

**Hot-Mix Asphalt PFP Dispute Resolution  
Appendix E.5**

Effective Date: April 1, 2010  
Revised Date: May 15, 2020

**A. Scope**

This document describes the two methods for disputing Pay for Performance (PFP) test results and the requirements for each. It also provides cost information for dispute testing and instructions for submitting dispute resolution samples to the Central Bureau of Materials.

**B. Dispute Resolution**

Dispute resolution testing will be permitted when the Contractor submits their split sample test results prior to receiving Department split sample test results. Dispute resolution testing shall be according to Method 1 (pay parameter dispute) or Method 2 (individual parameter dispute). When dispute resolution is chosen, the Contractor shall submit a request in writing within four working days of receipt of the Department’s results of the Quality Level Analysis for the lot in question. The Engineer will document receipt of the request. The request shall specify Method 1 or Method 2 dispute resolution. The Central Bureau of Materials (CBM) laboratory will be used for dispute resolution testing.

**1. Method 1:**

Method 1 dispute resolution will be allowed when Contractor and Department split test results exceed the precision limits shown in Table 1. Dispute resolution test results for  $G_{mm}$ ,  $G_{mb}$ , and asphalt binder content will replace the original Department  $G_{mm}$ ,  $G_{mb}$ , and asphalt binder content test results. Method 1 shall be used in cases where Department test results are outside acceptable limits shown in the Special Provision for “Hot Mix Asphalt - Pay For Performance Using Percent Within Limits - Jobsite Sampling (BDE).

Table 1

Test Parameter	Limits of Precision
Voids	1.0 %
Field VMA	1.0 %
Ratio - Dust / Asphalt Binder	0.2
Core Density	1.0 %

**2. Method 2:**

Method 2 dispute resolution will be allowed when: 1) the Contractor participates and complies with the AASHTO re:source Proficiency Sample Program testing protocol as specified herein and 2) the Contractor and Department **adjusted** split test results, as described herein, exceed the precision limits shown in Table 2. The dispute resolution test/s will only be performed for the parameter/s ( $G_{mm}$ ,  $G_{mb}$ , or asphalt content) exceeding precision limits. Both solvent extraction and ignition oven procedures may be used for determining asphalt content. The dispute resolution test result/s will replace the original Department result/s for the disputed parameters.

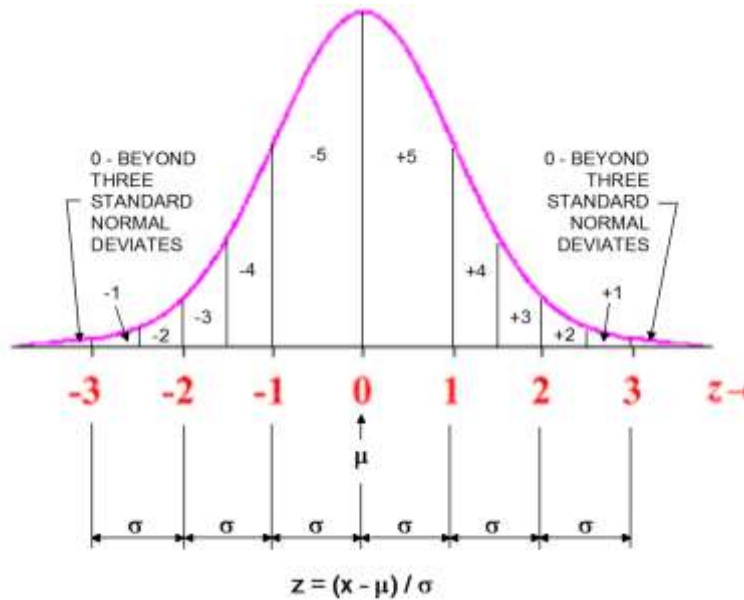
Table 2

Test Parameter	Limits of Precision
$G_{mm}$	0.008
$G_{mb}^{1/}$	0.012
Asphalt Binder	0.2

Note 1/ Both core  $G_{mb}$  and gyratory  $G_{mb}$ .

**a. Proficiency Sample Testing**

To qualify to dispute using Method 2, a QC laboratory must participate in the AASHTO re:source’s (formerly AMRL) Proficiency Sample Program (PSP). PSP samples are distributed annually to federal, state, independent, commercial, and research testing laboratories. AASHTO re:source scores proficiency test samples by fitting a standard normal distribution to the data from all laboratories (with outliers eliminated). Laboratories whose results fall within one standard normal deviation from the mean are assigned a numerical score of “5.” Laboratories whose results fall between 1 and 1½ standard normal deviations from the mean are assigned a score of “4,” and the ratings are further decreased one point for each half standard normal deviate thereafter. A positive sign (+) indicates the lab result is above the population mean, and a negative sign (-) indicates the lab result is below the population mean. This system can be depicted graphically, as follows:



For the Contractor to dispute individual test results,  $G_{mm}$ ,  $G_{mb}$ , and/or asphalt content, all of the following shall be met:

1. The Contractor’s laboratory that conducts the Quality Control testing for the project in question participates annually in the appropriate AASHTO re:source PSP.
2. The Contractor has submitted the laboratory’s proficiency sample report/s to the Department within 30 calendar days of the date of issuance. The results will be evaluated as follows:
  - a) If the Contractor’s laboratory that conducts Quality Control testing received a proficiency score of 3 or better on all individual tests ( $G_{mm}$ ,  $G_{mb}$ , and asphalt content), the Contractor will be approved for Method 2.

- b) If the Contractor's laboratory that conducts Quality Control testing for the project in question received a proficiency score of 2 or lower on an individual test, the Contractor, in order to remain on the Method 2 approved list, shall:
  - i) Conduct an investigation and perform a root cause analysis to determine the possible reason(s) for the results;
  - ii) Correct any issues that are uncovered in the investigation;
  - iii) Document investigation and corrective actions;
  - iv) Submit AASHTO Accreditation Program (AAP) proficiency sample corrective action report to CBM; and
  - v) Purchase an extra proficiency sample from AASHTO re:source for retesting.

*Note: Extra proficiency samples are surplus samples that were produced for a regularly scheduled round of testing and are available for purchase by contacting AASHTO re:source. The extra proficiency sample should be randomly selected by AASHTO re:source.*

- vi) submit the laboratory's proficiency sample report, for the extra proficiency sample for  $G_{mm}$  and  $G_{mb}$ , to the Department no later than December 31 and for asphalt content no later than June 7.
- vii) Failure to achieve a score of 3 or better on all test parameters in the second attempt will result in removal from the Method 2 approved list until a score of 3 or better on all test parameters is achieved on a scheduled AASHTO re:source PSP.
- c) Use of Contractor Central Lab for asphalt content disputes:
  - i) All labs shall conduct daily asphalt content testing for quality control.
  - ii) Any lab that participates in the PSP program and earns ratings of 3 or better on respective  $G_{mm}$ ,  $G_{mb}$ , and asphalt content tests is eligible to dispute any of the three parameters according to Method 2.
  - iii) A Contractor's Lab that has earned PSP ratings of 3 or better in all three parameters can be used as a Central Lab to dispute asphalt content according to Method 2 for any of the labs operated by that Contractor. To be eligible to be a Central Lab, that specific lab must perform all the asphalt content testing that is reported to the Department for all of that Contractor's PFP projects for that calendar year including the asphalt content sample result that is being disputed. In addition, for any lab to use a Central Lab for asphalt content disputes according to Method 2, the originating lab where daily quality control is conducted shall have earned ratings of 3 or better on both  $G_{mm}$  and  $G_{mb}$  testing.
- 3. The adjusted split test results, as defined below, for the individual test,  $G_{mm}$ ,  $G_{mb}$ , or asphalt content, exceed the precision limits listed in Table 2. The adjusted split test results account for any offset between the Department and Contractor test results. The adjusted split test results will be determined for each lot by:
  - a) For each subplot, subtract the Department's result from the Contractor's result to determine the initial split;
  - b) For each lot, calculate the average initial split test result;
  - c) For each subplot, subtract the average initial split test result for the lot from the initial split result to determine the adjusted split subplot test result.
  - d) Compare the adjusted split with the precision limits listed in Table 2 to determine whether the sample qualifies for dispute testing (Example is shown in Table 3).

Table 3.

## EXAMPLE ADJUSTED SPLIT RESULTS CALCULATION

$G_{mm}$				
Sublot	Contractor	IDOT	Initial Split	Adjusted Split
1-1	2.456	2.454	0.002	-0.001
1-2	2.458	2.455	0.003	0.000
1-3	2.462	2.466	-0.004	-0.007
1-4	2.471	2.463	0.008	0.005
1-5	2.459	2.461	-0.002	-0.005
1-6	2.474	2.462	0.012	0.009
1-7	2.463	2.465	-0.002	-0.005
1-8	2.463	2.461	0.002	-0.001
1-9	2.472	2.468	0.004	0.001
1-10	2.466	2.464	0.002	-0.001
Average Initial Split			0.003	

Density cores for dispute resolution testing shall be taken at the same time as the random density core. The density core for dispute resolution testing shall be taken within 1 ft (300 mm) longitudinally of the random density core and at the same transverse offset. Density dispute resolution will replace the original density test results. For density disputes, the Contractor shall use the Department's running average for  $G_{mm}$  when determining compliance with the limits of precision.

If three or more consecutive mixture sublots or  $G_{mm}$  results are contested, corresponding density results will be recalculated with the new  $G_{mm}$ .

### C. Dispute Testing Pay Schedule

The lot pay factor for the lot under dispute resolution will be recalculated. If the recalculated lot pay factor is less than or equal to the original lot pay factor, laboratory costs listed below will be borne by the Contractor.

Table 4

Test	Cost
Method 1 Mix Testing	\$1000 / subplot
Core Density	\$300 / core
$G_{mm}$	\$200
$G_{mb}$	\$500
Asphalt Content	\$500

#### **D. Dispute Submittal Instructions**

When submitting HMA mix and/or core samples to CBM for dispute testing, the District will include the following:

1. All District and Contractor split sample test results on attached "PFP Dispute Resolution Form",
2. the dispute resolution HMA mix split sample with the contract number and subplot clearly marked on each sample bag,
3. Cores must be split or sawed by the Contractor to the appropriate lift thickness for testing,
4. Quality Management Program (QMP) Package template and Daily Plant Reports sent electronically for mix being tested.

Send sample and requested documentation to:

Illinois Department of Transportation  
Central Bureau of Materials  
Hot-Mix Asphalt Laboratory  
126 E. Ash Street  
Springfield, Illinois 62704-4766  
Attention: HMA Lab Supervisor

Any sample sent to CBM without the above listed information will not be processed until all requested information is received.



# Illinois Department of Transportation

Method 1  Parameter Disputed: VMA  Voids  D/AC

Method 2  Parameter Disputed:  $G_{mb}$    $G_{mm}$   AC

Contract # : \_\_\_\_\_  
 Dist. Lab ID # : \_\_\_\_\_  
 Mix Design # : \_\_\_\_\_

## PFM DISPUTE RESOLUTION

Mix Code #: \_\_\_\_\_  
 Producer #: \_\_\_\_\_  
 CBM Lab #: \_\_\_\_\_  
 Wt. for  $G_{mb}$ : \_\_\_\_\_  
 Sampled From: Truck  MTD  Road   
 Sample Date: \_\_\_\_\_  
 Date Received: \_\_\_\_\_

Mix          Lot          Sublot         

### CORES

Sieve Size	District % Passing	Contractor % Passing	CBM % Passing
1 1/2 in. (37.5 mm)			
1 in. (25 mm)			
3/4 in. (19 mm)			
1/2 in. (12.5 mm)			
3/8 in. (9.5 mm)			
No. 4 (4.75 mm)			
No. 8 (2.36 mm)			
No. 16 (1.18 mm)			
No. 30 (600 $\mu\text{m}$ )			
No. 50 (300 $\mu\text{m}$ )			
No. 100 (150 $\mu\text{m}$ )			
No. 200 (75 $\mu\text{m}$ )			
Asphalt Binder %			
Dust/Asphalt Binder Ratio			
$G_{mm}$			
$G_{mb}$			
% Voids			
$G_{sb}$			
Field VMA			

	District	Contractor	CBM
Core #	$G_{mm}^\dagger$	$G_{mm}$	$G_{mm}$
Core #	$G_{mb}$	$G_{mb}$	$G_{mb}$
Core #	Density %	Density %	Density %

† This shall be the  $G_{mm}$  used for Density Calculation.