

Status Report to NEPP ETW

Task Group for Improvements to MIL-STD-1580 DPA for EEE Parts

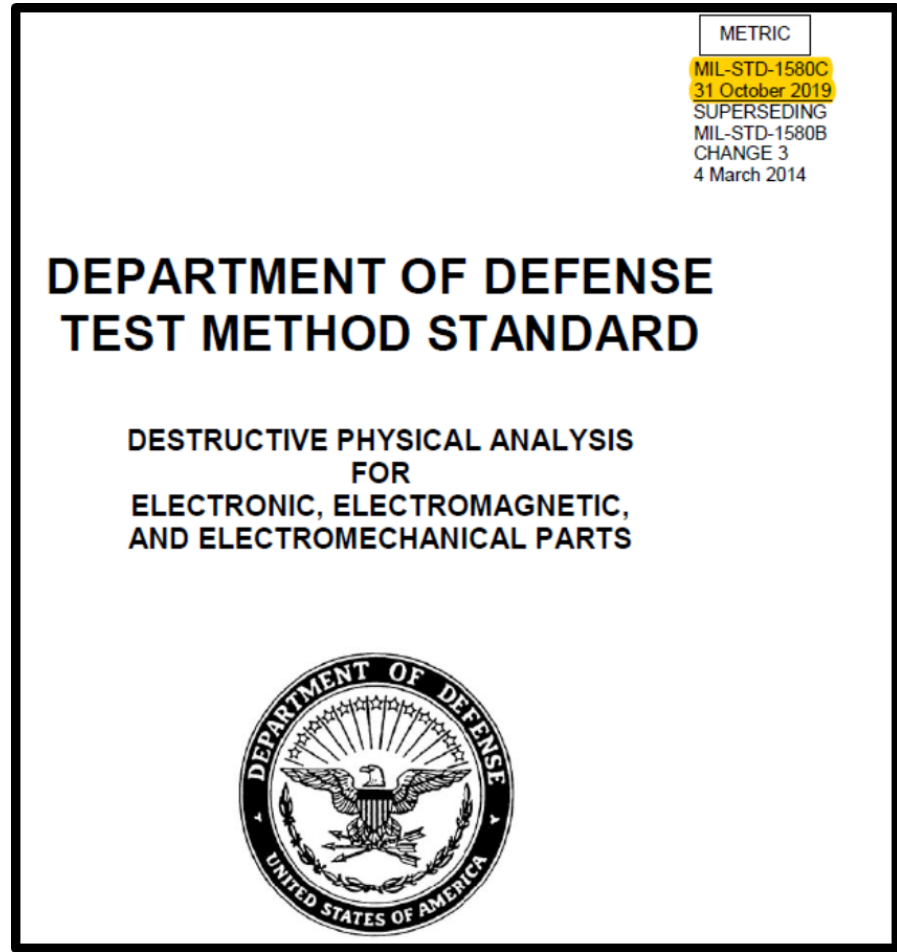
Jay Brusse/SSAI at NASA Goddard

Acronyms

DLA	Defense Logistics Agency
DPA	Destructive Physical Analysis
EEE	Electronic, Electrical and Electromechanical
GWG	Government Working Group
IC	Integrated Circuit
MCM	Multichip Module
NASA	National Aeronautics and Space Administration
NEPP	NASA Electronic Parts and Packaging
PIND	Particle Impact Noise Detection
PMA	Prohibited Materials Analysis
QPL	Qualified Products List
SSAI	Science Systems and Applications Incorporated
TG	Task Group

MIL-STD-1580 Defines Requirements for Destructive Physical Analysis of EEE Parts

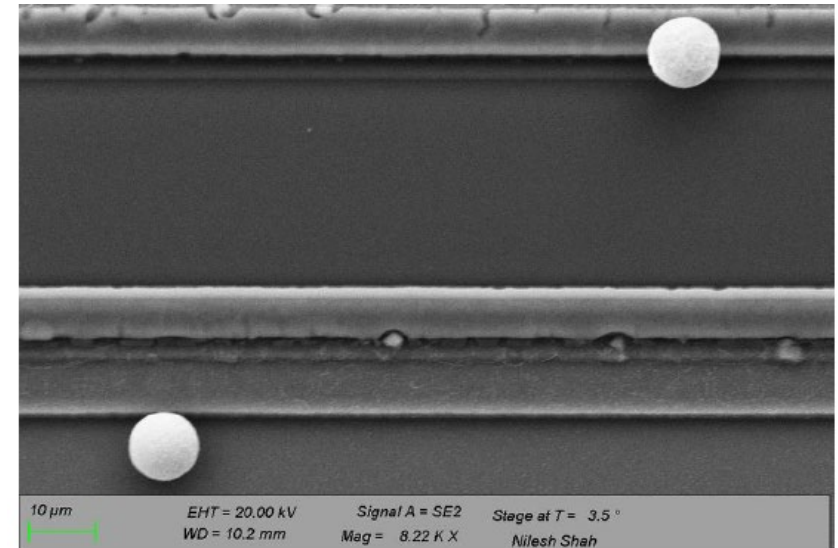
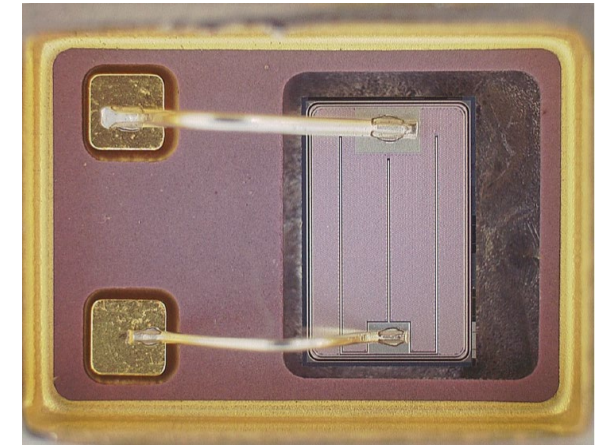
<https://landandmaritimeapps.dla.mil/Downloads/MilSpec/Docs/MIL-STD-1580/std1580.pdf>



Section	Topic
9	Prohibited Materials
10	Capacitors
11	Connectors
12	Crystals
13	Diodes
14	Feed-Through Filters
15	Magnetic Devices (Inductors, Transformers, Coils)
16	Microcircuits (Monolithic, Hybrid, Optocoupler, MCM)
17	Relays
18	Resistors
19	Switches
20	Thermistors
21	Transistors
22	RF Devices
23	Fuses
24	Heaters

Summary (1 of 2)

- Revision C of MIL-STD-1580 was released in Oct. 2019
 - Rev C coordination took several years to complete
 - Several topics were deferred for a future revision
- At the January 2021 SAE CE11 / CE12 meetings a **New MIL-STD-1580 Task Group (TG)** was endorsed to:
 1. *Identify the topics deferred from Rev C coordination*
 2. *Gather New Topics to Improve MIL-STD-1580*
 3. *Prepare language for proposed future changes*
- MIL-STD-1580 TG leaders
 - Mike Cozzolino/Aerospace Corporation
 - Sultan Lilani/Integra Technologies
 - Jay Brusse/SSAI at NASA Goddard



**NASA GSFC DPA report J18304
PIND Rejection with Solder Balls Found**

Summary (2 of 2)

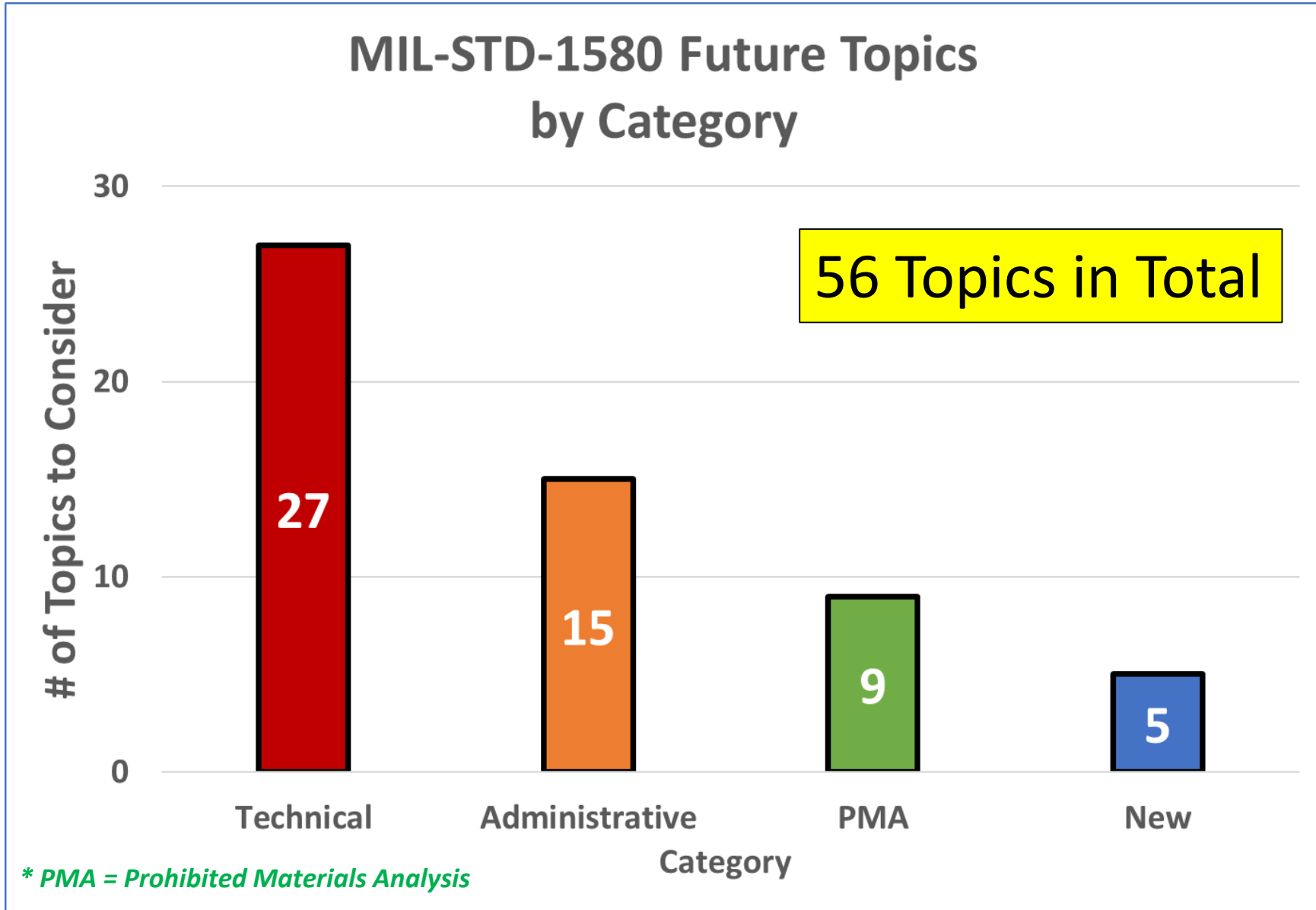
- TG initiated biweekly meetings via WEBEX ~March 2021
 - ~ 30 to 60 participants per meeting
 - DPA laboratories, QPL suppliers, Government and industry users
- TG has identified >50 topics for consideration
 - Categorized, Prioritized & Estimated Level of Effort for Each Topic
- TG has identified **topic leaders** to form sub-teams to deliberate and develop language for proposed future changes
- **Timing for the next official MIL-STD-1580 Coordination is TBD**

Topic Leader	Topic Category
Mike Cozzolino	Administrative
Jay Brusse	Capacitors & Resistors
Kathy Laird	Various topics initiated by the GWG
Rachel Garcia Sultan Lilani Gary Downing Trevor Devaney Jim McEwen	Various topics initiated by test labs
Tom Hester	PMA
Ken Andis	Various topics deferred from Rev C coordination

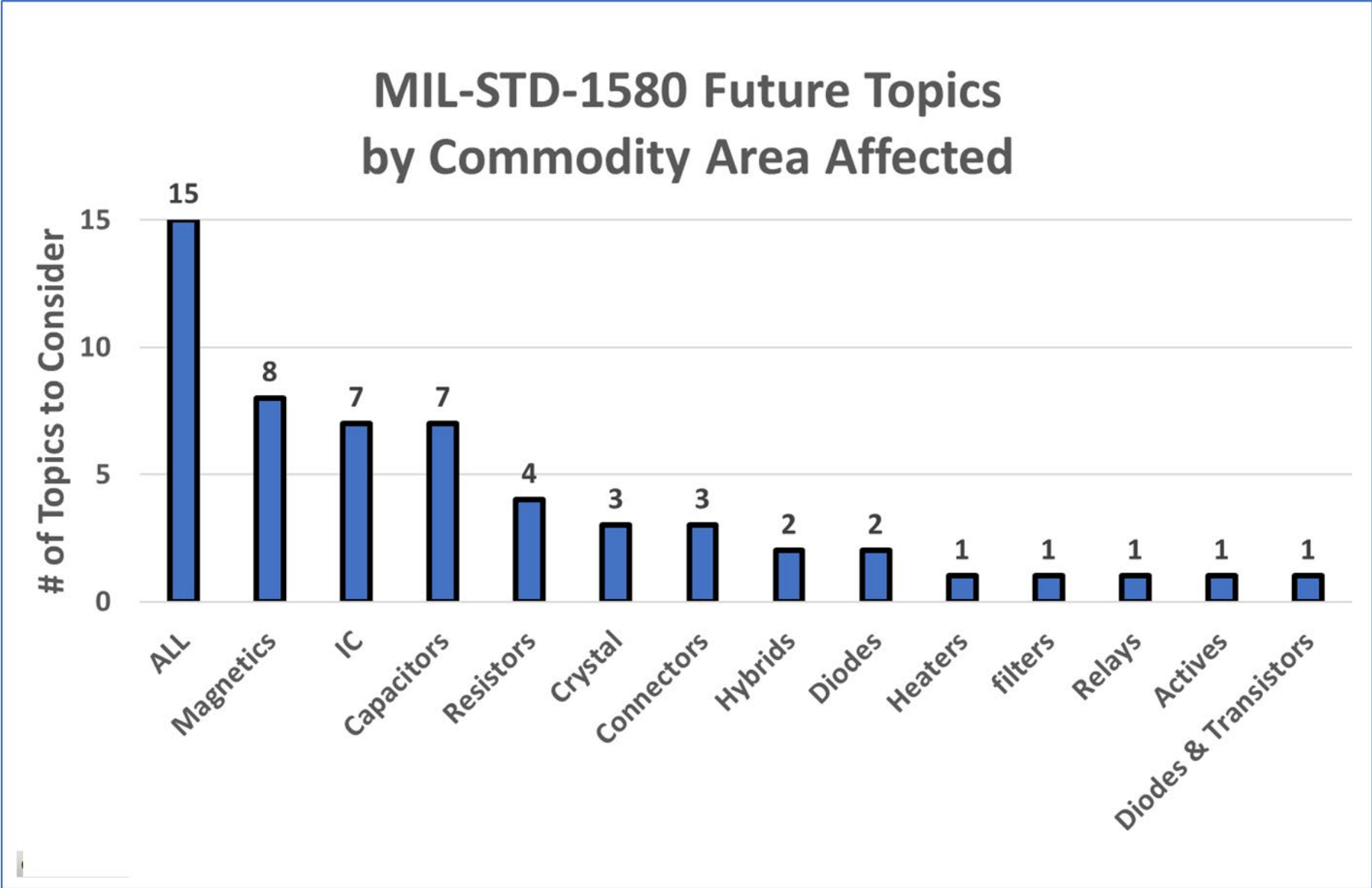
* **GWG = Government Working Group**
 * **PMA = Prohibited Materials Analysis**

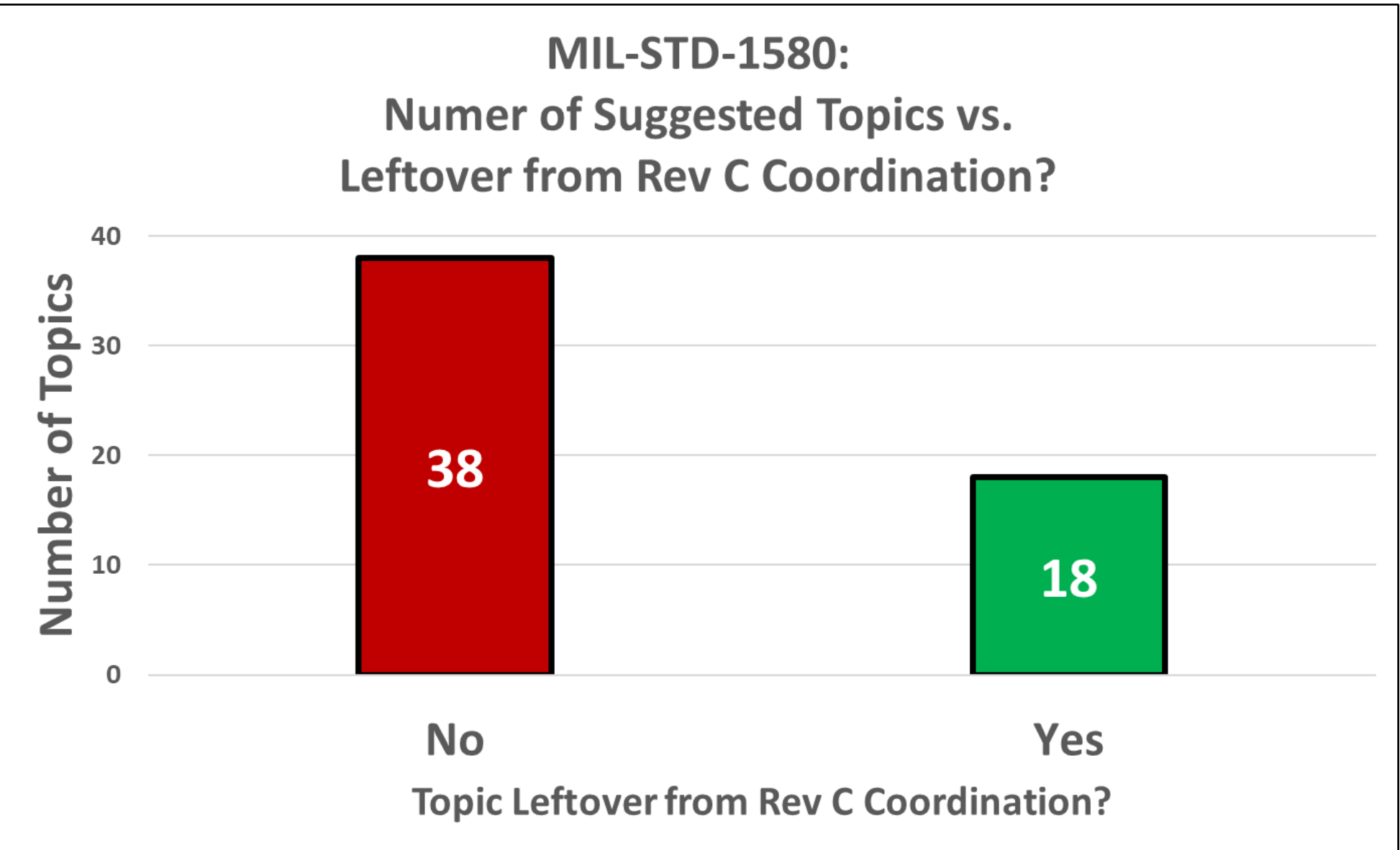
Partial Listing of Topics

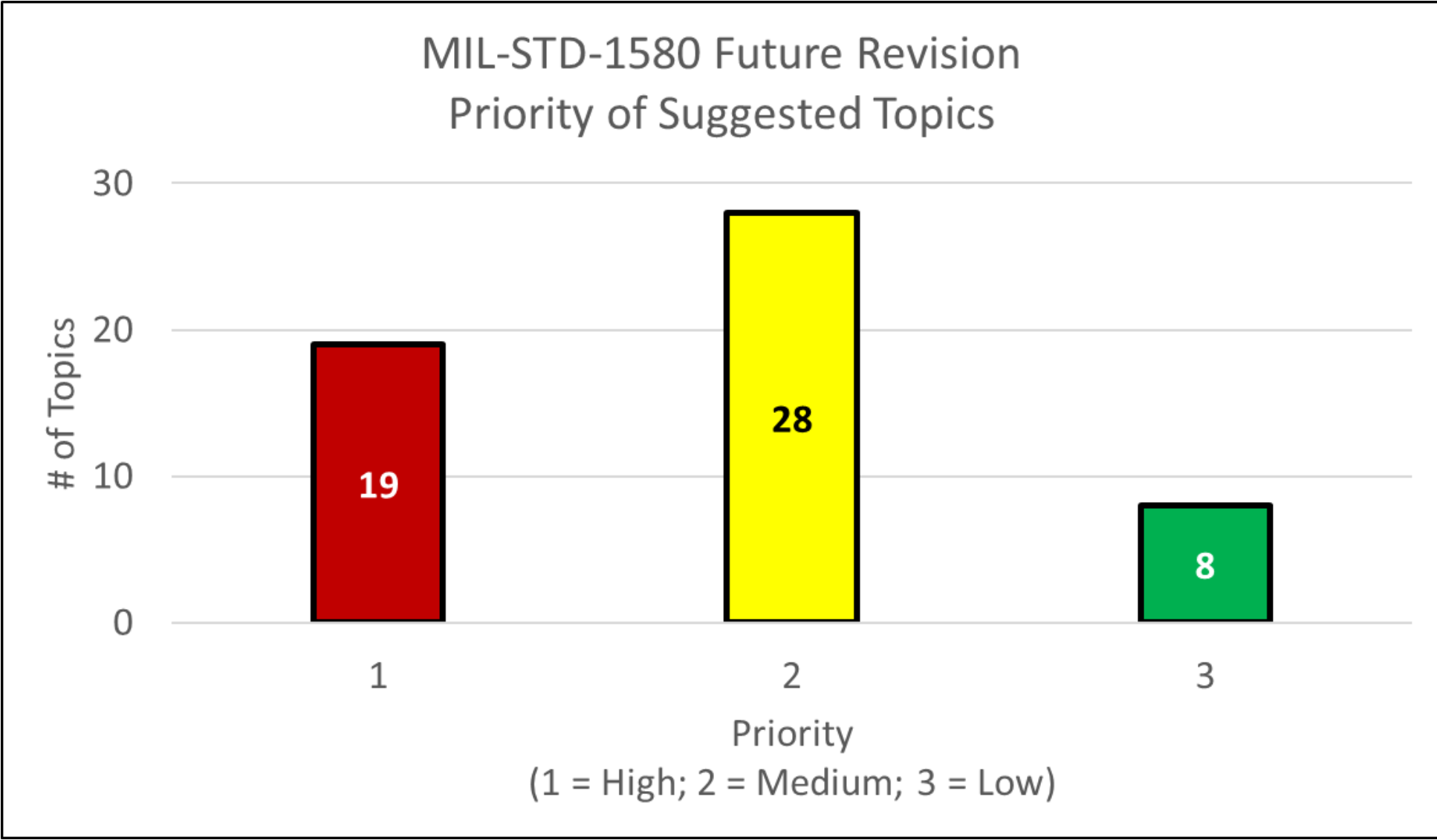
MIL-STD-1580 DPA for EEE Parts : Suggestions for Future Revision/Amendment									
Last Update			5/17/2021						
Item number	Tabled Item from Rev C Effort?	MIL-STD reference section	Originator	Commodity	Category (Admin, New, PMA, Technical)	Level of effort required	Priority (1, 2, 3)	Comment	Topic Leader
0	No	N/A	Aerospace	ALL	Administrative	high	1	PREPARING ACTIVITY and stakeholders (CE11, CE12, et al) to plan a course of action on if, how, when to act upon the following proposed updates to 1580	TBD
1	No	4	GWG	All	Administrative	low	2	The scope should address homogeneity of lots. The following should be added: "from a homogenous production lot. If the production lot is not homogenous, the sample sizes should be increased by a factor as a function of the number of the production lots in the procurement lot. If the procurement lot is 3 then the sample size should be increased by a factor of 3.	Kathy Laird
2	No	12	GWG	Crystal	Technical	low	1	Requirement 12 page 80: There is a conflict between from A and B. The second sentence of B calls out edge chips. Change the second sentence in B from "edge chips" to "chip outs".	Kathy Laird
3	No	4	GWG	All	Administrative	low	3	MIL-STD-1580: Section 4.1.1 DPA for a lot conformance test: It is recommended that a sample size should not be less than what is statistically significant ie > or = 3.	Kathy Laird
4	No	4, various	GWG	Actives	Administrative	low	2	TM1018 750/883: The test methods do not specify a minimum number of devices for IGA but states that it should never be n=1. This should be changed to the sample size should be large enough to be statistically significant and shall not be less than 3. However the sample sizes are 3/0 in the MIL-PRF documents.	Kathy Laird

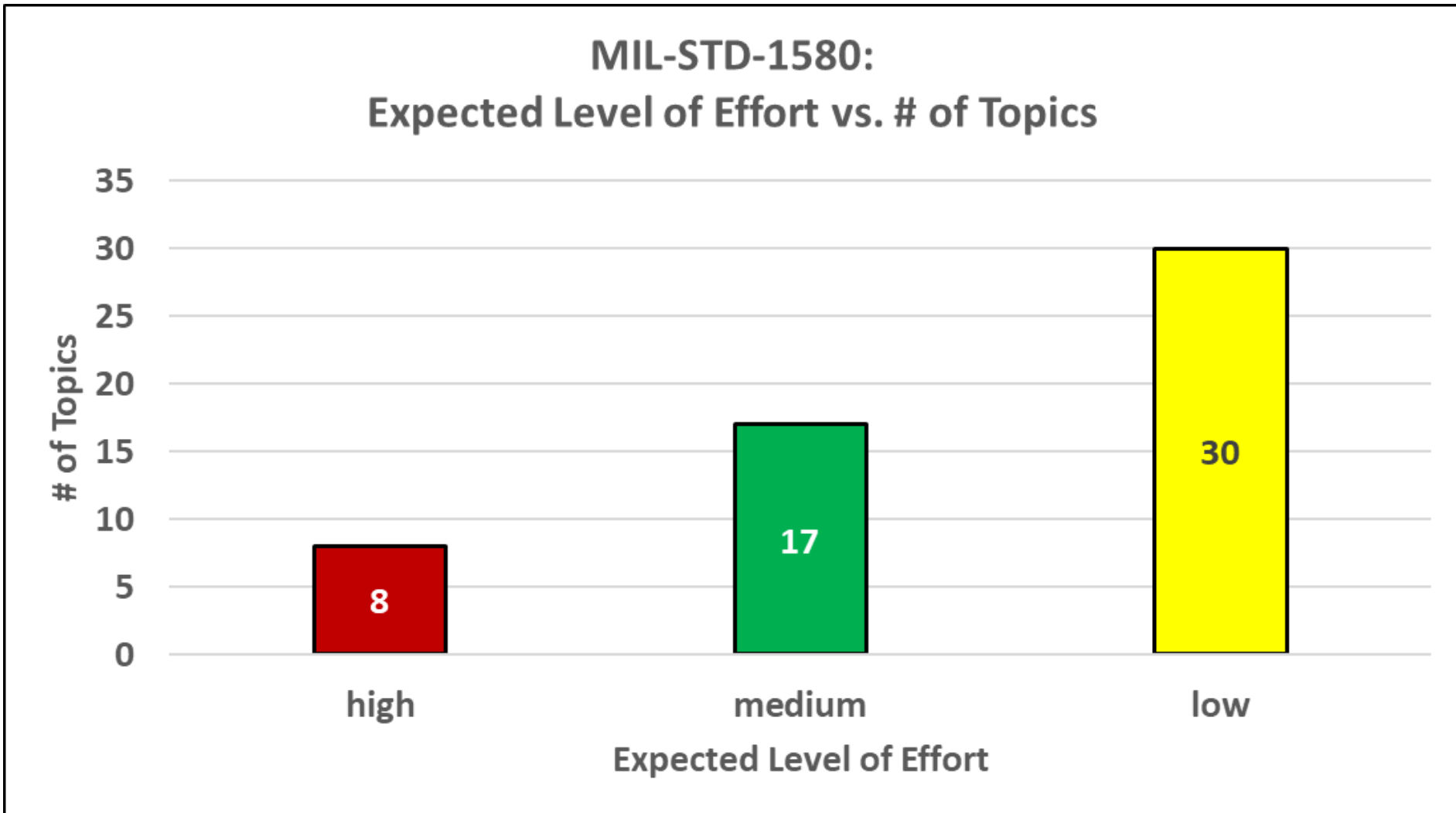


MIL-STD-1580 Future Topics by Commodity Area Affected









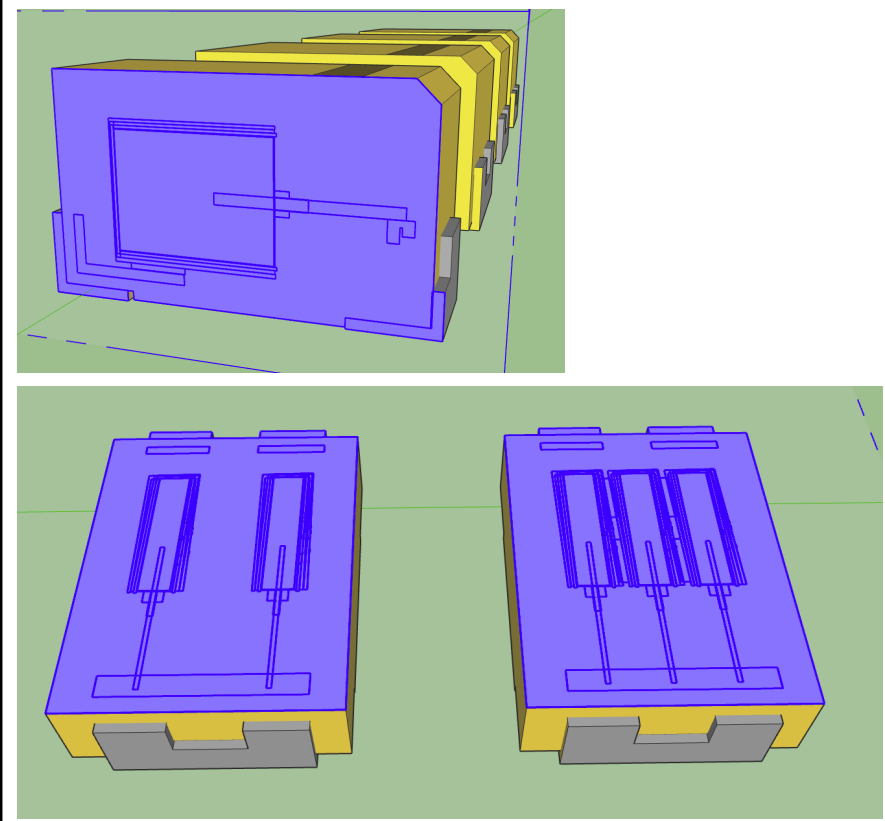
MIL-STD-1580 Capacitor Topics Sub-Team

Contact Jay Brusse/SSAI at NASA Goddard Jay.A.Brusse@nasa.gov for details

- Seven (7) capacitor topics to be deliberated (Team lead Jay Brusse)
 - All 7 topics relate to TANTALUM CAPACITOR products
 - 1 relates to PMA
 - 1 relates to development of multiple “new sections” for niche tantalum capacitor products
- Three Meetings Held to Date
 - ~20 participants (test labs, QPL suppliers, government/industry users)
 - **Meetings held ~bi-weekly on Thursday at 1PM EST (1.5 hrs)**

Examples of the Capacitor Topics Being Deliberated

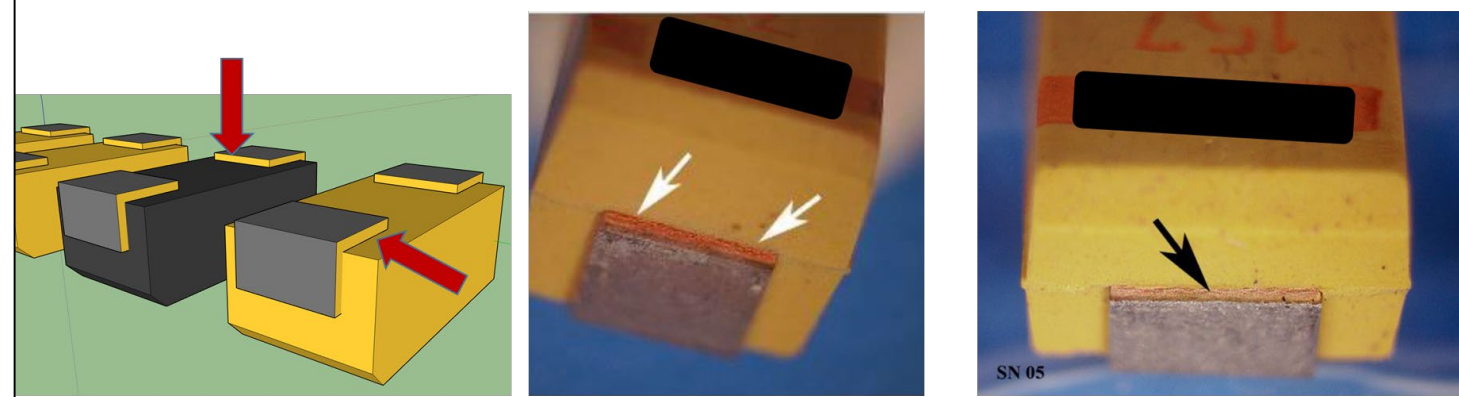
Topic 10- Add Cross Section Requirements for Multi-Anode Tantalum Chip Capacitors



Topic 32- Proposal to waive “prohibited materials analysis (PMA)” requirement for exposed zinc-containing base metal in tantalum chip capacitor terminals at trim and form locations

Initially proposed by Trevor Devaney/Hi Rel Labs

Consult the "1580 PMA for zinc task group" (Tom Hester) about this topic



Images Courtesy of NASA Goddard Space Flight Center Parts Analysis Laboratory

MIL-STD-1580 Third Party Laboratory Questions

Contact Sultan.Lilani@integra-tech.com for details

- Nine (9) topics to be deliberated (Team lead Sultan Lilani)
 - 8 topics relate to procedure details including sample size requirements.
Items 9 to 15, 25.
 - 1 relates to procedures for newer technologies such as flip chip, stacked chip assemblies, etc.
Item 34.
- First meeting will be in June.
 - ~8 to 10 participants (test labs, QPL suppliers, government/industry users)
 - **First Meeting Tuesday, June 1, 2021, 1PM EST**



MIL-STD-1580 Future Improvements Task Group WWW Site

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CE-11 Component Parts Committee

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Work Area for CE-11 Component Parts
 Task team for update of MIL-STD-1580 revision C

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1580 TG Status Report to SAE CE11/CE12 - May 2021 Wed May 19 2021 7:45 AM EDT by Jay Brusse	D	Edit	0	Discuss Download
Items submitted for review for an update of rev C Tue May 18 2021 8:04 PM EDT by Michael Cozzolino			0	Discuss Download

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