



IEEE Electromagnetic Compatibility Society

Technical Committee 4: EMI Control

Annual Meeting

Meeting Minutes (Draft)

Place: Gaylord Convention Center, Washington, DC

Date: Wednesday, 9 August 2017

Time: 1200 – 1400 hrs.

Room: Chesapeake 1

1 Welcome & Introductions

The meeting called to order at 12:04 by Mr. John Kraemer, TC-4 Chair. The Chair briefly Requested that any member that was willing to review papers please indicate so on the sign in sheet. Attendees introduced themselves. The attendance sheet was passed around for signatures; it is attached (Appendix A).

2 Review of Draft Agenda

It was notes that one item had been added to the agenda since the preliminary copy was emailed to the members in advance. The agenda was reviewed and approved.

3 Review and approval of the July 27, 2016 Meeting Minutes

http://www.emcs.org/committees/tc04/reports/TC4%20minutes%202016_07%20Draft.pdf

Minute from the 2016 Ottawa, Canada meeting were reviewed and accepted without changes.

4 Review of TC-4 Charter and Membership Criteria

Mr. Kraemer read the TC-4 Charter and described the purpose of the TC. He also reviewed the requirements for TC membership:

- Attend one (1) meeting of the TC every two (2) years, or comparable participation.
- Review assigned papers in support of the yearly EMC Symposium(s), and/or participate in other TC-4 activities.

Three questions asked about the current charter, its focus, and what does it cover:

- Who handles modeling & computation?
 - a. The modeling is covered by this TC as well as overlap with TC9
 - b. If the topic is based on computational aspect of modeling goes to TC9
 - c. If comes to modeling components and systems the topic can fall under TC4. This is determined by the TCs when paper is submitted
- Does TC4 we have the authority to sponsor technical session
 - a. Yes; TC4 currently have a couple Technical sessions currently
- Would there be value in rewriting the charter?



- Charter deals with system control but what about components level since the papers that we review deal largely with component level
- Suggestion from other members to keep charter simple to cover all the basics
- **Action** – Mark Montrose reword charter for review and vote at next meeting
 - I. Keep simple
 - II. Include component level
 - III. Membership will review and vote at the meeting

5 Review of the Committee Membership

The current officers are:

- Chairman: John Kraemer
- Vice-Chairman: Ross Carlton
- Secretary: William Wantz

Committee members who are willing to review papers are requested to provide an updated resume to aid in distributing papers for review.

The current TC-4 membership list is attached (Appendix B). It includes attendance information with respect to past TC-4 meeting. It also notes which members are willing to review papers for the next EMC Symposium, as well as those who reviewed papers for this Symposium.

6 Review of the Committee Website

Mr., John Kraemer reviewed the status of the TC-4 web site. The web has been updated since the last meeting. It includes the draft minutes from the Ottawa meeting in 2016 as well as the agenda.

ACTION: TC-4 secretary will continue to update the TC-4 web site. [In Process]

Two Topics covered:

- Question: Can the technical papers can be accesses from the website?
 - Currently papers are managed by a separate system
- By the end of the year there should be a new web site.
 - Will give direct control to the TCs to add information and details
 - Will have mobile support
 - Beta testers are wanted (contact Tom Braxton)

7 TAC Performance Guidelines for Technical Committees

TC-4 performance scores were in good standing according to the TAC meeting on 8/7/2017. The TC continues to score well due to the number of technical papers reviewed and the acceptance of TC-sponsored workshops and tutorials.

8 Program of Work Discussion

Current activities of TC4 are to review papers, sponsor workshops or tutorials, and host technical paper sessions. Members are encouraged to attend the technical sessions and be familiar with the information to assist in conversations and discussion. In addition, TC4 has several subcommittees developing standards and white papers.

TC4 Standards in development:

- P1302 - Guide for the Electromagnetic Characterization of Conductive Gaskets in the Frequency Range of DC to 40 GHz
 - Headed by Johan Christensen
 - Out for final vote in a few months
- P2715 - Guide for the Characterization of the Shielding Effectiveness of Planar Materials.
 - Headed by Mr. Alpesh Bhoje
 - Starting round robin testing and methods
- P2716 - Guide for the Characterization of the Effectiveness of Printed Circuit Board Level Shielding
 - Headed by Mr. Davy Pissoort
 - Very active round robin testing
- P2710 - Electromagnetic Shielding Performance of Enclosures for Portable Electronic Devices
 - Headed by Mr. Alistair Duffy
 - Meeting concurrently – Beginning to explore details

Members expressed interest in starting a new group to work on material categorization. This group would look at how to compare varied materials; circuit boards, filters, gaskets, absorbers. The idea would be to breakdown the distinct categories and give the recommended practices for each. This would be a great benefit for simulation. This group will have close interaction with TC9 and TC11 since the information and impact will overlap. Any liability about using a recommended practice guideline will have to be discussed with IEEE personnel. This project will start as a study group and once the objectives of the project are outlined the group can become a subcommittee. The study group will be led by Li, Huadong and supported by SC3.

- **Action** – Form the study group and recruit members
- **Action** – Have an update at the Long Beach IEEE EMC convention

9 Subcommittee Update

Status of the standards in development which have absorbed many of the subcommittees were reported above. SC3 will be supporting the new study group regarding materials, classifications, and testing

10 Summary of 2016 Symposium Activities

Mr. Kraemer reviewed the TC'S activities in support of the 2017 IEEE EMC Symposium in DC:

- Reviewed 20 Papers were submitted for review in either 2 round review or abstract review
 - 15 Papers were reviewed using the 2-round process
 - 5 rejected
 - 3 accepted after first review
 - 7 accept after second review
 - 5 abstracts reviewed
 - 1 rejected – too commercial
 - 4 accepted
 - Primarily lead to oral presentation since no review of detail content
- Papers presented as 8 poster sessions and 6 oral presentations

The major issue found when reviewing papers was the poor grammar. People who submit papers should always be reminded to have an external source review their paper for grammar and composition before submission.

- Singapore to be 2 round review process?
 - Find out at TAC
- Next year timeline for review for two symposiums will be staggered
 - For Singapore review over holiday
 - Special thanks to T Hubing, R davis, B scully, B Archembauld
- Tutorials and Workshops
 - Equipment System Design for EMC
 - EMI Filter Design
- Held annual meeting

11 Abstract review

- Vice Chair Ross Carlton asked for the members opinion on using the abstract to review papers.
 - Downside is that projects could be finished last minute and it can greatly affect the quality of the paper
 - Could lead to unfinished tests without supporting results
 - Some members question what good a presentation is without a reviewed and documented paper. The benefit is that it may encourage input participation and attendance from students or other that may not attend the symposium otherwise.
 - Feeling of members is to have more completed papers to review beforehand
 - Should the results of an abstract reviewed paper be limited to poster? Liked by most members, could require the submission of the poster before the symposium to encouraging thoroughly finished projects.
 - Does IEEE review abstract before paper submittal?
 - Additional review would lengthen the process
 - Could be unfeasible as the writer may be writing for results
 - Early reviews could get the paper writer involved before completed



12 Plans for May 2018 Symposium in Singapore

Mr. Kraemer reviewed the TC's activities in support of the 2017 IEEE EMC Symposium in Singapore. The TC plans to support the Symposium in the following ways: Review papers, Hold meeting, Chair Technical Sessions, Sponsor at least one Session, Workshop or Tutorial. Suggested activities were to repeat the 2 tutorials from the Washington D.C. symposium titled: Equipment System Design for EMC, and EMI Filter Design since the audience will most likely be very different.

The paper review program was also discussed for the next years symposiums. The paper review timelines will be staggered; first will be the review process for the Singapore papers and then shortly thereafter will be the review for the Long Beach Papers. Some members were inquiring if the Singapore papers would be two round review or a single? The information was not known at the time and would be discussed at the TAC meeting.

13 Plans for July 2018 Symposium in Long Beach, CA

The TC plans to support the Symposium in the following ways: Review papers, Hold meeting, Chair Technical Sessions, Sponsor at least one new Session, Workshop or Tutorial. Suggested activity is to expose the new study group in a workshop or panel discussion. This would help to outline the needs of the resulting document as well as garner interest in the group. The workshop would have at least 4 presenters in the areas of: Organics, Board level shielding, Printed circuit board materials, and Capacitance and resistance of imbedded items.

- **Action** – Li, Huadong and Mark Montrose to develop and detail the plan and personnel for the workshop

14 Election of Officers

The elected officers have been in their positions for the scheduled two years and could rotate positions and elect a new secretary. However, with the dual symposiums in the following year it was suggested to keep the office as is until the Long Beach symposium. This idea was moved and accepted by the members.

15 New business

It was noted that the board of directors is closing on a practitioner based journal. This would make for this committee to publish information, activities, and works in progress. The journal should be operation in six to eight months from now. The publication will be call EMC Practice and Applications. This journal will be a good place to publish the abstract reviewed papers. The EMC Practice and Applications will be a split from EMC Magazine in that it would cover the more technical issues and have a higher level of control over what is printed. The new publication is under the communications subcommittee.

16 Closing

Meeting was adjourned at 13:35.

Minutes submitted by: William Wantz, Secretary, TC-4 (William@spira-emi.com)

Appendix A

Attendance List

TC4 Membership List as of AUG 1, 2017 - Attendance at AUG 9, 2017 meeting

NAME	AFFILIATION	EMAIL	WILLING TO REVIEW PAPERS?	TC-4 MTG ATTENDANCE OR PARTICIPATION (NOTES 1 & 2)	AUG 9, 2017 ATTENDANCE	MEMBER OR OBSERVER
Atchambeau, Bruce	IBM	bruce.arch@ieee.org		15S, (16)		
Brull, Christian	Schlegel	christian.brull@schlegel.com		13, 14, 15S, 15D, 16		
Burnham, Karen	Ford Motor Company	karen.burnham@gmail.com	Yes	13, 15S, 16	✓	Member
Carlton, Ross	National Instruments	ross.carlton@ieee.org	Yes	13, 14, 15S, 15D, 16	✓	M
Davis, Bob	Lockheed Martin	robert.h.davis@lmco.com		15S, (16)		
Fagan, Tom	The Aerospace Corp.	Thomas.I.fagan@aero.org		(16)		
Fenical, Gary	Laird Technologies	gary.fenical@lairdtech.com	NO	13, 14, 15S, 15D	✓	MEMBER
Ghaneh, Ali	JPL	Ali.R.Ghaneh@JPL.NASA.gov		16		
Hare, Ed	ARRL	W1rfi@arrl.org		16		
Hubing, Todd	Clemson University	hubing@clemson.edu		14, 15S, 15D (16)		
Inman, David	Chomerics	dinman@parker.com	NO	13, 14, 15D, 16	✓	Member
Kraemer, John	Rockwell Collins	jkraeme@rockwellcollins.com	Yes	13, 14, 15S, 15D, 16	✓	Member
Kunkel, George	Spira	george@spira-emi.com	NO	13, 15S, 16	✓	Member

NAME	AFFILIATION	EMAIL	WILLING TO REVIEW PAPERS?	TC4 MTG ATTENDANCE OR PARTICIPATION (NOTES 1 & 2)	AUG 9, 2017 ATTENDANCE	MEMBER OR OBSERVER
Larrabee, David	NIST	david_a_larrabee@yahoo.com		15S		
Li, Huadong	Molex	HuadongLi@molex.com		16	✓	M
McInerney, Mike	IEEE	mikmcinerney@ieee.org		15S (16)		
Monsen, Morrad	Oracle	morrad.monsen@oracle.com		15S, 16		
Montrose, Mark	Montrose Compliance	m.montrose@ieee.org	Y	13, 14, 15S, 16		M
O'Connor, Finn	Ailon	focconnor@ailonscience.com	Y	13, 15S, 16		M
Oliver, Mike	MAJR Products Corp	eml@mjr.com		16		M
Plissoort, Davy	KU Leuven	davy.plissoort@kuleuven.be	Y	13, 14, 15S, 15D, 16	✓	M
Rafik, Stephan	ITG Elect	Rafiks@ITG-Electronics.com		16	✓	M
Roch, Anne	TU Eindhoven	a.Roch@tue.nl		15D, (16)		
Semanson, Chris	R.E.A	csemanson@gmail.com		16		
Scully, Bob	NASA	robert.c.scully@nasa.gov		15S, (16)		
Shafii, Jamal	UTC Aerospace Systems	jamal.shafii@uts.utc.com	Y	16	✓	M
Steffka, Mark	General Motors	msteffka@ieee.org		15S, (16)		
Wantz, William (WIII)	Spira Mfg	William@Spira-emi.com	No	15S, 15D, 16	✓	Member

person

NAME	AFFILIATION	EMAIL	WILLING TO REVIEW PAPERS?	TC-4 MTG ATTENDANCE OR PARTICIPATION (NOTES 1 & 2)	AUG 9, 2017 ATTENDANCE	MEMBER OR OBSERVER
Zeng, Hua	Hitachi Automotive	hua.zeng@hitachi-automotive.us		15S		
Josh Randy	Ball Aerospace	r.jost@ball.com	Yes		Yes.	M
Vern Gaudin	Nissori Staff Ralia	dgaj@ust.edu	time permitting		yes.	
RIKERT AERONG.	ITG. ELECTRONICS.	rikertc@itg-electronics.com			yes	
Christine Blair	SNC-Lavalin	cdmblair@gmail.com			yes	
EDWARDS PAUL	A.I. SOLUTIONS NASA KENNEDY	paul.edwards@nasa.gov	Yes		yes	TBD
Bryan Shee	Laird	Bryan.shee@lairdtech.com			yes	
Chris Semanson	Renasas elec. America	csemanson@gmail.com	Y		Yes	O
Pete - Marian Nicolese	University of Colorado, Palmdale	m.peterson@colorado.edu	Y	X	yes.	member

NOTES:
 (1) (Year) indicates member completed paper reviews for Washington Symposium and/or other TC4 activities, and thus is a TC-4 member, even though they did not attend meeting.
 (2) 15D = Dresden 2015, 15S = Santa Clara 2015.

Appendix B

Member List

NAME	AFFILITATION	EMAIL	Willing to Review Papers? (Note 1)	TC-4 mtg attendance (Note 2)
Archambeault, Bruce	IBM	barch@us.ibm.com	Yes	12, 15S
Beetner, Daryl	Missouri State	Daryl@MST.edu	Yes	17
Berger, Phil	Missouri University of Science & Technology	bergerphi@mst.edu	Yes	12, 13, 14
Blair, Christine	SNG Lavalin	CdmBlair@gmail.com		17
Brull, Christian	Schlegel	christian.brull@schlegelemi.com	No	13, 14, 15S, 15D, 16
Burnham, Karen	Northrop Grumman	karen.burnham@gmail.com	Yes	13, 15S, 16, 17
Carlton, Ross	National Instruments	ross.carlton@ieee.org	Yes	12,13, 14, 15S, 15D, 16, 17
Cheng, Rickey	ITG Electronics	RickeyC@ITG-Electronics.com		17
Crowder, Michael	IBM	michaelc@us.ibm.com		13, 14
Davis, Bob	Lockheed Martin	robert.h.davis@lmco.com	Yes	12, 15S
Demharter, Robert	Wurth Elektronik	Robert.Demharter@we-online.de	No	15D
Edwards, Paul	A.I. Solutions, NASA	Paul.Edwards@NASA.gov	Yes	17
Faraji, Parisa	Graftech Int'l	parisa.faraji@graftech.com		12, 13, 14
Fenical, Gary	Laird Technologies	gary.fenical@lairdtech.com	No	12, 13, 14, 15S, 15D, 17
Ghaneh, Ali	JPL	Ali.R.Ghaneh@JPL.NASA.gov		16
Green, David	ARC Technologies	dgreen@arc-tech.com		14
Inman, David	Chomerics	dinman@parker.com	No	13, 14, 15D,16, 17
Jost, Randy	Ball Aerospace	R.Jost@ball.com	Yes	17
Kerns, Donald	Dayton T. Brown	drkerns@ieee.org		12, 14
Kimmel, William	Kimmel-Gerke Assoc.	bkimmel@emiguru.com		14
Kraemer, John	Rockwell Collins	jgkraeme@rockwellcollins.com	Yes	12, 13, 14, 15S, 15D, 16, 17
Kunkel, George	Spira	george@spira-emi.com		12, 13, 15S, 16, 17
Larrabee, David	NIST	david_a_larrabee@yahoo.com	Yes	15S
Li, Huadong	Molex	Huadong.Li@Molex.com	Yes	16, 17
McCallum, Ian	Graftech Int'l	ian.mccallum@graftech.com		14
McInerney, Mike	IEEE	mkmcinerney@ieee.org	Yes	15S,
Monsen, Monrad	Oracle	monrad.monsen@oracle.com		15S, 16
Montrose, Mark	Montrose Compliance	m.montrose@ieee.org		12, 13, 14, 15S, 16, 17
O'Connor, Fin	Alion	foconnor@alionscience.com	Yes	12, 13, 15S, 16, 17



Oliver, Mike	MAJR Products Corp.	EMI@MAJR.com	Yes	16
Petre-Marian, Nicolas	University of Craiova, Romania	NPetreMarian@yahoo.com	Yes	17
Pissoort, Davy	KU Leuven	davy.pissoort@kulueven.be	Yes	13, 14, 15S, 15D, 16, 17
Roch, Anne	TU Eindhoven	a.Roch@tve.nl	Yes	15D
Scully, Bob	NASA	robert.c.scully@nasa.gov	Yes	15S
Semanso, Chris	Renesas Elec. America	C.Semanso@gmail.com	Yes	17
Shafii, Jamal	UTC Aerospace Sys.	Jamal.Shafii@utas.utc.com	Yes	16, 17
She, Brian	Laird Technologies	brian.she@lairdtech.com		12, 13, 14, 17
Steffka, Mark	General Motors	msteffka@ieee.org		15S
Stepanian, Rafik	ITG Electronics	RafikS@ITG-Electronics.com		16, 17
Tazi, Aziz	Transport Canada	Aziz.tazi@tc.gc.ca		14
Todd Hubing	Clemson University	hubing@clemson.edu	Yes	14, 15S, 15D
Wantz, William (Will)	Spira Mfg	William@Spira-emi.com	No	13, 14, 15S, 15D, 16, 17
Wegrzyniak, Pawel	Laird Technologies	Pawel.wegrzyniak@lairdtech.com		14
Williams, Kimball	IEEE	k.williams@ieee.org		14
Zeng, Hua	Hitachi Automotive	hua.zeng@hitachi-automotive.us	Yes	12, 15S

NOTES:

- (1) * indicates member reviewed papers for Ottawa Symposium.
- (2) 15S indicates Santa Clara TC-4 meeting, 15D for Dresden meeting attendance.