation at the conference, and some presenters could not join the conference due to last minutes circumstances. These papers were withdrawn.

Good number of papers and special sessions.

Thank you to all contributors (reviewers + session chairs)

EMC Europe 2023 (but not “officially stamped”)

1 workshop (Monday – Standards and Emerging topics in Shielding)

Discussion on the possibility of advertising for TC4 in other conferences to increase visibility: it is welcome!



7. Preliminary Planning for Upcoming Conferences

(see slides)

- Joint workshop with TC11 (Marina Koledintseva in the lead)
- Another workshop on EMC debugging/mitigation (Kasja Johnson)
- Joint session with Standard committee (Karen Burnham)
- Tutorial “spooky side of EMC” (Matt Juszczyk)

8. Next Meeting

(see slides)

Mail will be sent to set the date and time of the next meeting.

9. Other Business

- a.* Call for questions for a new EMC Certification Exam
See above.
- b.* Knowledge platform: call to share material (slides, drawings, movie...) that could be use by other “teachers”. Contact Daryl (Chair of TC4)
- c.* Officers will rotate out next August. We’re actively looking for the next set of candidates.

10. Adjourn

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TC-4, EMI Control, Annual Meeting


Aug. 2, 2023

1

TC-4, EMI Control, Annual Meeting

Aug. 2, 2023

Charter: *This committee is concerned with design, analysis and modeling to minimize undesired electromagnetic energy to achieve EMC, both emissions and immunity. Items within the scope of this committee include design techniques and implementation associated with component packaging, PCB layout, shielding, bonding, grounding or referencing, interconnects and filtering*



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2

Agenda

1. Welcome and Introductions
2. Review and Approval of the Aug. 3, 2022 and Sept. 29, 2022 Meeting Minutes



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3

Agenda

3. Committee Membership
 - 38 active members at last count (23 attendees at Aug. 2022 meeting and 16 at Sept. 2022 virtual meeting)
 - Please fill out attendance sheet

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-4 minutes will list attendee names unless you contact the TC-4 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-4 related notifications/communications.
 - Please indicate if you would like to become a member, be added to email list, be willing to review papers, be willing to provide questions for certification exam



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4

Agenda

4. Items from EMCS BoD/TAC

- EMCS cancelled MOU with iNARTE. Considering new certification process. Calling on TCs to provide exam questions
- Changes to web page temporarily on hold



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5

Agenda

5. Standards

- P2710 – Shielding of portable devices - Alistair Duffy (Chair)
 - Focus is shielding effectiveness of bags, pouches, boxes used to isolate cell phones from cellular and wifi signals for security applications.
 - No connectors allowed
 - Started using comb generator placed in housing and measuring emissions. Considering use of a data logger to house receiver
 - Expect significant upcoming discussion about impact of location of antenna within housing on measurement, and on guidelines of how to report performance (e.g. is SE in dB useful to a corporate buyer, and does committee care?)
 - Group includes conductive materials manufacturers, enclosure manufacturers, test houses, police/anti-terrorism, academics



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6

Agenda

5. Standards (cont)

- P2715 - Planar Materials – Davy Pissoort (Chair)
- P2716 - Board level shielding – Davy Pissoort (Chair)
- P299 and 299-1 – Measuring the Effectiveness of Electromagnetic Shielding Enclosures and Boxes – Davy Pissoort



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7

Agenda

5. Standards (cont)

- P1128 - RF absorber evaluation – Zhong Chen
 - Originally published 1998. Several aspects need updating.
 - Frequency range: expanding from up to 5 GHz, to up to 40 GHz
 - Power handling: New addition to ensure temperature remains within material's specified limit to prevent it from igniting
 - Measurement techniques: update to use modern Vector Network Analyzers and time gating techniques.
 - Measurement uncertainty discussed, though scaled back from original vision.
 - Significantly expands on measurement of material properties
 - Now putting together in IEEE format. Hope to have a draft in a month. Currently under 2-year extension. Probably need another small extension to get everything complete.



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8

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5. Standards (cont)

- P2855 - Cable Qualification Requirements – Huadong Li (Chair)

This standard will introduce measurands to evaluate a CCA's shielding effectiveness, test methods to derive these measurands, and applications of these measurements. 6 chapters draft has been developed. We are working on the development of chapter 7 describing the test methods. 2 or 3 more chapters remain to be developed. Hopefully, we can complete the standard development by the end of 2024 as scheduled. Otherwise, we will file an extension some time next year.



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9

Contributors – Thank You!

- ▶ Paper reviewers, IEEE EMC+SIPI 2023:

Mohamed Hamdalla	Marina Koledintseva	Anne Roc'h
Wenchang Huang	John Kraemer	Jamal Shafii
Todd Hubing	Huadong Li	Mark Steffka
Kajsa Johnson	Monrad Monsen	Xiangrui Su
Randy Jost	Davy Pissoort	Ze Sun
Charles Jullien	Pavi Radhakrishnan	Joe Tannehill
Jim Knighten	Hossein Rezaei	Jiangfeng Zheng

- ▶ Sessions/workshops/panels, IEEE EMC+SIPI 2023:

Karen Burnham	Huadong Li	Anne Roc'h
Kajsa Johnson	Davy Pissoort	Daryl Beetner
Charles Jullien	Srinath Penugonda	



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10

Agenda

6. Summary of 2022-23 Conference Activities

- EMC+SIPI 2023
 - 4 sessions with 21 papers/presentations (including 1 best paper and 1 best student paper finalists)
 - Reviewed 24 papers (10 regular paper, 7 special session papers, 2 posters, 5 abstract-reviewed papers)
 - 18 accepted, 6 rejected, 1 withdrawn
 - 4 Experimental Demos



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11

11

Agenda

7. Preliminary Planning for Upcoming Conferences

- EMC+SIPI 2024 (Phoenix), APEMC 2024 (Okinawa), EMC Europe 2024 (Bruges)
 - Workshops? Special Sessions? Tutorials?
 - Joint workshop with TC-11 on materials for EMI control?
 - Tutorial on “Non-EE” topics needed by EMC Engineers?
 - Tutorial/workshop on EMC design for switched power (with SC-5)?
 - Tutorial/workshop on EMC in transportation?
 - Joint session with standards committee?
 - Joint session with new SC on AI/ML
- Note:
 - IEEE/EMCS Bylaws allow Technical Committees to run their own workshops and symposia
 - Workshops could be repeated at multiple conferences (with/without different speakers – depending), and run by different folks each time



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12

12

Agenda

8. Next Meeting

- Virtual meeting in Sept. to firm up plans for upcoming Symposia. Date TBD.

9. Other business

- Conference feedback and suggestions?
- Other items we should be tackling as a committee?
- TC-4 officers will rotate out next Aug. Will be looking for volunteers...
- Any other business?



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13

13

Agenda

10. Adjourn



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14

14