



SURFACE VEHICLE RECOMMENDED PRACTICE

J2758™

DEC2018

Issued 2007-04
Stabilized 2018-12

Superseding J2758 APR2007

Determination of the Maximum Available Power from a Rechargeable
Energy Storage System on a Hybrid Electric Vehicle

RATIONALE

This technical report is being Stabilized because it covers technology, products, or processes which are mature and not likely to change in the foreseeable future. The procedure as written remains correct for early governmental regulations allowing definition and rating of peak power as a ratio between the RESS and the sum of the internal combustion engine and the RESS. This peak power is specific to a specific vehicle and not as unique RESS factor.

This Recommended Practice could still be used, if required.

STABILIZED NOTICE

This document has been declared "Stabilized" by the SAE Battery Standards Testing Committee and will no longer be subjected to periodic reviews for currency. Users are responsible for verifying references and continued suitability of technical requirements. Newer technology may exist.

SAE Technical Standards Board Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

SAE reviews each technical report at least every five years at which time it may be revised, reaffirmed, stabilized, or cancelled. SAE invites your written comments and suggestions.

Copyright © 2018 SAE International

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of SAE.

TO PLACE A DOCUMENT ORDER: Tel: 877-606-7323 (inside USA and Canada)
Tel: +1 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
http://www.sae.org

SAE WEB ADDRESS:

Full document details: SAE J2758_201812

SAE values your input. To provide feedback on this
Technical Report, please visit
http://standards.sae.org/J2758_201812

Documents
Document Sharing Hub

TABLE OF CONTENTS

1.	SCOPE.....	2
1.1	Purpose.....	2
2.	REFERENCES.....	2
2.1	Related Publications	2
2.1.1	Other Publications.....	2
3.	DEFINITIONS AND ACRONYMS.....	2
3.1	Rechargeable Energy Storage System (RESS)	2
3.2	Vmax	2
3.3	Vmin	2
3.4	Vmax-pulse	2
3.5	Vmin-pulse	2
3.6	I _{max}	3
3.7	I _{cc}	3
3.8	Rated Capacity.....	3
3.9	C ₁ /1 Rate.....	3
3.10	State of Charge (SOC).....	3
3.11	Constant Current (CC).....	3
3.12	Constant Voltage (CV).....	3
3.13	Constant Power (CP).....	3
3.14	Test Temperature (TT).....	3
4.	TEST DESCRIPTION	3
4.1	Test Conditions	3
4.1.1	Test Article	3
4.1.2	Environmental Temperature	3
4.2	Test Preparation.....	3
4.2.1	Pertinent Information Required	4
4.2.2	Battery Preparation	4
4.2.3	Peak Power Test Procedure	5
4.2.4	Calculation of Predicted Peak Power	6
4.2.5	Correction or Confirmation of Predicted Peak Power Value.....	7

1. SCOPE

This document describes a test procedure for rating peak power of the Rechargeable Energy Storage System (RESS) used in a combustion engine Hybrid Electric Vehicle (HEV). Other types of vehicles with non fossil fuel primary engines, such as fuel cells, are not intended to use this test procedure.

1.1 Purpose

The purpose of this document is to provide a test procedure to determine RESS peak power so that a vehicle's ratio of RESS peak power rating to the sum of the Internal Combustion Engine power rating and the RESS peak power rating can be established. Because of the vehicle-specific nature of the RESS control and environment, this test is designed to calculate the RESS peak power for a specific vehicle. As a result, the same RESS used in a different vehicle must be retested to determine its peak power rating in the new HEV environment.

2. REFERENCES

2.1 Related Publications

The following publications are provided for information purposes and are not a required part of this document.

2.1.1 Other Publications

USABC (United States Advance Battery Consortium) Electric Vehicle Battery Test Procedures Manual, Rev 2, DOE/ID-10479, Jan. 1996

FreedomCAR Battery Test Manual for Power-Assist Hybrid Electric Vehicles, DOE/ID-11069, Oct. 2003

3. DEFINITIONS AND ACRONYMS

3.1 Rechargeable Energy Storage System (RESS)

A device that can be used to store, charge, or discharge electrical energy on board a vehicle, such as batteries and ultracapacitors.

3.2 V_{max}

The smaller of the RESS steady-state maximum voltage and vehicle maximum allowable DC-link bus voltage that can be sustained indefinitely.

3.3 V_{min}

The larger of the RESS steady-state minimum voltage and vehicle minimum allowable DC-Link bus voltage that can be sustained indefinitely.

3.4 $V_{max-pulse}$

The smaller of the RESS maximum pulse voltage and vehicle maximum allowable DC-Link pulse voltage. The maximum pulse voltage is the voltage above V_{max} that can be sustained for at least 10 seconds.

3.5 $V_{min-pulse}$

The larger of the RESS minimum pulse voltage and vehicle minimum allowable DC-Link pulse voltage. The minimum pulse voltage is the voltage below V_{min} that can be sustained for at least 10 seconds