

MobileMark® 2014 Benchmarking Rules

This document describes the rules governing publication of results derived from running the BAPCo MobileMark 2014 benchmark. The Software License Agreement governs use of MobileMark 2014. Any licensee who wishes to publish MobileMark 2014 results is obliged to adhere to all rules and regulations as described in this document or other documents provided by BAPCo concerning the execution and reporting of MobileMark 2014 benchmark results. BAPCo reserves the right to change the rules outlined in this document at any time. Licensees are encouraged to consult the BAPCo website at www.bapco.com for the latest information regarding execution and publication rules.

Benchmark Execution

Workload Manager All benchmark tests must be run using the MobileMark 2014 Workload Manager. This utility is an executable program that runs the MobileMark 2014 benchmark. The Workload Manager is responsible for generating the benchmark results for the system under test.

All published results must be derived only from a complete and correct run of the benchmark. All tests must be performed without modification to any part of the MobileMark 2014 software.

The collective set of hardware and software used in generation of valid MobileMark 2014 results must be available to the public as defined by BAPCo's availability criteria. The following specific rules apply:

Operating System The operating system used to generate and publish results must be a publicly available release from the original software vendor. Consult the product manual at www.bapco.com for the current list of supported operating systems. Upgrade of specific drivers that are released and maintained by vendors other than the operating system vendor (e.g. graphics drivers, disk drivers, motherboard setting files, multimedia drivers) are allowed provided those drivers are release-quality, publicly available drivers obtained from the original vendor(s). Licensees may also use operating system service packs, API updates (e.g. Direct X) and other updates provided the update(s) are release-quality, publicly available software from the original vendor, and meet the benchmark supported operating system requirements. Licensees should also consult license agreements from individual software vendors to ensure compliance with vendor benchmark restrictions

Hardware Original Equipment Manufacturer (OEM) hardware used to generate official MobileMark 2014 results must be available for public purchase as a complete system platform from the OEM within 60 days of results publication. Alternatively, licensees of BAPCo benchmarks may publish results generated on non-OEM systems, provided that all of the individual system

components are available for public purchase through one or more hardware vendors within 60 days of results publication.

Software OEM software used to generate official MobileMark 2014 results has no grace period, and therefore must be release quality and publically available from the original vendor immediately upon publication of results.

Performance Enhancements Use of performance enhancements such as a software utility or other technique is allowed under the following conditions. Any performance enhancing software must be a release-quality, publicly available offering from the original vendor(s). Any performance enhancing techniques must be accessible to the public at large. Use of either method must be documented and included with the FDR submission. Performance enhancing techniques must not compromise the integrity of the system under test or the MobileMark2014 software. The use of drivers or other software specifically optimized for the purpose of increasing MobileMark 2014 battery life or performance qualification scores is expressly prohibited. BAPCo shall reserve the right to review the usage of such tools or techniques and invalidate submitted results at its sole discretion.

Wireless Connectivity The Office Productivity and Media Creation scenarios require that the system's wireless network adapter be turned on and associated to a wireless network which is not connected to the Internet for the duration of the test.

Ambient Light Sensors Use of adaptive brightness screen dimming technologies is strictly forbidden and must be disabled prior to running the test. Refer to Screen Brightness.

Screen Brightness The test system display brightness must be set to a value not less than 150 nits, as measured on DC (battery) power in the center of an all-white screen. The setting must be maintained for the duration of the test, except when screen dimming, screen off or Connected Standby is in use (see below). In cases where the system display is not capable of reaching 150 nits brightness on DC (battery) power as measured in the center of an all-white screen, the screen brightness must be set to the maximum brightness value as measured on DC (battery) power, for the duration of the test, except when screen dimming is in use as per the rules below. System displays not capable of reaching 150 nits brightness on DC (battery) power must be documented as part of any FDR submission.

Screen Dimming Use of operating system supported screen dimming capability is allowed at the tester's option provided that:

- The installed Operating System is Microsoft Windows 7 or Windows 8.0*.
- The initial screen brightness is set as specified in the Screen Brightness section of this document.
- Screen dimming timeout value must be set to minimum of 2 minutes on DC power
- The dimmed display value must not be less than 45 nits, as measured on DC power
- *Screen dimming is not allowed in Windows 8.1 and Windows 10

Screen Off Use of operating system supported screen off capability is allowed at the tester's option provided that:

- The installed Operating System is Microsoft Windows 8.1 or Windows 10*.
- Screen off timeout value must be set to minimum of 5 minutes on DC power.
- Screen off only occurs during idle periods of the benchmark, only after the point in each idle period where 5 minutes of idle has elapsed.
- *Screen off is not allowed in Windows 7 or Windows 8.0

Connected Standby Use of operating system supported connected standby is allowed at the tester's discretion provided that:

- The installed operating system is Microsoft Windows 8.1 or Windows 10
- Screen off timeout value must be set to a minimum of 5 minutes on DC power
- Connected standby only occurs during idle periods of the benchmark, only after the point in each idle period where 5 minutes of idle has elapsed.
- The test system meets the requirements of the Microsoft Connected Standby specification. The whitepaper outlining these requirements can be found here: <http://msdn.microsoft.com/en-us/library/windows/hardware/jj248729.aspx>
- Standby/Hibernate: Use of operating system supported standby/hibernate capability is NOT allowed, with the exception of connected standby when used in accordance with the rules above.

Windows 10 Battery Saver Use of Windows 10 “Battery Saver” is permitted under the condition that it set to activate at no greater than 20% and the check box “Lower Screen brightness while in battery saver” is disabled

Standby/Hibernate Use of operating system supported standby/hibernate capability is NOT allowed, with the exception of connected standby when used in accordance with the rules above.

System Configuration To ensure the integrity of MobileMark2014 results, test systems must maintain the same hardware configuration and software settings throughout the execution of the test. Any modification to hardware configuration and/or software settings will invalidate the results

Full Disclosure Report

MobileMark 2014 results are displayed in the Result Browser at the completion of the benchmark run. Results may be saved in FDR format for submission to BAPCo, or in PDF format for publication. The format and content of the FDR are determined at the sole discretion of BAPCo. FDRs that are modified in whole or in part, or that were not generated by the Workload Manager shall be considered invalid for any purpose.

Publication of Results

Licensees are encouraged to submit FDRs to BAPCo for inclusion in the FDR database maintained on the BAPCo website (www.bapco.com). Results may be submitted by emailing a valid FDR to report@bapco.com. FDR submissions that BAPCo determines to be invalid shall be excluded from the FDR database. Refer to the FDR Processing section of this document for more information.

Licensees may publish results through channels other than the BAPCo website FDR database. However, upon request from BAPCo, the licensee must provide the supporting FDR for any published results within 5 business days. Licensees are responsible for retaining FDR records for all published results.

All FDRs submitted by licensees to BAPCo are subject to a 10 working day review period. During this review period any BAPCo member can challenge the submitted FDR or submit a counter FDR. When a challenge occurs or a counter FDR is submitted, BAPCo will decide which, if any, of the FDRs will be accepted for inclusion in the FDR database.

Any publication of results must be accompanied by at least the system model number plus any discrepancies between the shipping configuration of that system model and the configuration of the system model actually tested.

Results collected on systems that do not meet the minimum system requirements for running MobileMark 2014 may be published or submitted to BAPCo for inclusion in the FDR database. However, BAPCo will only offer technical support for system configurations that meet or exceed the minimum system requirements for MobileMark 2014.

Any publication of results from the MobileMark 2014 Office Productivity scenario or the MobileMark 2014 Media Creation scenario must include both the MobileMark 2014 Battery Life score and the overall MobileMark 2014 Performance Qualification score from the same run.

FDR Processing

FDRs submitted to BAPCo for inclusion in the FDR database will be classified into one of the two following categories:

Released for publication- The results are released for publication as submitted by licensee, and will be included in the FDR database.

Rejected- The results are not released for publication as submitted by licensee, and will be excluded from the FDR database.

The Released for publication classification is in no way a validation or an endorsement of the results by BAPCo. Licensees are free to publish results pending the review of the FDR by BAPCo. BAPCo may perform audits of submitted FDRs and reserves the right to revoke the license granted to licensees who have not adhered to the regulations described in this or other BAPCo documentation. In the case where an FDR is returned to the licensee with Rejected classification, the licensee must immediately stop all publication of the rejected results until the matter is clarified by BAPCo.

The term MobileMark is a registered trademark of the Business Applications Performance Corporation and may only be used in conjunction with results generated by the MobileMark 2014 Workload Manager.

Any other performance and/or battery life characterizations may be made but must be derived from the performance metrics and/or battery life generated by the MobileMark program. The terms MobileMark and MobileMark 2014 may not be used when describing other derived battery life characterizations.

Publication of Results on Non-OEM Platforms

BAPCo accepts FDR submissions and allows the publication of battery life indices when using MobileMark 2014 for making "Non-OEM" platform comparisons. This includes battery life comparisons on systems that are not shipped from an OEM as a complete platform. An example of such comparisons would be swapping to a different hard disk or changing the amount of RAM in the test system, and demonstrating the impact on the benchmark results. Results submitted to BAPCo or published on Non-OEM platforms must be marked as Modified on the accompanying FDR submission and whenever appearing in publications of any kind. as Modified on the accompanying FDR and whenever appearing in publications of any kind.

Publication of Results for Competitive Comparisons

Licensees may publish results on competitor systems as long as the results for the competitor system have been submitted and accepted by BAPCo for inclusion in the FDR database. The submitted results may not be published until the FDR review period has expired and BAPCo has resolved all matters with respect to any challenges or counter FDR submissions.

Media outlets may publish results for making competitive comparisons without being subject to the restrictions in the preceding paragraph. Media outlets are subject to all other regulations set forth in this document.