

IEEE Stationary Battery Standards Collection: VuSpec™

A complete reference with 36 standards, essential papers, and convenient tools wrapped inside an easy-to-use interface that runs inside your web browser. You need this product if you are designing, manufacturing, sizing, selecting, installing, maintaining, testing, or operating storage batteries used in stationary and portable applications, including generating stations, substations, energy storage, industrial control, emergency/standby generator sets, emergency lighting, telecommunications, portable computing, and uninterruptible power supplies. Battery types include rechargeable lead-acid, nickel-cadmium, and other types used or proposed for use in stationary applications.

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Includes 36 active IEEE standards in the Stationary Batteries family (also includes photovoltaics, portable computers, and cell phones):

- 450-2010 IEEE Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications
- 484-2002 (R2008) IEEE Recommended Practice for Installation Design and Installation of Vented Lead-Acid Batteries for Stationary Applications
- 485-2010 IEEE Recommended Practice for Sizing Lead-Acid Batteries for Stationary Applications
- 535-2013 IEEE Standard for Qualification of Class 1E Lead Storage Batteries for Nuclear Power Generating Stations
- 937-2007 IEEE Standard for Qualification of Class 1E Lead Storage Batteries for Nuclear Power Generating Stations
- 946-2004 IEEE Recommended Practice for the Design of DC Auxiliary Power Systems for Generating Systems
- 1013-2007 IEEE Recommended Practice for Sizing Lead-Acid Batteries for Stand-Alone Photovoltaic (PV) Systems
- 1106-2005 IEEE Recommended Practice for Sizing Lead-Acid Batteries for Photovoltaic (PV) Systems
- 1115-2014 IEEE Recommended Practice for Sizing Nickel-Cadmium Batteries for Stationary Applications
- 1115a-2007 IEEE Recommended Practice for Sizing Nickel-Cadmium Batteries for Stationary Applications Amendment 1: Additional Discussion on Sizing Margins
- 1184-2006 Guide for Batteries for Uninterruptible Power Supply Systems
- 1187-2013 Recommended Practice for Installation Design and Installation of Valve-Regulated Lead-Acid Batteries for Stationary Applications
- 1188-2005 (R2010) IEEE Recommended Practice for Maintenance, Testing, and Replacement of Valve-Regulated Lead-Acid (VRLA) Batteries for Stationary Applications

- 1188a-2014, IEEE Recommended Practice for Maintenance, Testing, and Replacement of Valve-Regulated Lead-Acid (VRLA) Batteries for Stationary Applications - Amendment 1: Updated VRLA Maintenance Considerations
- 1189-2007 IEEE Guide for Selection of Valve-Regulated Lead-Acid (VRLA) Batteries for Stationary Applications
- 1361-2003 IEEE Guide for Selection, Charging, Test and Evaluation of Lead-Acid Batteries Used in Stand-Alone Photovoltaic (PV) Systems
- 1375-1998 (R2003) IEEE Guide for the Protection of Stationary Battery Systems
- 1491-2012 IEEE Guide for Selection and Use of Battery Monitoring Equipment in Stationary Applications
- 1526-2003 IEEE Recommended Practice for Testing the Performance of Stand-Alone Photovoltaic Systems
- 1547-2003(R2008)IEEE Standard for Interconnecting Distributed Resources with Electric Power Systems
- 1547a-2014, IEEE Standard for Interconnecting Distributed Resources with Electric Power Systems - Amendment 1
- 1547.1–2005 IEEE Standard Conformance Test Procedures for Equipment Interconnecting Distributed Resources Standawith Electric Power System
- 1547.1a-2015 IEEE Standard Conformance Test Procedures for Equipment Interconnecting Distributed Resources Standawith Electric Power System – Amendment 1
- 1547.2-2008 IEEE Application Guide for IEEE Std 1547™, IEEE Standard for Interconnecting Distributed Resources with Electric Power Systems
- 1547.3-2007 IEEE Guide for Monitoring, Information Exchange, and Control of Distributed Resources Interconnected with Electric Power Systems
- 1547.4-2011 IEEE Guide for Design, Operation, and Integration of Distributed Resource Island Systems with Electric Power Systems
- 1547.6-2011 IEEE Recommended Practice for Interconnecting Distributed Resources with Electric Power Systems Distribution Secondary Networks
- 1547.7-2013 IEEE Guide for Conducting Distribution Impact Studies for Distributed Resource Interconnection
- 1562-2007 IEEE Guide for Array and Battery Sizing in Stand-Alone Photovoltaic (PV) Systems
- 1578-2007 IEEE Recommended Practice for Stationary Battery Electrolyte Spill Containment and Management
- 1625-2008 Standard for Rechargeable Batteries for Multi-Cell Mobile Computing Devices
- 1657-2009 IEEE Recommended Practice for Personnel Qualifications for Installation and Maintenance of Stationary Batteries
- 1660-2008 IEEE Guide for Application and Management of Stationary Batteries Used in Cycling Service
- 1661-2007 IEEE Guide for Test and Evaluation of Lead-Acid Batteries Used in Photovoltaic (PV) Hybrid Power Systems
- 1679-2010 IEEE Recommended Practice for the Characterization and Evaluation of Emerging Energy Storage Technologies in Stationary Applications

- 1725-2011 IEEE Standard for Rechargeable Batteries for Cellular Telephones

Includes 28 Bonus Papers...

- A Guide to Lithium-Ion Battery Safety; McDowall, Jim; Battcon 2014
- A Long-term Evaluation of Battery Maintenance/Testing Activities at the New York Power Authority; Cantor, Bill; Levin, Daniel; Battcon 2007
- Abuse Testing of Sodium Nickel Chloride Batteries; Chatwin, Troy; Telecommunications Energy Conference 'Smart Power and Efficiency' (INTELEC), Proceedings of 2013 35th International, 13-17 Oct. 2013.
- Abuse Testing of Sodium Nickel Chloride Batteries; Chatwin, Troy; Telecommunications Energy Conference 'Smart Power and Efficiency' (INTELEC), Proceedings of 2013 35th International, 13-17 Oct. 2013.
- Arc-in-a-Box: DC Arc Flash Calculations Using a Simplified Approach; Fontaine, Michael D.; McCluer, Stephen W.; Battcon 2014
- Assessment of Lead-Acid Battery State of Charge by Monitoring Float Charging Current; Floyd, Kyle D.; Noworolski, Z.; Noworolski, J. M.; Sokolski, W.; Telecommunications Energy Conference, 1994. INTELEC '94., 16th International, 30 Oct.-3 Nov. 1994.
- Bringing Back to Life An AT&T Canada Venture; Szasz, Robert; Eng, P.; Miltiadou, Loucas; Telecommunications Energy Conference, 2002. INTELEC. 24th Annual International, 29 Sept.-3 Oct. 2002.
- Can a Battery Ohmic Tester Distinguish a Good Cell From the Pool of Better Ones? Noworolski, Zbig; Reskov, Ulo; Intelec 2002.
- CASE STUDY - DC Arc Flash and Safety Considerations in a 400VDC UPS Architecture Power System Equipped with VRLA Battery; Krzywosz, Michael M.; Telecommunications Energy Conference (INTELEC), 2014 IEEE 36th International, Sept. 28 2014-Oct. 2 2014.
- DOE/EPRI Electricity Storage Handbook in Collaboration with NRECA; Akhil, Abbas A.; Huff, Georgianne; Currier, Aileen B.; Kaun, Benjamin C.; Rastler, Dan M.; Bingqing Chen, Stella; Cotter, Andrew L.; Bradshaw, Dale T.; Gauntlett, William D.;
- DC Arc Flash: 2013 Regulatory Updates and Recommended Battery Risk Assessment Guidelines; Cantor, William; McCluer, Stephen; Battcon 2
- Integrity of Battery Connections; Torque, Grease and Resistance; Tressler, Rick; Battcon 2015
- Internal Ohmic Measurements and their Relationship to Battery Capacity: EPRI's Ongoing Technology Evaluation; Davis, Eddie; Funk, Dan; Johnson, Wayne; Battcon 2002
- Lies, Damned Lies and Statistics: The Statistical Treatment of Battery Failures; McDowall, Jim; Battcon 2005
- Memory Effect in Stationary Ni-Cd Batteries? Forget About It! Szasz, Robert; Eng, P.; Miltiadou, Loucas; Battcon 2007
- NERC PRC-005-2: A Mandate for Battery Maintenance and Its Implications for Battery Maintenance Personnel; Searles, Chris; Cantor, William; Francis, Sam; Battcon 2013
- NFPA® 70 and NFPA® 70E Battery-Related Codes Update; Cantor, William; McCluer, Stephen W.; Battcon 2015

- Ohmic Readings: A Battery Manufacturer's Perspective; Gagge, Jr., John P.; Battcon 2006
- Ohmic Test Instruments: A Telecom User's Comparison; Cantor, William; Malek, Martin; Woltman, John; Intelec 2004.
- Operational Characteristics of VRLA Batteries Configured in Parallel Strings; Cole, Bruce A.; Schmitt, Robert J.; Szymborski, Joseph; Intelec '98.
- Proper Single Cell Module Replacement Procedures; Ashton, Curtis; Battcon 2013
- Recovering Lost Capacity in 2 Volt VRLA Cells by way of the IOVR™ Process and the Duration of that Recovered Capacity; DeMar, Peter J.; Intelec 2008.
- Reference Electrode Measurements, Field Experience, Use and Analysis; Cannone, Anthony G.; Cantor, William P.; Feder, David O.; Intelec 2006.
- Reference Electrode Measurements, Field Experience, Use and Analysis; Cannone, Anthony G.; Cantor, William P.; Feder, David O.; Intelec 2006.
- Sodium Metal Chloride Battery Safety in Standby Applications; Miraldi, Andrew K.; Restello, Silvio; Battcon 2013
- Strategies for Overcoming the Adverse Effects of Imbalances in the Second Order Reactions in Valve Regulated Lead Acid Cells; Brecht, William B.; Intelec '98.
- System Integration of Lithium-Ion battery in Telecommunication Back-up Power Plant; Ng, Patrick K.; Mathiesen, Gregory; Davis, Roy; Intelec 2005.
- The Never Ending Pursuit of Float Voltage Uniformity in Stationary Reserve Battery Plants Feder, David O.; Carosella, Gino; Telecommunications Energy Conference, 1994. INTELEC '94., 16th International , 30 Oct.-3 Nov. 1994.
- Understanding Lithium-ion Technology; McDowall, Jim; Battcon 2008
- Ventilation Requirements for VRLA Batteries in Occupied Buildings; Dick, Bruce H.; The Battery Man, May and June 2004.

Plus!

IEEE Calculation of Capacity by Rate-Adjusted Method (Microsoft® Excel® 5.0 or later required)

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