

## **P2.1 Ceramic Capacitors**

**Wednesday September 27, 2006:** Silver Legacy Resort – Reno, NV

**Scope of the P-2.1 Subcommittee on Ceramic Dielectric Capacitors (approved 10/13/99):** All types of ceramic dielectric capacitors.

### **Attendees:**

Michael Cannon	TDK
Mary Carter Berrios	KEMET
Casey Crandall	Wright Capacitors
Michael Griffith	KOA Speer Electronics
Ian Murdock	American Technical Ceramics
Michael Lauri	IBM
Mihee Lee	Samsung
Carl Lindquist	SAN-O Industrial Corp.
Laird Macomber	Cornell Dubilier Electronics
Larry Mosley	Intel
Len Metzger	Panasonic
Ed Mikoski	EIA/ECA
Christine Pollock	Presidio Components
Chris Reynolds	AVX
Dave Richardson	Vishay
Dave Ritchey	Yageo
Jayson Young	KEMET

Chair Michael Cannon called meeting to order at 12:05 pm.

### **1.0 Introductions**

#### **1.1 Circulate Membership Roster**

Self introductions were made and attendance was taken. A quorum was present.

#### **1.2 Approval of Spring 2006 Minutes from Ft. Lauderdale, FL**

The minutes were unanimously approved with necessary additions. This included the change of the location for the Spring 2007 meeting from “Washington, DC area” to “San Diego” in Section 4.2 of the meeting minutes.

<u>Member Organizations Present</u>	<u>Present at this meeting</u>	<u>Present at previous meeting?</u>	<u>Present at meeting prior to previous?</u>
American Technical Ceramics	Y	Y	N
AVX	Y	Y	Y
Cornell Dubilier	Y	Y	Y
IBM	Y	Y	Y
Intel	Y	N	N
KEMET	Y	Y	Y
KOA Speer	Y	Y	Y
Murata	N	Y	Y
Panasonic	Y	Y	Y
Presidio Components	Y	N	Y
Samsung Electro-Mechanics	Y	Y	N
SAN-O Industrial Corp.	Y	Y	Y
TDK	Y	Y	Y
Vishay	Y	Y	Y
Wright Capacitors	Y	Y	Y
Yageo	Y	Y	Y

<u>Other Organizations Present</u>
EIA/ECA

### 1.3 Approval of Agenda for Present Meeting

The agenda was unanimously approved.

### 1.4 Correspondence and Review of Committee Scope

Comments were made by Michael Griffith (KOA Speer) announcing the ECA Message Board and inviting all members to join. Ed Mikoski (ECA) is available to assist with registration.

### 1.5 Report of Task Groups and Committees

#### 1.5.1 DSCC, Defense Supply

There was no update from DSCC.

#### 1.5.2 Automated Component Handling (ACH)

No report from ACH to P2.1.

#### 1.5.3 S-1 Steering Committee (formerly U-1)

General session was held Tues., Sept. 26<sup>th</sup> at 8am. There were two presentations: 1) Ken Stehr of Thermo Electron Corp. on using XRF analyzers for RoHS screening; 2) Mary Carter-Berrios of KEMET Corp. on environmental requirements for China RoHS and REACH.

Additionally, the Component Bulletin on tin whisker acceptance criteria (PN-5133) was voted to go out for ballot. Michael Lauri (IBM) reported.

1.5.4 Soldering Technology Committee (STC)  
Meeting was held on Tues., Sept. 26<sup>th</sup> at 1:30pm. Solderability Standard J-STD-002C ballots have been received and the comments are being dispositioned. The probable next step is 15-day “no vote ballot”.

1.5.5 Ceramic Working Group  
Meeting was held on Mon., Sept. 25<sup>th</sup> at 1pm.  
Topics: PTH and SMD product reviews; EIA 595/521; high frequency characterization test method

Radial leaded (slash sheets 4 and 5) and axial leaded (slash sheets 6 and 7) of EIA 198 III have been combined and producers’ catalog offerings have been rolled into the specification. Axial-leaded glass encapsulated 25~200V (slash sheet 7) was discussed as no longer standard in the Industry and will be recommended to be rescinded. Further comments were solicited by Mary Carter Berrios—Kemet.

EIA 198 III/3 (PN 5099) is to be placed on the “message board” for discussion between meetings.

EIA 595 (PN 5094) has been updated with new pictures similar to IPC 610 by Mary Carter Berrios—Kemet. It will be posted on the ECA message board for review. Voting pool for this standard was established during Spring 2006 meeting.

Most updated copy of EIA 521 (PN 5095) is needed to be updated with new tables and graphics. DC bias plots are most in need of updating.

High Frequency Characterization test method efforts under PN4563 have been completed by the folks at Intel. This will be posted on the ECA Message Board for everyone’s review.

## **2.0 Old business**

### **2.1 Status of EIA-595-A (PN-5094) Visual & Mechanical Inspection**

Updates have been made by Carter Berrios (Kemet). The draft will be posted on the ECA Message Board and submitted for ballot. Pollock (Presidio) and Crandall (Wright) have been added to the voting pool previously established at Spring 2006 meeting.

### **2.2 Status of EIA-198-F “Ceramic Dielectric Capacitors Classes I, II, III, & IV”**

#### **2.2.1 Part III – standard two-terminal SMD (PN 5099)**

Updates to the mechanical outlines table were requested. Visio-format drawings are needed.

2.2.2 Part III – Pin-through-hole (PTH) focus area

2.2.2.1 Axial-leaded glass encapsulated 25~200V specification (/7) was unanimously voted to be rescinded.

2.2.2.2 Radial-leaded high voltage 500V~5kV specification (/9) was broadened in scope to be inclusive of 250V ratings.

2.2.2.3 Standard language changes: “Radial-leaded” will become “Radial Through-Hole (TH)”.

2.2.2.4 Standard language changes: “Axial-leaded” will become “Axial Through-Hole (TH)”.

**2.3 Status of ANSI/EIA 521 (PN 5095) Application Guide for MLCCs**

Graphics in this standard need updating (e.g. DC bias characteristic curves).

**3.0 New Business**

**3.1 Creation of Joint Standards group (EIA/JEDEC/IPC)**

P2.1 chairman will serve as point person for this group. This group will be headed up by Paul Krystek (IBM).

**3.2 Update on High Frequency Characterization test method.** The efforts under PN4563 by Larry Mosley and associates (Intel) have been completed. This will be posted on the ECA Message Board for everyone’s review. The document will be submitted for ballot and use the attendees of this Fall 2006 P2.1 meeting.

**3.3 Documents review**

Several P-2.1 documents are older than 5 years. All of the working group attendees are invited to participate in the review process.

**4.0 Time and Place of Next Meetings**

**4.1** Spring 2007- Holiday Inn-Bayside, San Diego, CA—April 16-19, 2007  
Fall 2007- San Antonio, TX. Alternate location is Baltimore, MD.

**5.0 Adjournment**

So moved, seconded, and unanimously agreed to adjourn at at 12:58 PM

This meeting was conducted in accordance with the EIA Legal Guidelines and the Manual of Organization and Procedures.

Michael C. Cannon

---

Michael C. Cannon  
Chairman

---

Terry D. Charles  
Acting Secretary