

# ASSESSING AND REPORTING AIRPORT CONDITIONS

## REVISED PROCEDURES

Presented to: **Alaska Flight Service**

By: **Alberto Rodriguez, Lead Airport  
Certification / Safety Inspector, Safety &  
Standards Branch**

Date: **November 17, 2015**





Federal Aviation  
Administration

### •Regulatory Authorities

- FAA (Airports, Flight Standards, Certification, NOTAMS, Rulemaking, Legal)
- Transport Canada
- Brazilian Certification Authority
- EASA (Limited Participation)



### •Other Organizations

- Air Transport Association
- Airline Pilots Association
- Airports Council International
- Allied Pilots Association
- National Air Carrier Association
- National Business Aviation Association
- National Transportation Safety Board
- Neubert Aero Corporation
- Regional Airline Association
- Southwest Airlines Pilot Association
- Allied Pilots Association



### •Airplane Operators

#### •*Part 121*

- ABX Air
- Alaska
- American Eagle
- American
- Continental
- Delta
- Express Jet
- Federal Express
- Northwest
- Pinnacle
- Southwest
- United
- UPS
- US Airways



### •Airports

- Cherry Capital
- Chicago Airport System
- Chicago O'Hare
- Grand Rapids Regional
- Minneapolis/St. Paul Airport System



### •Airplane Operators

#### •*Part 91-K/125/135*

- Alpha Flying, Inc
- Bombardier Flexjet
- Chantilly Air
- Flight Works
- Jet Solutions
- Conoco Phillips Alaska
- Net Jets
- Pogo Jet, Inc



### •Airplane Manufacturers

- Airbus
- Boeing
- Bombardier
- Cessna
- Eclipse
- Embraer
- Gulfstream
- Hawker



# TALPA ARC Recommendations

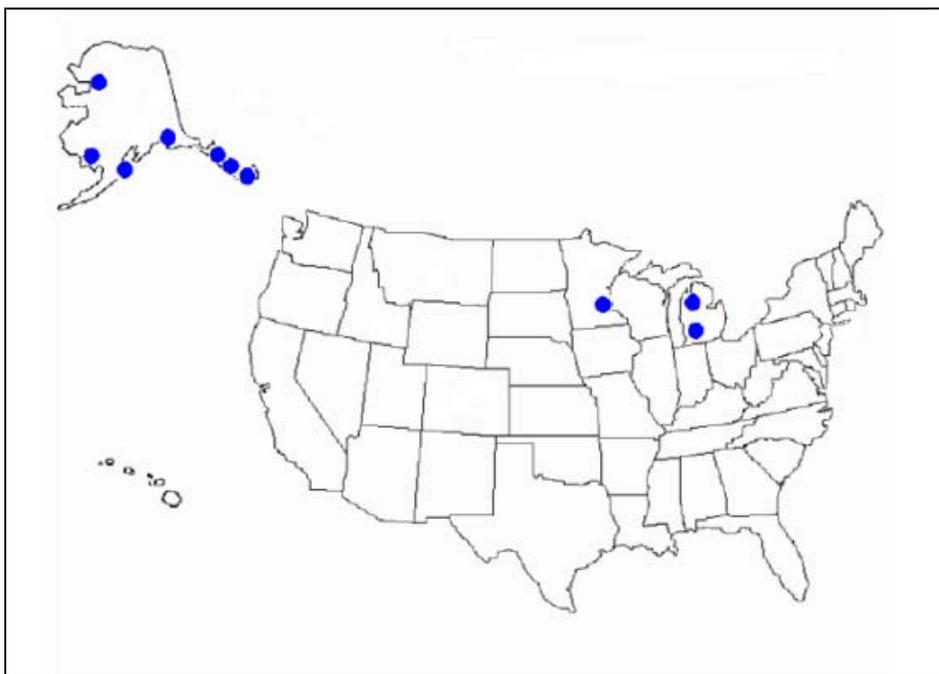
- **Methods for assessing runway conditions**
- **Reporting of braking action by pilots**
- **Reporting of runway conditions through airport operators, the NOTAM system, and ATC agencies**
- **Airplane performance data**
- **Before landing/departing performance assessments**
- **Standardized condition reports terms**

- **R** Runway
- **C** Condition
- **A** Assessment
- **M** Matrix

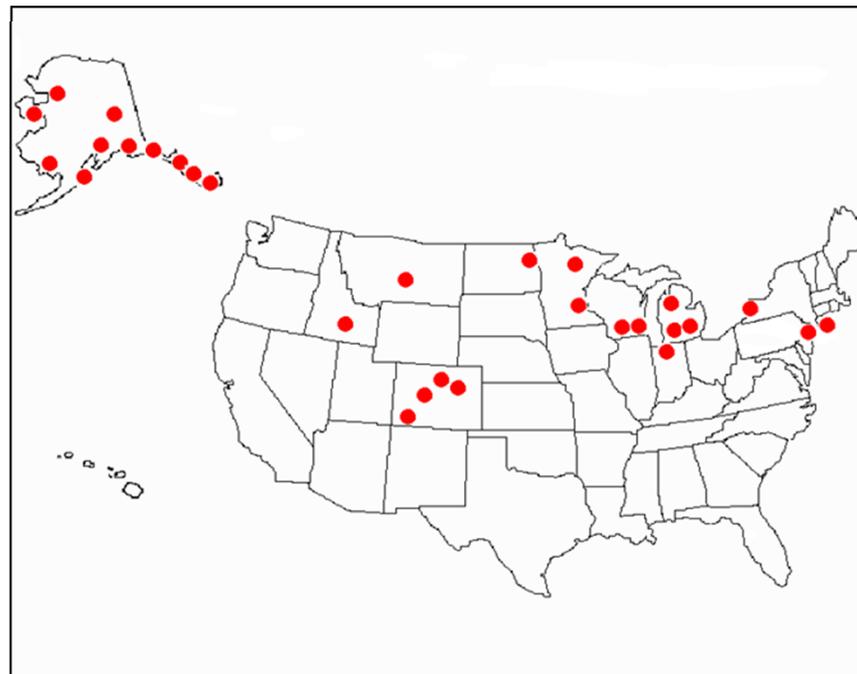
| Assessment Criteria   |      | Downgrade Assessment Criteria |   |                               |
|---|------|-------------------------------|---|-------------------------------|
| Runway Condition Description  | Code | Mu ( $\mu$ ) <sup>1</sup>     | Vehicle Deceleration or Directional Control Observation   | Pilot Reported Braking Action |
| <ul style="list-style-type: none"> <li>Dry</li> </ul>   | 6    | 40 or Higher                  | ---   | ---                           |
| <ul style="list-style-type: none"> <li>Frost</li> <li>Wet (Includes damp and 1/8 inch depth or less of water)</li> </ul> <i>1/8 inch (3mm) depth or less of:</i> <ul style="list-style-type: none"> <li>Slush</li> <li>Dry Snow</li> <li>Wet Snow</li> </ul>  | 5    |                               | Braking deceleration is normal for the wheel braking effort applied AND directional control is normal.                              | Good                          |
| <i>-15°C and Colder outside air temperature:</i> <ul style="list-style-type: none"> <li>Compacted Snow</li> </ul>   | 4    | 30                            | Braking deceleration OR directional control is between Good and Medium.   | Good to Medium                |
| <ul style="list-style-type: none"> <li>Slippery When Wet (wet runway)</li> <li>Dry Snow or Wet Snow (Any depth) over Compacted Snow</li> </ul> <i>Greater than 1/8 inch depth of:</i> <ul style="list-style-type: none"> <li>Dry Snow</li> <li>Wet Snow</li> </ul> <i>Warmer than -15°C outside air temperature:</i> <ul style="list-style-type: none"> <li>Compacted Snow</li> </ul> | 3    |                               | Braking deceleration is noticeably reduced for the wheel braking effort applied OR directional control is noticeably reduced.       | Medium                        |
| <i>Greater than 1/8 inch depth of:</i> <ul style="list-style-type: none"> <li>Water</li> <li>Slush</li> </ul>   | 2    |                               | Braking deceleration OR directional control is between Medium and Poor.   | Medium to Poor                |
| <ul style="list-style-type: none"> <li>Ice<sup>2</sup></li> </ul>   | 1    | 20 or Lower                   | Braking deceleration is significantly reduced for the wheel braking effort applied OR directional control is significantly reduced. | Poor                          |
| <ul style="list-style-type: none"> <li>Wet Ice<sup>2</sup></li> <li>Slush over Ice<sup>2</sup></li> <li>Water on top of Compacted Snow<sup>2</sup></li> <li>Dry Snow or Wet Snow over Ice<sup>2</sup></li> </ul>  | 0    |                               | Braking deceleration is minimal to non-existent for the wheel braking effort applied OR directional control is uncertain.           | Nil                           |



First Validation Winter 2009-2010



Second Validation Winter 2010-2011



# Changes... Already In Effect

- **2008 AC Changes (Closure triggers, friction testing subjectivity)**
- **Published Reportable Contaminant List**
- **Standardized terminology and reporting methods**
- **Expanded NOTAM System for filing Field Condition (FICON) NOTAMs**
  - Sortable FICON Information for end users
    - Domestic and International Compatibility
    - Real-time / Instantaneous reporting.



# TALPA & NOTAM System(s) Changes


**Federal Aviation Administration** | **Test System**

[NOTAM Manager](#) | [Feature Manager](#) | [Reports](#) | [My Profile](#) | [Preferences](#) | [Feedback](#) | [Help](#) | [Logout](#)

**Digital - AIM | NOTAM - Manager**  
 Alberto Rodriguez | APR 25 2016 MON 1413 UTC

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New Cancel Replace Copy Edit Delete Error Check Save Change Log Submit
Search

**Filters**
Rows: 50 Page: 1 Go Page 1 of 1

**Airports**

ORD-Chicago O'Hare I

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**Keyword All 45,0**

**Aerodrome 2,0**

Apron

Obstruction

Runway 17,0

Taxiway 17,0

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**Status**

All 47

Active 45

Activation In Progress

Cancelled

Cancellation In Progress

Draft

Error Activating

Error Cancelling

Expired 2

Activation Faxed

Cancellation Faxed

In Queue

**NOTAM Summary**

| Feature    | Condition   | Number | Start Date UTC  | End Date UTC | Status |
|------------|---|--------|-----------------|--------------|--------|
| Taxiway    | ORD TWY A17 BTN TWY B AND TWY KK CLSD 1603311222-PERM...                      | 03/658 | 03/31/2016 1222 | PERM         | Active |
| Navigation | ORD NAV ILS RWY 32R GP/LOC/OM DECOMMISSIONED 1505011404-PERM...               | 05/025 | 05/01/2015 1404 | PERM         | Active |
| Navigation | ORD NAV ILS RWY 14L LOC/GP/DME/IM DECOMMISSIONED 1505011425-PERM...           | 05/028 | 05/01/2015 1425 | PERM         | Active |
| Runway     | ORD RWY 14L RVR OUT OF SERVICE 1505051222-PERM...                             | 05/079 | 05/05/2015 1222 | PERM         | Active |
| Navigation | ORD NAV ILS RWY 32R GP/LOC/OM DECOMMISSIONED 1505011404-PERM...               | 05/025 | 05/01/2015 1404 | PERM         | Active |
| Navigation | ORD NAV ILS RWY 14L LOC/GP/DME/IM DECOMMISSIONED 1505011425-PERM...           | 05/028 | 05/01/2015 1425 | PERM         | Active |
| Runway     | ORD RWY 14L RVR OUT OF SERVICE 1505051222-PERM...                             | 05/079 | 05/05/2015 1222 | PERM         | Active |
| Navigation | ORD NAV ILS RWY 14R IM DECOMMISSIONED 1506171222-PERM...                      | 06/419 | 06/17/2015 1222 | PERM         | Active |
| Runway     | ORD RWY 9R/27L TESTING UPDATE DATE BY NARMADA 1507140241-PERM...              | 07/002 | 07/14/2015 0241 | PERM         | Active |
| Services   | ORD SVC EN ROUTE FLT ADVISORY SERVICE NOT AVBL 1510071422-PERM...             | 10/211 | 10/07/2015 1422 | PERM         | Active |
| Runway     | ORD RWY 10C/28C RWY STATUS LGT SYSTEM COMMISSIONED 1604221226-PERM...         | 04/022 | 04/22/2016 1226 | PERM         | Active |
| Navigation | ORD NAV ILS RWY 14R IM OUT OF SERVICE 1511171823-PERM...                      | 11/493 | 11/17/2015 1823 | PERM         | Active |
| Runway     | ORD RWY 09R/27L RWY STATUS LGT SYSTEM COMMISSIONED 1604221226-PERM...         | 04/021 | 04/22/2016 1226 | PERM         | Active |
| Runway     | ORD RWY 09L/27R RWY STATUS LGT SYSTEM COMMISSIONED 1604221226-PERM...         | 04/020 | 04/22/2016 1226 | PERM         | Active |
| Runway     | ORD RWY 04R/22L RWY STATUS LGT SYSTEM COMMISSIONED 1604221226-PERM...         | 04/019 | 04/22/2016 1226 | PERM         | Active |
| Runway     | ORD RWY 04L/22R RWY STATUS LGT SYSTEM COMMISSIONED 1604221226-PERM...         | 04/018 | 04/22/2016 1226 | PERM         | Active |
| Airspace   | ORD AIRSPACE TESTING KEYWORDS FOR THE GROUP 1507192100-PERM...                | 07/003 | 07/19/2015 2100 | PERM         | Active |
| Runway     | ORD RWY 14L/32R CLSD EXC TAX BTN RWY 09R/27L AND TWY B 1602102215-16103123... | 02/215 | 02/10/2016 2215 |              | Active |
| Aerodrome  | ORD AD AP WDI FOR RWY 22R LGT OUT OF SERVICE 1604070802-16069301100...        | 04/134 | 04/07/2016 0802 |              | Active |
| Runway     | ORD RWY 09R/27L SAFETY AREA NOT STD N SIDE E OF TWY E 1604190706-160630110... | 04/387 | 04/19/2016 0706 |              | Active |
| Runway     | ORD RWY 14R/32L SAFETY AREA RUTS NW END 1604160900-1606301100...              | 04/335 | 04/16/2016 0900 |              | Active |
| Navigation | ORD NAV ILS RWY 28L GP OUT OF SERVICE 1603221132-1606272300...                | 03/467 | 03/22/2016 1132 |              | Active |
| Runway     | ORD RWY 09R/27L SAFETY AREA RUTS N SIDE BTN TWY E AND RWY 4L/22R 160415113... | 04/321 | 04/15/2016 1132 |              | Active |
| Taxiway    | ORD TWY W2 EDGE MARKINGS NOT MARKED 1603081817-1605312300...                  | 03/211 | 03/08/2016 1817 |              | Active |
| Taxiway    | ORD TWY S BTN TWY S1 AND TWY T WIP IRREGULAR SFC ADJ NORTHWEST SIDE 160311... | 03/284 | 03/11/2016 1944 |              | Active |
| Taxiway    | ORD TWY W3 EDGE MARKINGS NOT MARKED 1603081817-1605312300...                  | 03/212 | 03/08/2016 1817 |              | Active |
| Taxiway    | ORD TWY AA EDGE MARKINGS BTN APCH END RWY 10R AND TWY W NOT MARKED 1603082... | 03/214 | 03/08/2016 2010 |              | Active |
| Taxiway    | ORD TWY W4 EDGE MARKINGS NOT MARKED 1603081818-1605312300...                  | 03/213 | 03/08/2016 1818 |              | Active |
| Taxiway    | ORD TWY W1 EDGE MARKINGS NOT MARKED 1603081816-1605312300...                  | 03/210 | 03/08/2016 1816 |              | Active |
| Taxiway    | ORD TWY T9 BTN RWY 14R/32L AND TWY T WIP IRREGULAR SFC ADJ NORTHWEST EDGE ... | 04/350 | 04/17/2016 1415 |              | Active |
| Taxiway    | ORD TWY YY BTN UNITED AIRLINES MAIN SERVICE CENTER HANGAR SOUTH RAMP AND D... | 04/252 | 04/12/2016 1900 |              | Active |
| Taxiway    | ORD TWY ALL HLDG PSN SIGNS FOR RWY 14L/32R NOT LGTD 1602291615-1605252359...  | 02/622 | 02/29/2016 1615 |              | Active |
| Runway     | ORD RWY 10L/28R SAFETY AREA N SIDE EAST OF THE RWY 28R APCH END NOT STD 1...  | 04/410 | 04/20/2016 0656 |              | Active |
| Taxiway    | ORD TWY EE CL MARKINGS BTN RWY 10L/28R AND TWY N NOT STD 1602261630-160518... | 02/579 | 02/26/2016 1630 |              | Active |

...  
**HOW  
 THE  
 RCAM  
 WORKS**  
 ...

| Assessment Criteria   |      | Downgrade Assessment Criteria                                   |   |                               |
|---|------|---|---|-------------------------------|
| Runway Condition Description  | Code | Mu ( $\mu$ ) <sup>1</sup>                                       | Vehicle Deceleration or Directional Control Observation   | Pilot Reported Braking Action |
| <ul style="list-style-type: none"> <li>Dry</li> </ul>   | 6    | 40 or Higher<br>39<br>to<br>30<br>29<br>to<br>21<br>20 or Lower | ---   | ---                           |
| <ul style="list-style-type: none"> <li>Frost</li> <li>Wet (Includes damp and 1/8 inch depth or less of water)</li> </ul> <b>1/8 inch (3mm) depth or less of:</b> <ul style="list-style-type: none"> <li>Slush</li> <li>Dry Snow</li> <li>Wet Snow</li> </ul>  | 5    |   | Braking deceleration is normal for the wheel braking effort applied AND directional control is normal.                              | Good                          |
| <b>-15°C and Colder outside air temperature:</b> <ul style="list-style-type: none"> <li>Compacted Snow</li> </ul>   | 4    |   | Braking deceleration OR directional control is between Good and Medium.   | Good to Medium                |
| <ul style="list-style-type: none"> <li>Slippery When Wet (wet runway)</li> <li>Dry Snow or Wet Snow (Any depth) over Compacted Snow</li> </ul> <b>Greater than 1/8 inch depth of:</b> <ul style="list-style-type: none"> <li>Dry Snow</li> <li>Wet Snow</li> </ul> <b>Warmer than -15°C outside air temperature:</b> <ul style="list-style-type: none"> <li>Compacted Snow</li> </ul> | 3    |   | Braking deceleration is noticeably reduced for the wheel braking effort applied OR directional control is noticeably reduced.       | Medium                        |
| <b>Greater than 1/8 inch depth of:</b> <ul style="list-style-type: none"> <li>Water</li> <li>Slush</li> </ul>   | 2    |   | Braking deceleration OR directional control is between Medium and Poor.   | Medium to Poor                |
| <ul style="list-style-type: none"> <li>Ice<sup>2</sup></li> </ul>   | 1    |   | Braking deceleration is significantly reduced for the wheel braking effort applied OR directional control is significantly reduced. | Poor                          |
| <ul style="list-style-type: none"> <li>Wet Ice<sup>2</sup></li> <li>Slush over Ice<sup>2</sup></li> <li>Water on top of Compacted Snow<sup>2</sup></li> <li>Dry Snow or Wet Snow over Ice<sup>2</sup></li> </ul>  | 0    |   | Braking deceleration is minimal to non-existent for the wheel braking effort applied OR directional control is uncertain.           | Nil                           |



# Runway Condition Codes

- **Why is it better than Mu?**
  - Less subjective
  - More substantive
- **What does it mean to the Pilot?**
  - Type and depth of contaminant(s).
  - Estimated aircraft braking action to be anticipated.
  - Calculative performance data.



# Related Changes... 2016 - 2017 Season

- **NOTAM System will serve as the primary method for disseminating field condition information / FICON NOTAMs.**
- **No longer reporting friction values (Mu).**
- **No longer reporting vehicle braking for Runway conditions.**
- **Percentage Based Reporting**
- **Reporting runway conditions in thirds.**



| Coverage | Range         |
|----------|---------------|
| 10%      | 10% or less   |
| 25%      | 11% thru 25%  |
| 50%      | 26% thru 50%  |
| 75%      | 51% thru 75%  |
| 90%      | 76% thru 90%  |
| 100%     | 91% thru 100% |



# Reporting Airport Condition Information

- **Runway Condition Codes are disseminated via one or more of the following methods:**
  - Federal NOTAM System, preferably through NOTAM Manager or equivalent system(s);
  - Airport Traffic Control Facility (corresponding Tower, Center, Tracon, etc.);
  - Flight Service Station (FSS) (as applicable); and
  - Directly from airport operator via Common Traffic Advisory Frequency (as applicable).



# NOTAM Manager

The screenshot displays the NOTAM Manager web application interface. At the top, the Federal Aviation Administration logo and 'Test System' are visible on the left, and navigation links for 'NOTAM Manager', 'Feature Manager', 'Reports', 'My Profile', 'Preferences', 'Feedback', 'Help', and 'Logout' are on the right. The user is identified as 'Digital - AIM | NOTAM - Manager' with the name 'Alberto Rodriguez' and the date 'APR 25 2016 MON 1658 UTC'.

The main interface includes a toolbar with actions like 'New', 'Cancel', 'Replace', 'Copy', 'Edit', 'Delete', 'Error Check', 'Save', 'Change Log', and 'Submit'. A search bar is located in the top right. Below the toolbar, there are filters for 'Airports' (currently set to 'ORD-Chicago O'Hare I') and 'Status' (listing various states like 'All', 'Active', 'Cancelled', etc.).

The central area is the 'NOTAM Editor' for a 'Surface Condition' scenario. It features tabs for 'Properties', 'Prior Permission', and 'Comments'. The editor is divided into sections for 'TOUCHDOWN', 'MIDPOINT', and 'ROLLOUT'. Each section contains fields for '% Range', 'Depth', and 'Contaminant', along with buttons for 'Copy to MP/RO' and 'Add Contaminant'. Below these sections are 'Dynamically Calculate RCC' and 'Calculate RCC' buttons with dropdown menus for 'TD', 'MP', and 'RO'.

On the right side, there is a preview window showing the NOTAM text in 'Domestic', 'ICAO', and 'Plain Text' formats. The 'Plain Text' view shows the following text: '1ORD XX/XXX ORD RWY 04L FICON 50 PRCT WET, 50 PRCT WET, 50 PRCT 1/4IN WET . 1604251625-1604261625'.

At the bottom, there is a status bar showing 'Connected', 'Rows: 50', 'Page: 1', and 'Go Page 1 of 1'. The bottom left corner shows 'Keyword-All, All 46 Records'.

# E-NOTAM II

New Cancel Replace Copy Delete View Change Log Edit Save Reject Mark As Notified Approve Location Search

Summary Hide Editor Preview

Editor 1

keyworu.

Condition:

Select Keyword  
AD  
AIRSPACE  
APRON  
COM  
NAV  
OBST  
RWY  
SVC  
TWY

Select Designator  
07/25  
07  
25  
08/28  
08  
28  
16L/34R  
16L  
34R  
16R/34L

Period of Validity  
Start Date (UTC) End Date (UTC)  
 Start Now  PERM  End in 1 day(s)  
04/14/2016 1804 04/15/2016 1804 EST Reset Check Local Time  
 Check here if the NOTAM is relevant only during specified times within the overall effective period

▼ Hide TALPA Field

Contaminants\*

| TOUCHDOWN    |            |  |
|--------------|------------|--|
| % Range      | 26% thru : | Depth 1/8 in Contaminant Dry Snow  |
|              |            | <input type="button" value="Copy to MP"/> <input type="button" value="Add Contaminant"/> |
| Range (TD)   | Depth (TD) | Contaminant (TD)   |
| 26% thru 50% | 1/8 in     | Dry Snow   |

| MIDPOINT     |            |  |
|--------------|------------|--|
| % Range      | 10% or les | Depth Contaminant Ash  |
|              |            | <input type="button" value="Copy to RO"/> <input type="button" value="Add Contaminant"/> |
| Range (MD)   | Depth (MD) | Contaminant (MD)   |
| 26% thru 50% | 1/8 in     | Dry Snow   |

| ROLLOUT      |            |  |
|--------------|------------|--|
| % Range      | 51% thru : | Depth 1/8 in Contaminant Dry Snow              |
|              |            | <input type="button" value="Add Contaminant"/> |
| Range (RO)   | Depth (RO) | Contaminant (RO)                               |
| 51% thru 75% | 1/8 in     | Dry Snow                                       |

Dynamically Calculate RCC Calculate RCC: TD 5 MP 5 RO 5

**Filters**  
**Airports**

- Keyword-All 45, 0
  - Aerodrome 2, 0
  - Apron
  - Obstruction
  - Runway 17, 0
  - Taxiway 17, 0
- Status
  - All 47
  - Active 45
  - Activation In Progress
  - Cancelled
  - Cancellation In Progress
  - Draft
  - Error Activating
  - Error Cancelling
  - Expired 2
  - Activation Faxed
  - Cancellation Faxed
  - In Queue

**NOTAM Summary**  
 Feature: | Condition:

**NOTAM Editor - Scenario:** Surface Condition

Hide TALPA Field

**Contaminants\***

| TOUCHDOWN  |            |       |                  |
|--|------------|-------|------------------|
| % Range  | 10% or les | Depth | Contaminant: Ash |
| <input type="button" value="+ Add Contaminant"/> |            |       |                  |
| MIDPOINT   |            |       |                  |
| % Range  | 10% or les | Depth | Contaminant: Ash |
| <input type="button" value="+ Add Contaminant"/> |            |       |                  |
| ROLLOUT  |            |       |                  |
| % Range  | 10% or les | Depth | Contaminant: Ash |
| <input type="button" value="+ Add Contaminant"/> |            |       |                  |

Dynamically Calculate RCC
 

|    |    |    |
|----|----|----|
| TD | MP | RO |
| -  | -  | -  |

**Observation Details (Fields Marked \* are required)**

Observation Time (UTC)\*: MM/dd/yyyy hhmm  Current Date and Time

Pilot Reported Braking Action Information

Keyword-All, All 46 Records

# RCAM Driven NOTAM Examples

## Uniform Coverage example:

!ORD XX/XXX ORD RWY 04L FICON 5/5/5 50 PRCT 1/8IN DRY SN . 1604251625-1604261625

## Different Contaminants In Each Third:

!ORD XX/XXX ORD RWY 04L FICON 5/3/5 50 PRCT WET, 50 PRCT 1/8IN WET SN OVER COMPACTED SN, 50 PRCT 1/8IN SLUSH . 1604251625-1604261625

## Two Different Contaminants In Each Third:

!ORD XX/XXX ORD RWY 04L FICON 3/5/2 50 PRCT WET AND 50 PRCT 1/8IN WET SN OVER COMPACTED SN, 50 PRCT WET AND 25 PRCT 1/8IN WET SN OVER COMPACTED SN, 10 PRCT 1/4IN SLUSH OVER ICE AND 75 PRCT 1/4IN SLUSH . 1604251625-1604261625



# Examples: Aircraft Operator Side



# Airbus ROPS and TALPA

- **In flight, predicted stopping point based on TALPA ARC recommendations**
  - Includes 15% operational safety margin
  - On A350, can select runway condition by either runway surface description or braking action
- **On ground, predicted stopping point transitions to being based on actual deceleration being achieved**
- **In-flight landing distance check required to ensure alerts will not trigger during a normal approach**



# RWY CONDITION Information & selection means

**Destination runway reminder**  
(cyan if LDG runway ≠ FMS runway)

WHEEL

RWY CONDITION / BRAKING ACTION

**PERF APPR data**  
If the RWY is unknown, all green values are empty.

LFBO 14L QNH 1013 OAT 28 °C  
VAPP 151 KT CONF FULL WIND 270° / 12 KT

**Active condition in green**

| RWY COND CODE | RWY CONDITION (TYPICAL DESCRIPTION) | BRAKING ACTION | MAX X-WIND (KTS) |
|---------------|-------------------------------------|----------------|------------------|
| 6             | DRY                                 |                | 32               |
| 5             | WET GROOVED / PFC                   |                | 32               |
| 5             | WET                                 | GOOD           | 32               |
| 4             | COMPACTED SNOW                      | GOOD TO MEDIUM | 27               |
| 3             | SNOW OR SLIPPERY WHEN WET           | MEDIUM         | 20               |
| 2             | STANDING WATER OR SLUSH             | MEDIUM TO POOR | 20               |
| 1             | ICE                                 | POOR           | 15               |

**Active condition in amber**  
if rwy is TOO SHORT.

**Multi-condition assessment for the selected runway**  
Continuous amber/black rubber.

# Airline Operating Manuals

## Landing

5-41

### Inflight Landing Data

11 MAR 15

#### 5.4.1 A319 CONFIG FULL.

| Pressure Altitude Feet | Gross Weight 1000 lb | A319 CONFIG FULL MAX MANUAL |             |                |             |                |              |
|------------------------|----------------------|-----------------------------|-------------|----------------|-------------|----------------|--------------|
|                        |                      | DRY                         | GOOD        | GOOD to MEDIUM | MEDIUM      | MEDIUM to POOR | POOR         |
| Sea Level              | 100                  | 3770                        | 4330        | 4990           | 5590        | 6140           | 10280        |
|                        | 110                  | 3880                        | 4460        | 5220           | 5820        | 6480           | 10720        |
|                        | 120                  | 4070                        | 4670        | 5450           | 6050        | 6830           | 11180        |
|                        | 130                  | 4250                        | 4860        | 5660           | 6260        | 7170           | 11640        |
|                        | 137.7                | <b>4360</b>                 | <b>5020</b> | <b>5860</b>    | <b>6460</b> | <b>7440</b>    | <b>12000</b> |
|                        | 140                  | 4410                        | 5070        | 8130           | 8600        | 9030           | 13620        |
|                        | 150                  | 4580                        | 5270        | 8370           | 8750        | 9180           | 13860        |
|                        | 166.4                | 5170                        | 5940        | 9280           | 9980        | 11330          | 15890        |
| 2000                   | 100                  | 3890                        | 4480        | 5140           | 5740        | 6290           | 11180        |
|                        | 110                  | 4020                        | 4620        | 5660           | 6300        | 7250           | 11640        |
|                        | 120                  | 4220                        | 4860        | 5890           | 6530        | 7610           | 12100        |
|                        | 130                  | 4390                        | 5050        | 6120           | 6760        | 7950           | 12560        |
|                        | 137.7                | <b>4530</b>                 | <b>5210</b> | <b>6300</b>    | <b>6940</b> | <b>8220</b>    | <b>12920</b> |
|                        | 140                  | 4580                        | 5270        | 8570           | 9090        | 9820           | 14540        |
|                        | 150                  | 4930                        | 5670        | 9140           | 9780        | 10970          | 15570        |
|                        | 166.4                | 5480                        | 6310        | 9720           | 10470       | 12120          | 16610        |
| 4000                   | 100                  | 4030                        | 4830        | 5870           | 6580        | 7700           | 12100        |
|                        | 110                  | 4170                        | 4790        | 6100           | 6790        | 8040           | 12560        |
|                        | 120                  | 4380                        | 5040        | 6330           | 7020        | 8390           | 13020        |
|                        | 130                  | 4560                        | 5250        | 6560           | 7250        | 8730           | 13480        |
|                        | 137.7                | <b>4720</b>                 | <b>5420</b> | <b>6730</b>    | <b>7420</b> | <b>9000</b>    | <b>13840</b> |
|                        | 140                  | 4770                        | 5490        | 9000           | 9570        | 10600          | 15460        |
|                        | 150                  | 5230                        | 6020        | 9580           | 10260       | 11750          | 16490        |
|                        | 166.4                | 5800                        | 6670        | 10150          | 10950       | 12900          | 17530        |
| 6000                   | 100                  | 4170                        | 4800        | 6300           | 7040        | 8480           | 13020        |
|                        | 110                  | 4330                        | 4980        | 6530           | 7270        | 8830           | 13480        |
|                        | 120                  | 4550                        | 5230        | 6760           | 7500        | 9170           | 13940        |
|                        | 130                  | 4750                        | 5460        | 6990           | 7730        | 9520           | 14400        |
|                        | 137.7                | <b>4920</b>                 | <b>5660</b> | <b>7170</b>    | <b>7910</b> | <b>9790</b>    | <b>14760</b> |
|                        | 140                  | 4990                        | 5740        | 9440           | 10050       | 11380          | 16380        |
|                        | 150                  | 5550                        | 6380        | 10020          | 10740       | 12530          | 17470        |
|                        | 166.4                | 6130                        | 7050        | 10590          | 11430       | 13680          | 18450        |
| 8500                   | 100                  | 4350                        | 5010        | 6850           | 7640        | 9480           | 14170        |
|                        | 110                  | 4540                        | 5220        | 7080           | 7870        | 9800           | 14630        |
|                        | 120                  | 4780                        | 5500        | 7310           | 8100        | 10150          | 15090        |
|                        | 130                  | 5010                        | 5780        | 7540           | 8330        | 10490          | 15550        |
|                        | 137.7                | <b>5260</b>                 | <b>6030</b> | <b>7720</b>    | <b>8510</b> | <b>10760</b>   | <b>15910</b> |
|                        | 140                  | 5360                        | 6170        | 9990           | 10650       | 12360          | 17530        |
|                        | 150                  | 5960                        | 6860        | 10560          | 11340       | 13510          | 18560        |
|                        | 166.4                | 6570                        | 7550        | 11140          | 12030       | 14660          | 19600        |
| VAPP                   | VLS+10               | +0                          | +0          | +357           | +381        | +587           | +541         |
|                        | VLS+15               | +0                          | +0          | +713           | +762        | +1173          | +1081        |
|                        | per knot of LW       | +110                        | +120        | +140           | +166        | +269           | +423         |
|                        | per 10° ABV ISA      | +0                          | +0          | +196           | +242        | +380           | +564         |
|                        | No Reversers         | +0                          | +0          | +575           | +759        | +828           | +2438        |
|                        | Autoland             | +0                          | +0          | +1035          | +1058       | +1208          | +1173        |



# ICAO Implementation and Global Harmonization

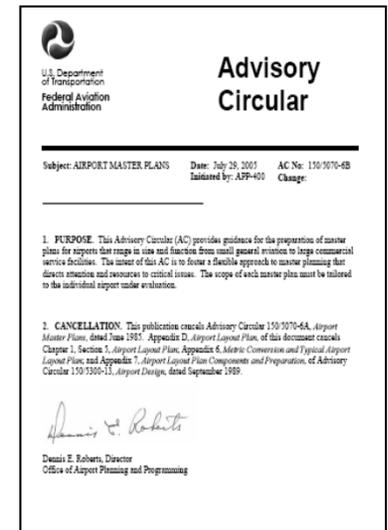
- **Transport Canada**
- **Japanese**
- **Italian**
- **British**
- **Scandinavian**



# Guidance Documents

## Advisory Circulars:

- 150/5200-30, Airport Field Condition Assessments and Winter Operations Safety
- 150/5200-28, Notices to Airmen (NOTAMs) for Airport Operators
- 150/5320-12, AC 150/5320-12C - Measurement, Construction, and Maintenance of Skid Resistant Airport Pavement Surfaces
- 91-79, Mitigating the Risks of a Runway Overrun Upon Landing
- 25-31, Takeoff Performance Data for Operations on Contaminated Runways
- 25-32, Landing Performance Data for Time-of-Arrival Landing Performance Assessments



# Guidance Documents cont'

## Orders:

- JO 7930.2, Notices To Airmen (NOTAM)
- JO 7110.65, Air Traffic Control
- JO 7210.3, Facility Operation Administration
- JO 7110.10, Flight Services

**CHANGE** U.S. DEPARTMENT OF TRANSPORTATION JO 7110.65  
FEDERAL AVIATION ADMINISTRATION CBG 1

**SUBJ: AIR TRAFFIC CONTROL**

- 1. PURPOSE:** This change revises revised pages to Order JO 7110.65S, Air Traffic Control, and the Binding Guide.
- 2. DISTRIBUTION:** This change is distributed to select offices in Washington Headquarters, regional offices, the William J. Hughes Technical Center, and the Mike Monroney Aeronautical Center, to all air traffic field facilities and international aviation field offices, and to interested aviation public.
- 3. EFFECTIVE DATE:** July 31, 2008.
- 4. EXPLANATION OF CHANGES:** See the Explanation of Changes attachment which has editorial corrections and changes submitted through normal procedures. The Binding Guide lists only new or modified material, along with background information.
- 5. DISPOSITION OF TRANSMITTAL:** Retain this transmittal until superseded by a new basic order.
- 6. PAGE CONTROL CHART:** See the Page Control Chart attachment.

  
Nancy H. Kallnowski  
Vice President, System Operations Services  
Date: APR 28 2008

Distribution: 247-710, 2-47-464 Initiated By: AJB/d  
Vice President, System Operations Services



Federal Aviation  
Administration

# Comments and Questions?

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**Federal Aviation  
Administration**