Supplemental Table 1. Calculation of Method Comparison Agreement and Error Categories and Acceptable Criteria

Agreement or Error Category	Calculation Formula	Calculation Formula Terms	Acceptance Criteria[1]
Category Agreement (CA)	N_{CA}/NT x 100	N_{CA} – number of isolates with an AST Result with the same categorical interpretation as reference method NT – number of isolates tested	≥90% CA
Essential Agreement (EA)	N_{EA}/NT x 100	N_{EA} – number of isolates with the same or within one doubling dilution MIC value as the reference method NT – number of isolates with same or within one doubling dilution MIC value as the reference method	≥90% EA
Minor Error (mE)	N_{ME}/NT x 100	N_{ME} – number of isolates having minor errors NT- number of isolates tested	≤10% mE
Major Error (ME)	N_{ME}/N_{RefS} x 100	N_{ME} – number of isolates that yielded false-resistant results N_{RefS} – number of isolates susceptible by the reference method	<3% ME
Very Major Error (VME)	N_{VME}/N_{RefR} x 100	N_{VME} – number of isolates that tested false-susceptible N_{RefR} – number of isolates resistant by the reference method	<3% VME[2]

[1] from reference (1, 2)

[2]FDA uses VME rate acceptance criteria of 1.5%

Supplemental Table 2. Acceptance performance rates for cASTs, by the error-rate bound method, for antimicrobials with an intermediate category

Reference (BMD) MIC range for isolates to include in denominator of error calculations		Acceptable Error Rates		
1-dilution intermediate range	2-dilution intermediate range	VME	ME	mE
≥ I + 2	≥ I_{high} + 2	< 2%	ND	<5%
I+1 to I-1	I_{high} +1 to I_{low} - 1	<40%	<10%	<10%
≤ I -2	≤ I_{low} - 2	ND	<2%	<5%

MIC, minimal inhibitory concentration; mE, minor error; ME, major error; VME, very major error; I, intermediate MIC value; I_{high}, high end of the MIC range for the intermediate category; I_{low}, low end of the MIC range for the intermediate category; ND, not determined

Supplemental Table 3. Acceptance performance rates for ASTs, by the error-rate bound method, when no intermediate category exists.

Reference (BMD) MIC range for isolates to include in denominator of error calculations	Acceptable Error Rates		
	VME	ME	mE
≥ R + 1	< 2%	ND	5%
R + S	< 40%	<10%	<10%
≤ S - 1	ND	<2%	<5%

MIC, minimal inhibitory concentration; mE, minor error; ME, major error; VME, very major error; R, resistant MIC value; S, susceptible MIC value; ND, not determined

Supplemental Table 4. Hypothetical examples of arbitrating discrepancies between cAST and BMD, for an antimicrobial with the following breakpoints: ≤0.25 µg/mL (S), 0.5 µg/mL (I), ≥1 µg/mL (R)

	MIC (µg/mL)					
	Original result	Repeat #1	Repeat #2	Repeat #3	Final arbitrated result	Error / rationale
Example #1						
cAST	1 (R)	0.12 (S)	-		0.12 (S)	none
BMD*	0.06 (S)	0.06 (S)	-		0.06 (S)	cAST MIC corrected on repeat test
Example #2						
cAST	1 (R)	0.12 (S)	0.5 (I)		0.5 (I)	mE
BMD*	0.06 (S)	0.06 (S)	0.06 (S)		0.06 (S)	Final cAST MIC within 1 dilution of initial result
Example # 3						
cAST	0.06 (S)	0.06 (S)	0.06 (S)		0.06 (S)	none
BMD*	1 (R)	0.06 (S)	0.5 (I)	1 (R)	0.25 (S)	Final BMD MIC = mode of 3 results
Example #4						
cAST	1 (R)	0.12 (S)	32 (R)		Inconclusive	-
BMD*	0.06 (S)	0.06 (S)	0.06 (S)		0.06	Check isolate further for purity, ID, etc.
Example #5						
cAST	1 (R)	1 (R)	0.5 (I)		1 (R)	ME

BMD*	0.06 (S)	0.06 (S)	0.06 (S)	0.06 (S)	Final cAST MIC = mode of 3 results

*DD or AD when one of these methods is the essential reference method for agent evaluated

mE, minor error; ME, major error; cAST, commercial antimicrobial susceptibility test; BMD, broth microdilution; MIC, minimum inhibitory concentration; S, susceptible; I, intermediate; R, resistant