



# What's Happening to the **Color Books**?

**I**n my column in the March/April issue, I mentioned the ongoing standards projects in the IEEE Industry Applications Society (IAS) and intentionally left out the report on the IEEE *Color Books* to present it at a later date. Now, it is time to provide this information and again solicit input on the standards-making process.

In the Industrial and Commercial Power Systems Department (I&CPS), there is a major project underway to reorganize the popular IEEE *Color Book* series. This set of recommended practices covers the many varied subjects dealing with all aspects of industrial and commercial power systems, e.g., analyzing, planning, calculating, coordinating, protecting, and assuring the safety of the power system

elements. In this column, I will provide an overview of what is expected to take place, and details will be given in a future column.

First, the standards involved are listed in Table 1, with a short description to provide an idea of what the original standard covered. The new numbering scheme has not been finalized for all sections yet, but we anticipate a base series of standards numbers

TABLE 1. STANDARDS IN THE IEEE COLOR BOOK SERIES.

Standard Numbers	Color Book	Title	Description
141	Red	IEEE Recommended Practice for Electric Power Distribution for Industrial Plants	A thorough analysis of basic electrical systems considerations is presented.
142	Green	Recommended Practice for Grounding of Industrial and Commercial Power Systems	The scope of this document is to provide consensus of the expertise on the subject of grounding of industrial and commercial power systems, equipment, lightning protection, connection to earth, and computer system grounding.
241	Gray	IEEE Recommended Practice for Electric Power Systems in Commercial Buildings	A guide and general reference on electrical design for commercial buildings is provided.
242	Buff	IEEE Recommended Practice for Protection and Coordination of Industrial and Commercial Power Systems	The proper selection, application, and coordination of the components that constitute system protection for industrial plants and commercial buildings.
399	Brown	IEEE Recommended Practice for Industrial and Commercial Power Systems Analysis	Analytical principle and recommended techniques most often employed in the design, operation, and troubleshooting of electric power systems for industrial facilities and commercial building.

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**TABLE 1. (CONTINUED).**

Standard Numbers	Color Book	Title	Description
446	Orange	IEEE Recommended Practice for Emergency and Standby Power Systems for Industrial and Commercial Applications	This recommended practice addresses the uses, power sources, design, and maintenance of emergency and standby power systems.
493	Gold	IEEE Recommended Practice for the Design of Reliable Industrial and Commercial Power Systems	The fundamentals of reliability analysis as applied to the planning and design of industrial and commercial electric power distribution systems are presented.
551	Violet	Recommended Practice for Calculating ac Short-Circuit Currents in Industrial and Commercial Power Systems	This recommended practice provides short-circuit current information including calculated short-circuit current duties for the application in industrial plants and commercial buildings, at all power system voltages, of power system equipment that senses, carries, or interrupts short-circuit currents.
602	White	IEEE Recommended Practice for Electric Systems in Health Care Facilities	A recommended practice for the design and operation of electric systems in health care facilities is provided.
739	Bronze	IEEE Recommended Practice for Energy Management in Industrial and Commercial Facilities	This recommended practice serves as an engineering guide for use in electrical design for energy conservation.
902	Yellow	IEEE Guide for Maintenance, Operation, and Safety of Industrial and Commercial Power Systems	The document will cover the maintenance, operation, and safety of low- and medium-voltage electric power systems serving industrial and commercial facilities.
1015	Blue	Recommended Practice for Applying Low-Voltage Circuit Breakers Used in Industrial and Commercial Power Systems	This recommended practice helps the application engineer specify the type of circuit breaker, ratings, trip functions, accessories, acceptance tests, and maintenance requirements.
1100	Emerald	IEEE Recommended Practice for Powering and Grounding Electronic Equipment	This recommended practice presents a collection of consensus best practices for the powering and grounding of electronic equipment used in commercial and industrial applications.

(say 3000–3100), with each chapter having a designated dot standard such as 3001.1, to allow it to be developed and balloted on its own. The effort to consolidate similar material to avoid conflicts or repetitions has been and will continue to be quite extensive. Much of this general power system information will be assembled into a new standard that will serve as a launch point to jump into the more detailed specifics of industrial and commercial power systems. The working group subject matter experts will

still provide and maintain the technical content and will be able to focus on those areas that are changing with new technologies while allowing the more basic areas to remain stable.

Table 2 indicates the potential base document topical areas, and each chapter within may also point to another dot standard for deeper coverage of the subject. Bear in mind that all of this is still a work in progress and is subject to change on a rather frequent basis. Where the standard number is known, it has

been inserted with the title in the right-hand column.

All working groups developing these revised recommended practices are interested in obtaining more volunteer help in the standard development effort. If you have expertise or interest in any of the areas outlined in the tables, then contact the respective working group chair to provide your input. Your participation will be sincerely appreciated. Contact names and e-mails for the working groups responsible

**TABLE 2. POTENTIAL BASE DOCUMENT TOPICAL AREAS.**

Topical Area	Potential Dot Standards
Power Systems Design (3001 Series)	Recommended Practice for the Planning of Industrial and Commercial Power Systems
	3001.2: Recommended Practice for Evaluating the Electrical Service Requirements of Industrial and Commercial Power Systems
	Recommended Practice for the Design of Industrial and Commercial Power Systems
	Recommended Practice for Estimating the Costs of Industrial and Commercial Power Systems
	Recommended Practice for the Application of Power Distribution Apparatus in Industrial and Commercial Power Systems
	Recommended Practice for the Expansion, Modernization, and Rehabilitation of Industrial and Commercial Power Systems
	Recommended Practice for the Application of Communication and Signaling Systems Used in Industrial and Commercial Power Systems
	3001.8: Recommended Practice for the Instrumentation and Metering of Industrial and Commercial Power Systems
	3001.9: Recommended Practice for the Lighting of Industrial and Commercial Facilities
	Recommended Practice for Electric Space Conditioning of Industrial and Commercial Facilities
	Recommended Practice for the Application of Controllers and Automation to Industrial and Commercial Power Systems
Power Systems Analysis (3002 Series)	Recommended Practice for the Modeling and Simulation of Industrial and Commercial Power Systems as a Precursor for Conducting System Studies
	Recommended Practice for Conducting a Load-Flow Study of Industrial and Commercial Power Systems
	Recommended Practice for Conducting Short-Circuit Studies of Industrial and Commercial Power Systems
	Recommended Practice for Conducting Device Duty Short-Circuit Calculations in Industrial and Commercial Power Systems
	Recommended Practice for Conducting Arc-Flash Calculations in Industrial and Commercial Power Systems
	Recommended Practice for Conducting Transient Stability Studies of Industrial and Commercial Power Systems
	3002.7: Recommended Practice for Conducting Motor-Starting Studies in Industrial and Commercial Power Systems
	3002.8: Recommended Practice for Conducting Harmonic-Analysis Studies of Industrial and Commercial Power Systems
	3002.9: Recommended Practice for Conducting Switching-Transient Studies of Industrial and Commercial Power Systems
	Recommended Practice for Conducting Cable-Ampacity and Sizing Studies of Industrial and Commercial Power Systems
	Recommended Practice for Analyzing Voltage Sags in Industrial and Commercial Power Systems
	Recommended Practice for Analyzing DC Auxiliary and Battery Systems for Industrial and Commercial Power Systems
	Power System Grounding (3003 Series)
3003.2: Recommended Practice for Equipment Grounding and Bonding in Industrial and Commercial Power Systems	

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**TABLE 2. (CONTINUED).**

Topical Area	Potential Dot Standards
Protection and Coordination (3004 Series)	Recommended Practice for Static Discharge Protection Grounding of Industrial and Commercial Power Systems
	Recommended Practice for Lightning Protection Grounding of Industrial and Commercial Power Systems
	Recommended Practice for the Powering and Grounding of Electronic Equipment in Industrial and Commercial Power Systems
	3004.1: Recommended Practice for the Application of Instrument Transformers in Industrial and Commercial Power Systems
	Recommended Practice for the Application of Protective Relays in Industrial and Commercial Power Systems
	Recommended Practice for the Application of Low-Voltage Fuses in Industrial and Commercial Power Systems
	Recommended Practice for the Application of High-Voltage Fuses in Industrial and Commercial Power Systems
	Recommended Practice for the Application of Low-Voltage Circuit Breakers in Industrial and Commercial Power Systems
	Recommended Practice for Ground-Fault Protection of Industrial and Commercial Power Systems
	Recommended Practice for Conductor Protection in Industrial and Commercial Power Systems
	Recommended Practice for Motor Protection in Industrial and Commercial Power Systems
	Recommended Practice for Transformer Protection in Industrial and Commercial Power Systems
	3004.10: Recommended Practice for Generator Protection in Industrial and Commercial Power Systems
	3004.11: Recommended Practice for Bus and Switchgear Protection in Industrial and Commercial Power Systems
	Recommended Practice for Service Supply Line Protection in Industrial and Commercial Power Systems
Recommended Practice for Overcurrent Coordination of Industrial and Commercial Power Systems	
Emergency and Standby Power (3005 Series)	Recommended Practice for Determining the Need for Emergency and Standby Power Systems in Industrial and Commercial Facilities
	Recommended Practice for the Application of Generator Systems for use in Emergency and Standby Power Systems
	3005.3: Recommended Practice for the Application of Stored-Energy Systems for use in Emergency and Standby Power Systems
	3005.4: Recommended Practice for Improving the Reliability of Emergency and Standby Power Systems
	Recommended Practice for the Energy Management of Industrial and Commercial Power Systems—An Introduction
	Recommended Practice for the Energy Management of Motors, Electrical Equipment, and Lightning Systems in Industrial and Commercial Power Systems
	3005.7: Recommended Practice for the Application of Metering for Energy Management of Industrial and Commercial Power Systems
	Recommended Practice for the Application of Distributed Generation to Industrial and Commercial Power Systems

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**TABLE 2. (CONTINUED).**

Topical Area	Potential Dot Standards
Power Systems Reliability (3006 Series)	Recommended Practice for Reliability Planning and Design of Industrial and Commercial Power Systems
	Recommended Practice for Evaluating the Reliability of Existing Industrial and Commercial Power Systems
	Recommended Practice for Determining the Impact of Preventive Maintenance on the Reliability of Industrial and Commercial Power Systems
	Recommended Practice for Determining the Impact of Emergency and Standby Power Systems on the Reliability of Industrial and Commercial Power Systems
	Recommended Practice for the Use of Probability Methods for Conducting a Reliability Analysis of Industrial and Commercial Power Systems
	Recommended Practice for Reliability Compliance Testing of Emergency and Standby Power Systems
	3006.7: Recommended Practice for Determining the Reliability of 24 × 7 Continuous Power Systems in Industrial and Commercial Facilities
	3006.8: Recommended Practice for Analyzing Reliability Data for Equipment Used in Industrial and Commercial Power Systems
	3006.9: Recommended Practice for Collecting Data for Use in Reliability, Availability, and Maintainability Assessments of Industrial and Commercial Power Systems
Power Systems Maintenance, Operations and Safety (3007 Series)	3007.1: Recommended Practice for the Operation and Management of Industrial and Commercial Power Systems
	3007.2: Recommended Practice for the Maintenance of Industrial and Commercial Power Systems
	3007.3: Recommended Practice for Electrical Safety of Industrial and Commercial Power Systems

**TABLE 3. WORKING GROUP CONTACT INFORMATION.**

Working Group Name	Chair	E-mail
General Material (Base Standard) (3000)	Dave Mills	d.mills@ieee.org
	Carey Cook (Cochair)	ccook@sandc.com
Power System Design (3001 Series)	Peter Sutherland	peter.sutherland@ieee.org
Power System Analysis (3002 Series)	Farrokh Shokooh	farrokh@etap.com
Power System Grounding (3003 Series)	Doug Dorr	d.dorr@ieee.org
Protection and Coordination (3004 Series)	Rasheek Rifaat	Rasheek.Rifaat@jacobs.com
Emergency, Standby Power, and Energy Management (3005 Series)	Joe Weber	Jweber@ASCO.com
Power System Reliability (3006 Series)	Robert Arno	Barno@eypmcf.com
Power System Maintenance, Operation, and Safety (3007 Series)	Dennis Neitzel	Dennis.neitzel@avotraining.com

for the development of the standards are listed in Table 3.

Please consider getting involved in the IEEE/IAS standards development

process. You can easily do so by contacting one of the working group chairs and simply asking, "How can I help?" It won't take long to get a response.

Thanks for a great first year as chair of the IAS Standards Department. The year 2009 will be another great one, I just know it. **IAS**