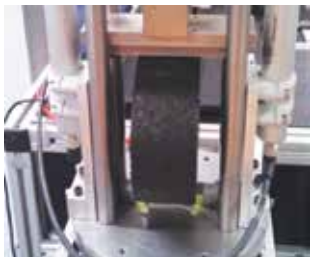
Name of Test
Indirect Tensile Asphalt Cracking Test (IDEAL-CT)

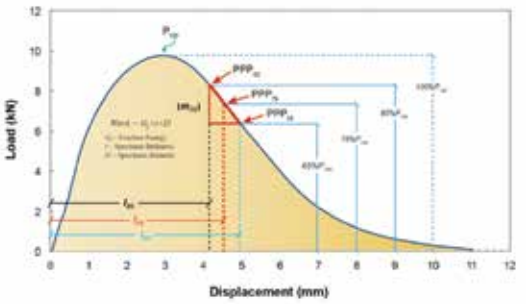
Developer(s)
Zhou and Co-workers
Texas A&M Transportation Institute

Test Method(s)
ASTM D8225-19

Adoption by Agencies
Alabama, Idaho, Kentucky, Missouri, New York, Oklahoma, Pennsylvania, Tennessee, Virginia, Wisconsin

Description
The IDEAL-CT test is similar to the traditional indirect tensile strength test. The test applies a vertical monotonic load on a cylinder specimen at a constant rate of 50 mm/min. The test is stopped when the load is reduced to 0.1kN. During the test, the cross-head displacement is continuously monitored and recorded. Data analysis is conducted based on the load versus displacement curve. The test parameter CT_{Index} is calculated as a function of total fracture energy and the slope of the post-peak curve at 25 percent reduction from the peak load.

Photographs/Illustrations




Test Results
Cracking test index (CT_{Index})

Test Temperature(s)
PG IT = ((PG HT+ PG LT)/2)+4
25°C is common

Equipment & Cost
Stand-alone Load Frame — $10,000 to 20,000
or Data Acquisition Jig for Existing Load Frame — $4,000

Specimen Fabrication
Gyratory specimen

Number of Replicate Specimens
A minimum of 3 specimens

Specimen Conditioning
Conditioning for 2 hours at Test Temperature

Testing Time
<1 minute per specimen

Data Analysis Complexity
Simple

Test Variability
Medium (10-25% COV)

Field Validations
Good (pavement sections in Texas and on FHWA ALF, NCAT Test Track, and MnROAD facilities)

Overall Practicality for Mix Design and QA
Good for Mix Design
Good for QA

Key References

- Zhou, F., Im, S., Sun, L., & Scullion, T. (2017). Development of an IDEAL cracking test for asphalt mix design and QC/QA. Road Materials and Pavement Design, 18(sup4), 405-427.
- NCHRP IDEA 20-30/IDEA 195. Development of an IDEAL Cracking Test for Asphalt Mix Design, Quality Control, and Quality Assurance. http://apps.trb.org/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=4286, accessed on August 8, 2018.