Introduction

The 2005 Maryland High School Assessments (MHSA) consisted of end-of-course tests in Algebra/Data Analysis, Biology, English, Geometry, and Government. The MHSA is referred to as "end-of-course" tests, because students took each test as they completed the appropriate coursework. In addition, results from the English and Geometry administrations were used as the High School English Language Arts and Mathematics components in the Maryland State Department of Education (MSDE) Adequate Yearly Progress reports as required under the No Child Left Behind (NCLB) act for the 2005 school year. In the 2006 school year, Algebra will replace the Geometry test as the NCLB reporting content and Geometry test will no longer be administered for the MHSA. A new English test administered at the 10th grade replaced the old English test which was administered at the 9th grade. The technical details of the new English test are described in Section 6.

MHSA consisted of selected-response (SR) items, which required students to choose between four short response options; brief constructed response (BCR) items, which required students to write a short response; and extended constructed response (ECR), which required students to write a longer response. The SR items were machine scored; the BCR and ECR items were scored by raters. In addition, Algebra/Data Analysis and Geometry included items based on student-produced response (SPR), which required students to grid in correct responses on the answer document. All items were based on content outlined in Maryland's Core Learning Goals.

MHSA in the content areas of Algebra, Biology, Geometry, and Government were administered in January, May and July. The new English test was administered in May and July. In general, for January and May 2005 administrations, three operational test forms were constructed: one for the primary administration window, and one for each of two make-up administrations. There were two forms constructed for the Summer 2005 administration: one for the first week of testing and one for the second week of testing. Each test form for all content areas except English consisted of two types of items: operational and field test. Operational items were common across each of the operational forms and were used to produce student scores; field test items were not scored operationally, but were analyzed and placed into the item bank for future test form construction. The English forms consisted of all field test items and items selected for score reporting were determined after the test administration. Detailed information about how scoring items were selected is in Section 6. All English items were analyzed and placed into the item bank for future test form construction. For the other content areas, with the exception of items selected for public release, all operational items were returned to the item bank where they will remain unused for at least two years to minimize item exposure.

The underlying item response models used for MHSA were the three-parameter logistic (3PL) model and the two-parameter partial credit (2PPC) model, also known as the generalized partial credit model (GPCM; see Section 5). For each content area, both total

test scores and subscores were calculated for students. The total test scores were reported to individual students and were based on item-pattern (IP) scoring (mean 400, standard deviation 40). Subscores were also reported based on associated item parameters, though these scores were obtained using number-correct (NC) to scale-score (SS) tables While subscores were not reported at individual student level, the subscores were aggregated at the classroom level to provide teachers and administrators with additional information about student performance in each of the reporting categories.

Beginning with the 2004 administration, a pre-equated design was implemented while scores from previous administrations were based on parameters that were estimated following the administration (post-equated[1]). In the pre-equated design, item parameters were not updated following an administration; instead existing bank parameters were used to produce student scores. Using this design, scores can be calculated and assigned to students immediately after the answer documents have been scored.

All technical support and analyses were carried out in accordance with both ETS Standards for Quality and Fairness and Standards for Educational and Psychological Testing, issued jointly by the American Educational Research Association, American Psychological Association, and National Council on Measurement in Education.

This report is divided into 5 sections: Section 1 describes test development, form construction and administration details; Section 2 discusses the validity and reliability of the MHSA; Section 3 describes the scoring procedures and score types; Section 4 provides statistical summary results for each of the test forms administered in 2005; Section 5 describes the analyses conducted using the field test data including classical item analyses, differential item functioning, and item response theory calibrations and equating; and Section 6 provides information regarding the English MHSA exams.

[1]. In the post-equated design, anchor items representative of the content and difficulty of the test forms were used to equate the test forms using a Stocking and Lord procedure (CTB/McGraw-Hill, December, 2003).