Recommended ASVAB Standards for Battlefield Airman Specialties

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Background on ASVAB Scores Used by the Air Force

Air Force applicants qualify for military enlistment based on the Armed Forces Qualification Test (AFQT), which combines verbal and math scores from the ASVAB as follows:

- AFQT = Arithmetic Reasoning (AR) + Mathematics Knowledge (MK) + 2*Verbal Expression (VE; a composite of Paragraph Comprehension and Word Knowledge scores)

Air Force enlisted applicants qualify for entrance into a specific AFS based on performance on four ASVAB mental aptitude indices (i.e., MAGE):

- **M**echanical = AR + Mechanical Comprehension (MC) + Auto & Shop (AS) + 2*VE
- **A**dministrative = MK + VE
- **G**eneral = AR + VE
- **E**lectronic = General Science (GS) + AR + MK + Electronics Information (EI)

The specific mental standards (i.e., MAGE minimum passing scores) for each AFS are documented in the Air Force Enlisted Classification Directory (AFECD as specified by AFI 36-2101) in a single table as Attachment #4, "Additional Mandatory Entrance Requirements." All Air Force Specific Composites (M, A, G or E) and the DoD AFQT scores report an applicant's performance as a percentile score, a metric from 1-99 showing the applicant's relative standing in a defined national sample of American youth.

Step 1: Evaluate Applicant and Accession Data for Closed AFSCs

Data for the four closed AFSs were drawn from two sources:

- 487,382 enlisted applicants (2006-2014) containing demographic information (e.g., sex, race/ethnicity), AFQT, and MAGE composite scores.
- 121,392 enlisted accessions (2006-2014) representing 128 AFSCs containing demographic information, AFQT, and MAGE scores, and final training course grades.

Step 2: Evaluate the Relationships of ASVAB Composites with Training Outcomes

Multiple USAF studies have documented the validity of the ASVAB for predicting USAF training outcomes (Ree, Carretta, & Doub, 1998/1999; Ree & Earles, 1991) and job performance (Ree, Earles, & Teachout, 1994) in various career fields. To determine if mental standards needed to be updated, relationships between cognitive aptitude scores (i.e., ASVAB composites) and

Recommendations

Multiple iterations of prediction models were evaluated and considered. Table 1 provides a summary of the recommended alternatives for each specialty.

Table 1. Comparison of Current and Recommended Standards

AFSC	Cut Score	M	A	G	E	AFQT	*f*	R (Validity)	Qual Rate	F/M select rate	Final school grade	Acad Wash-out rate
1C2X1	Current	55		55			AND	.54 / .55	58.1%	57	--	13.6%
	Alt 1					63		.56	58.2%	80	--	12.4%
	Alt 2		60					.56	67.3%	92	--	12.4%
1C4X1	Current			49			--	.54	81.8%	86	85.9	42.4%
	Alt 1					55	--	.55	72.5%	88	86.3	38.6%
	Alt 2					50	--	.55	82.5%	91	85.9	42.4%
1T2X1	Current			44			--	.36	87.7%	90	83.2	27.5%
	Alt 1			50			--	.36	78.5%	84	83.7	24.3%
	Alt 2 (Current)			44			--	.36	87.7%	90	83.2	27.5%
1W0X2	Current			66	50		AND	.58 / .59	52.0%	68	88.1	12.9%
	Alt 1					71	--	.58	42.8%	72	88.7	9.9%
	Alt 2					67	--	.58	52.3%	76	88.1	12.7%

Note. F/M Selection Ratios meeting at least the 4/5th rule (80%) are highlighted in green. Values in the range of 2/3rd (66%) to 80% are highlighted in orange. Values less than 2/3rd (66%) are highlighted in red.

Summary

In each case, the recommended standards provided overall improvements in the performance criteria - validity, predicted academic performance, and wash-out rates. In addition, the recommended standards maintain a reasonable or improved male to female selection ratio. These recommendations were provided to BA CFMs for a final determination based on career field needs.