

SAE INTERNATIONAL

# SAE INTERNATIONAL STANDARDS- COUNTERFEIT AVOIDANCE, DETECTION, MITIGATION AND DISPOSITION

Director, Government & Industry Affairs – Aerospace  
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[www.sae.org](http://www.sae.org)



# SAE Aerospace G-19 Counterfeit Electronic Parts Committee

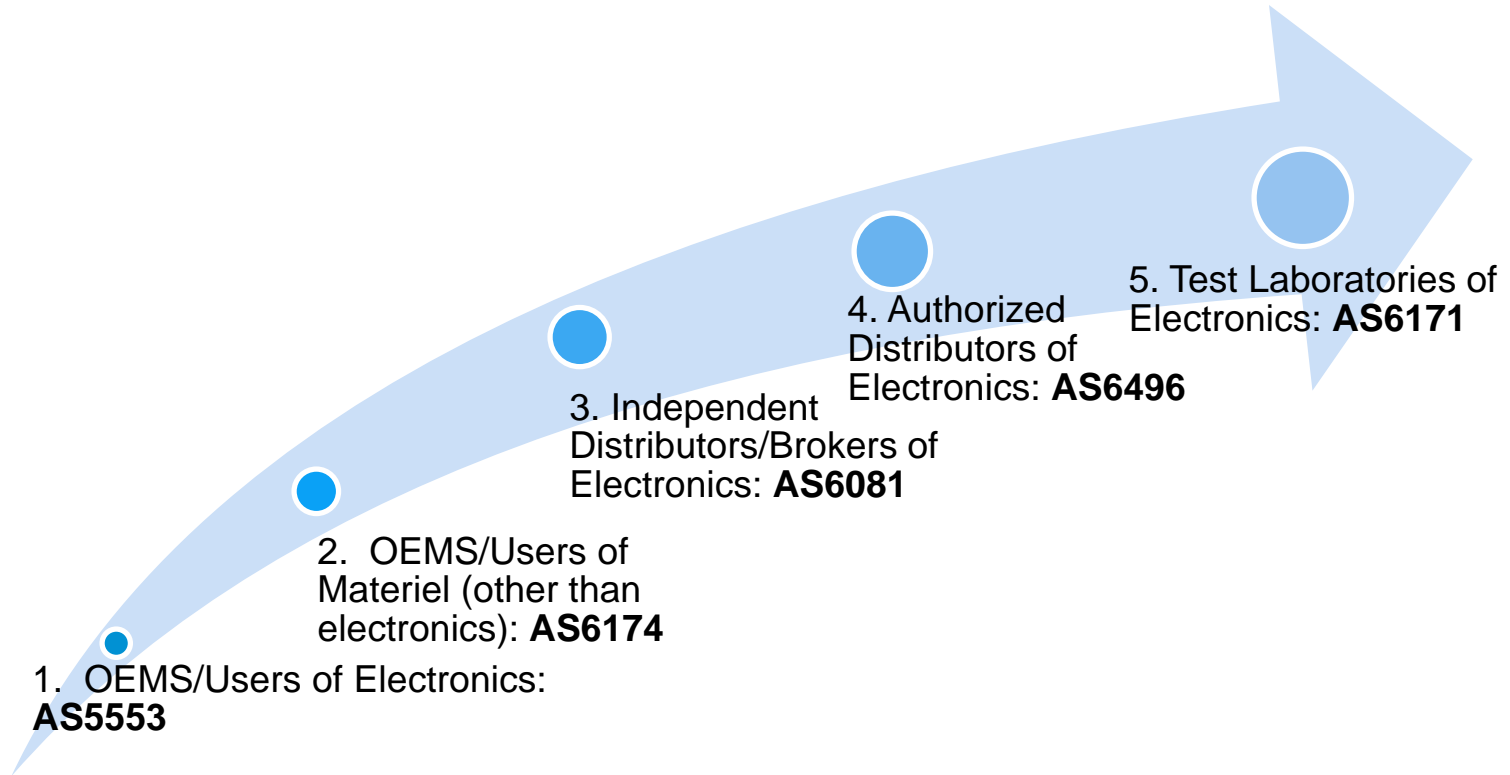
Chartered in 2007 to address aspects of preventing, detecting, responding to and counteracting the threat of counterfeit electronic components. Participants included:

- Government
- Defense/Aerospace manufacturers
- Industry Groups
- Testing Laboratories
- April 2009 - SAE International released aerospace standard AS5553, Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, and Disposition
- August 2009 – United States DoD adopted AS5553

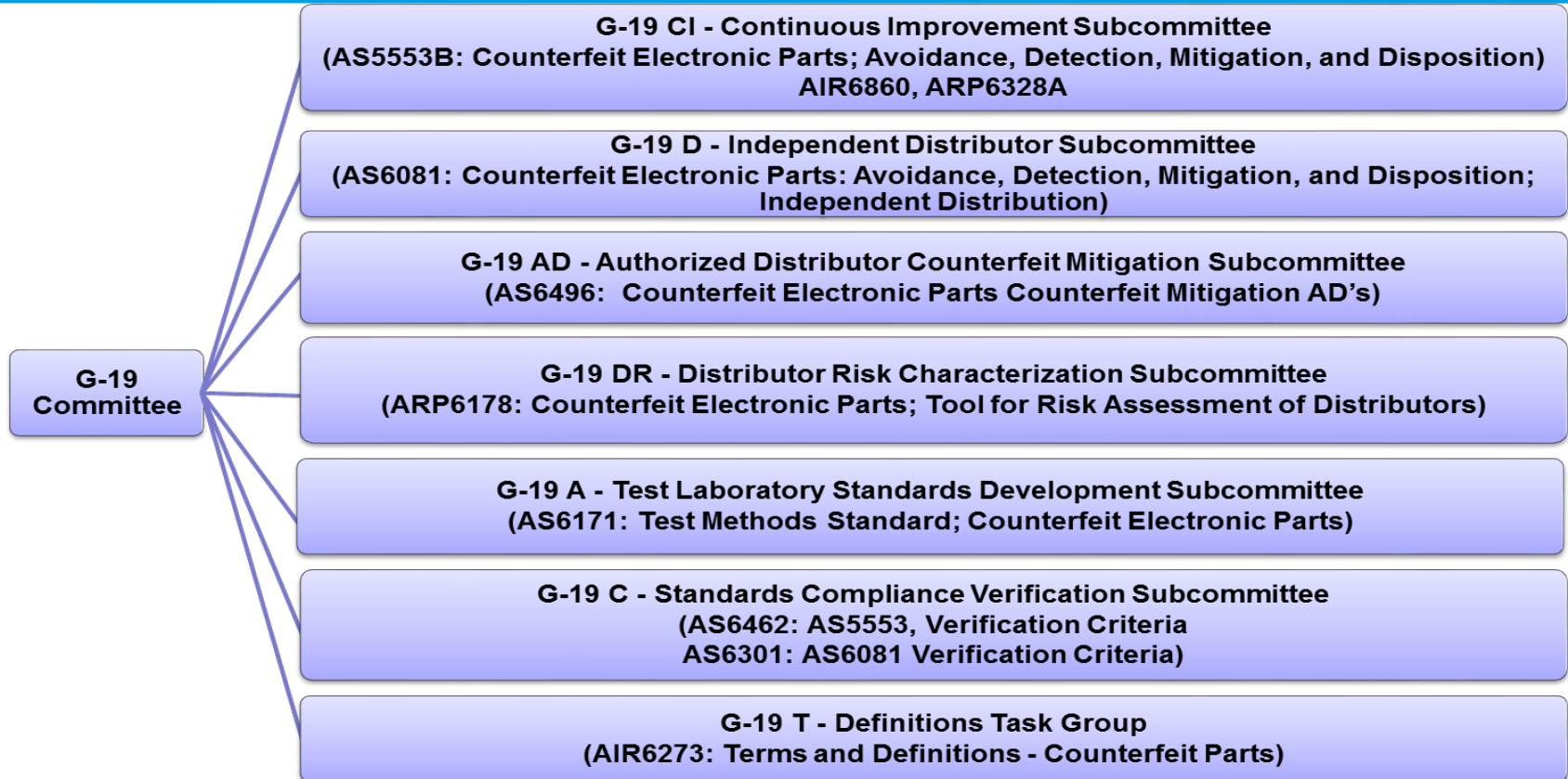
# Committee G-21 Counterfeit Materiel

- April 20, 2010 – DoD PSMC (Part Standardization and Management Committee) requested SAE to address counterfeit NON-electronic parts
- October 4, 2010 – AS6174 based on major rewrite of AS5553 to address all materiel
- Jan-May 2011 – revised to consider Office of the Secretary of Defense (OSD) and WH Intellectual Property Enforcement Coordinator(IPEC) PEC input
- Published AS6174 May 2012

# G-19 & G-21 Counterfeit Prevention & Detection Standards



# G-19 Subcommittees Formed Since 2009



# Industry Standards to Mitigate Counterfeit Risk in Supply Chain

## G-19 and G-21 Management Committee

JEDEC JC-13	G-19 Counterfeit Electronic Components Committee Oversight				G-21 Counterfeit Materiel Committee Oversight	
	Test Laboratory Accreditation Standard (AS6810)	Auditor Competency (ASxxxx)		Auditor Competency (ASxxxx)		
Certification Body	Accreditation Body	Certification Body				
Original Component Manufacturer	Test Provider	Distributor		Original Equipment Manufacturer/User/MRO		
	Proficiency Test Provider Operator(s) Certified to PT Scheme for Identified AS6171 Test Methods	Authorized/ Franchised	Broker/ Independent			
				Commodity Specific		
<p><b>JESD243, Fraudulent/Counterfeit Electronic Parts: Avoidance, Detection, Mitigation and Disposition for Manufacturers</b> JEDEC JC-13</p> <p><b>JESDxxx, Compliance Standard or Guide</b> (Includes Audit Checklist) JEDEC JC-13</p>	<p><b>AS6171, Test Methods Standard; Counterfeit Electronic Parts, SAE G-19A</b></p> <ul style="list-style-type: none"> <li>AS6171/1: Suspect/Counterfeit Test Evaluation Method</li> <li>AS6171/2A: External Visual Inspection (EVI) (incl. remarking, resurfacing, weight, dimensions, SEM)</li> <li>AS6171/3: X-Ray Fluorescence (XRF) (incl. lead finish, thickness)</li> <li>AS6171/4: Delid/Decapsulation Physical Analysis (DDPA)</li> <li>AS6171/5: Radiological Inspection (RI): X-ray imaging</li> <li>AS6171/6: Acoustic Microscopy (AM): external and internal</li> <li>AS6171/7: Electrical Test: Curve Trace, Full DC, Key Electrical Parameters for AC, Switching, and Functional Tests; ambient or over temperature (incl. environmental, burn-in, seal)</li> <li>AS6171/8: Raman Spectroscopy</li> <li>AS6171/9: Fourier Transform Infrared Spectroscopy (FTIR): materials identification</li> <li>AS6171/10: Thermogravimetric Analysis (TGA)</li> <li>AS6171/11: Design Recovery (DR) SAE G-19A</li> </ul> <ul style="list-style-type: none"> <li>AS6171/12: Acoustic Microscopy</li> <li>AS6171/13: Secondary on Mass Spectroscopy</li> <li>AS6171/14: Radiated Electromagnetic Emission</li> <li>AS6171/15: Packaging</li> <li>AS6171/16: Netlist Assurance</li> <li>AS6171/17: Laser Scanning Microscopy</li> <li>AS6171/18: TMA Test Methods</li> <li>AS6171/19: AES Test Method</li> <li>AS6171/20: XPS Test Method</li> <li>AS6171/21: GC/MS Test Methods</li> <li>AS6171/22: SEM Test Methods SAE G-19A</li> </ul>	<p><b>AS6496, Authorized Distributor Counterfeit Mitigation Sub-com.</b> SAE G-19AD</p> <p><b>ASxxxx, Compliance Standard or Guide</b> (Includes Audit Checklist) SAE G-19C</p>	<p><b>ARP6178, Counterfeit Electronic Parts; Tool for Risk Assessment of Distributors. Worksheet and User Guide. SAE G-19DR</b></p> <p><b>AS6081, Counterfeit Electronic Parts Avoidance, ID's.</b> SAE G-19D</p> <p><b>AS6301, Compliance Standard or Guide</b> (includes Audit Checklist) SAE G-19C</p>	<p><b>AS5553B, Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, and Disposition. SAE G-19CI</b></p> <p><b>AS6462, AS5553, Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, and Disposition Verification Criteria</b> Includes Audit Checklist. SAE G-19C</p> <p><b>ARP6328, Guideline for Development of Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, and Disposition Systems.</b> SAE G-19CI</p> <p><b>AIR6860, Use of SAE AS5553 for Implementation of U.S. DFARS 252.246-7007 &amp; 252.246-7008.</b> SAE G-19CI</p>	<p><b>AS6174A, Counterfeit Materiel; Assuring Acquisition of Authentic and Conforming Materiel</b> SAE G-21</p> <p><b>AS6174/1, Compliance Standard or Guide</b> (Includes Audit Checklist) SAE G-21</p>	<p><b>AS6174/2, Fastener Counterfeit Avoidance and Detection</b> SAE G-21</p> <p><b>AS6174/3, Bearing Counterfeit Avoidance and Detection</b> SAE G-21</p> <p><b>AS6886, Refrigerant Counterfeit Avoidance and Detection</b> SAE G-21</p>
		<p><b>AIR6273, Terms, Definitions, and Acronyms - Counterfeit Materiel or Electrical, Electronic and Electromechanical Parts</b> SAE G-19T</p>				
	Published	In Development	Gap			

**Standards status as of September 2017**

Specifications in Red are DoD Adopted

# Summary of SAE G-19 Aerospace Standards

Standard	Title	Status
SAE AS5553B (G19-CI)	Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, and Disposition	Published Sept 2016 Rev. C in ballot
SAE AS6081 (G19-D)	Counterfeit Electronic Parts Avoidance – Independent Distributors	Published Nov. 2012 Rev. A in development
SAE AS6171 + slashesheets 1-11. Slashesheets 12-23 in development (G19-A)	Test Methods Standard; Counterfeit Electronic Parts	Published October 2016.
SAE AS6810 (G19-A)	Requirements for Accreditation of Test Labs for Suspect/Counterfeit EEE Parts Detection in Accordance with AS6171	In development

# Summary of SAE G-19 Aerospace Standards

Standard	Title	Status
SAE AS6301 (G19-C)	Fraudulent/Counterfeit Electronic Parts: Avoidance, Detection, Mitigation, and Disposition – Independent Distributors Verification Criteria	Published Jan. 2014
SAE AS6496 (G19-AD)	Authorized Distributor Counterfeit Mitigation	Published Aug. 2014
SAE AIR6273 (G19-T)	Terms and Definitions: Counterfeit Materiel or Electronic parts.	Just come out of Committee ballot.
SAE ARP6178 (G19-DR)	Counterfeit Electronic Parts; Tool for Risk Assessment of Distributors	Published Dec.2011.

# Summary of SAE G-19 Aerospace Standards

Standard	Title	Status
SAE AIR6860 (G19-CI)	Use of AS5553 for Implementation of Defense Federal Acquisition Regulation Supplement 252-246-7007	In development
SAE ARP6328 (G19-CI)	Guideline for Development of Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, and Disposition Systems	Published Sept. 2016
SAE AS6462A (Rev. B in development) (G19-C)	Fraudulent/Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, and Disposition Verification Criteria against AS5553B	Published Aug. 2014

# Summary of SAE G-21 Aerospace Standards

Standard	Title	Status
SAE AS6174A (G-21)	Counterfeit Materiel; Assuring Acquisition of Authentic and Conforming Materiel	Rev. A Published July 2014.
SAEAS6174/1 (G-21)	Compliance Verification Matrix (VM) Slash Sheet for SAE AS6174A, Counterfeit Materiel; Assuring Acquisition of Authentic and Conforming Materiel	Published April 2017
SAE AS6174/2 (G-21)	Counterfeit Materiel; Assuring Acquisition of Authentic and Conforming Materiel –Fasteners Slash Sheet	In development
SAE AS6174/3 (G-21)	Counterfeit Materiel: Assuring Acquisition of Authentic and Conforming Materiel – Bearings Slash Sheet	In development.
SAE 6886 G21-R	Counterfeit Materiel: Assuring Acquisition and Use of Authentic and Conforming Refrigerant.	Published June 2015

# New SAE Counterfeit Defect Coverage (CDC) tool

- The CDC Tool can be used to identify potential test sequences for a range of risk levels and EEE part types, for counterfeit part detection.
- It also allows evaluation of the counterfeit defect coverage of a proposed test sequence for detection of a counterfeit part.
- The output of this tool consists of estimates of the following: Counterfeit Defect Coverage (CDC), Counterfeit Type Coverage (CTC), Not-Covered Defects (NCD), and Under-Covered Defects.
- The tool is an online method of implementing the calculations described in SAE International's Test Method, AS6171/1 "Suspect/Counterfeit Test Evaluation Method."
- Example test sequences obtained through the use of the SAE CDC Tool are provided in AS6171 General Requirements

# QUESTIONS?