



BRAKING ACTION

AIRPORT CONDITION REPORTING

Airports certificated under Title 14 CFR Part 139 are required by 139.339(a) to provide for the collection and dissemination of airport condition information to air carriers. In addition, 139.339(c) requires that certificate holders provide information on airport conditions which may affect the safe operations of air carriers. In complying with this requirement certificate holders should follow the procedures in Advisory Circular 150/5200-30A, Airport Winter Safety and Operations. This AC includes procedures for conducting runway friction surveys and reporting friction values. Certificate holders conducting friction surveys using FAA approved equipment should report friction values rather than braking actions. However, some airports do not have friction measuring equipment and will need to continue to provide braking action reports. Either braking actions or MU value reports are acceptable for reporting pavement conditions to the NOTAM system. However, there is no correlation between the two and they are not interchangeable. Any correlation tables currently in use for converting friction values to braking actions are not acceptable. Additional information concerning reporting pavement conditions is contained in AC 150/5200-28B, Notices to Airmen for Airport Operators.

Friction values are denoted by the Greek letter MU (pronounced "myew") and range from 0 to 100. MU numbers are only reported when they are below 40 because that is the point where braking performance begins to deteriorate. MU numbers are also reported when they rise above 40 on an active runway previously showing a MU value below 40.

Continuous friction measuring equipment (CFME) and decelerometers are the two basic types of friction measuring equipment used for conducting friction surveys. Because of the high cost of CFME vehicles, most airports use a decelerometer.

When conducting friction surveys, runways are divided into three equal zones. These zones are the touchdown, midpoint, and rollout zones with a MU value reported for each zone. Runway friction surveys are conducted in the same direction as landing aircraft. When using a decelerometer a minimum of three braking tests are conducted for each runway zone and the MU values are averaged for each zone. For example, the operator obtains three readings in the touchdown zone of 25, 27, and 30. The average for the three readings in the touchdown zone is 27.3. For reporting purposes, the number is rounded to the nearest whole number, so the MU value reported would be 27 for the touchdown zone. This process would be repeated for the midpoint and rollout zones and the

three MU values are reported to the ATCT or AFSS. The presence of snow & ice and the time is also reported for the runway. A typical report would be as follows: "Friction for Runway 14R, 27, 25, 29, compacted snow with patchy ice at zero nine three zero."

For CFME a friction survey is conducted for the entire length of the runway to determine the average friction value for each zone.

If you have approved friction measuring equipment and are not providing MU values, we recommend that you review the procedures in the Winter Safety and Operations Advisory Circular and implement new procedures with the ATCT for reporting friction values. The new procedures should also be briefly described in the Airport Certification Manual/Specifications, Airport Condition Reporting section or in the Airport Snow & Ice Control Plan.

If friction measuring equipment is not available, certificate holders should initiate actions to obtain at least a decelerometer. Using a vehicle to estimate aircraft braking action is subjective and of questionable benefit. Friction measurement equipment is eligible for AIP funding. If you have questions concerning this issue, contact Mike Mullen, Lead Airport Certification Inspector, at (816) 329-2618.

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SNOW REMOVAL AT ASOS SITES

FAA and the National Weather Service have installed weather observation equipment at many airports. Because of the location of many of the Automated Surface Observing Systems (ASOS), snow drifts and snow accumulation may interfere with the ASOS sensors resulting in erroneous information.

We request that snow removal crews use caution during snow removal operations to avoid blowing snow from obscuring ASOS visibility sensors or to prevent snow accumulation from interfering with other ASOS sensors. If there is any doubt about specific areas that need to be kept clear around weather and navigational equipment, the airport operator should contact FAA's Airway Facilities on the airport.

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FRICION MEASURING EQUIPMENT

Ongoing research has shown that certain Continuous Friction Measuring Equipment (CFME) will give overly conservative readings when used in non-compacted snow or slush of more than very shallow depths. While conservative readings may seem to err on the side of safety, pilots new to friction readings could use recently acquired experience to overestimate braking capability on subsequent landings. These conservative readings may also result in unnecessary runway closures.

The CFME in question are those which use a torque measuring sensor to determine friction readings. In these devices, the torque exerted on the testing tire by deeper contaminants opposes the torque exerted by the pavement, resulting in a very low, overly conservative reading.

For these devices, it is recommended that the device be fitted with a 100 psi, ribbed tire (known as an Aero tire) for winter operational testing only. The standard 30 psi smooth tire should continue to be used for maintenance testing. This modification is anticipated to be temporary, as manufacturers are being contacted to propose modifications to existing devices. Airport sponsors should contact the manufacturer of their device to determine if a torque sensor is used.

Runway Friction		Braking Action		
Term	Mu	Term	Tapley	RCR
Good	.40 to 1.0	Good	57 to 77	19 to 25
Medium to Good	.36 to .39	-	-	-
Medium	.30 to .35	Fair	39 to 56	13 to 18
Poor	.26 to .29	Poor	18 to 38	6 to 12
Nil	0 to .25	Nil	6 to 17	2 to 5

Warning: 25 RCR, 25 Tapley, and .25 Mu are not the same!

Nil braking indicates idle thrust is more than braking capability.

A “good” mu report may indicate only half the braking effectiveness of a dry runway.

Mu greater than .4 is reported in whole numbers (5, 6, etc).