

**AD 1.2 RESCUE AND FIREFIGHTING SERVICES AND SNOW PLAN****AD 1.2.1 RESCUE AND FIREFIGHTING SERVICES.**

Airport provides rescue and fire fighting service for all ACFT in accordance with the ICAO standards and recommended practice (*Annex 14 / Chapter 9, Airport Service Manual / Part 1, Rescue and Fire Fighting*) and the airport emergency plan approved by the CAA of Moldova.

Information about the level of protection provided by RFFS and required minimum usable amounts of extinguishing agents and RFF vehicles are in the table shown below.

<b>Aerodrome category</b>	<b>Amount of water in liters for production of performance</b>	<b>Amount of water in liters for production of performance</b>	<b>Amount of water in liters for production of performance</b>	<b>Complementary agents</b>	<b>Minimum number rescue and fire-fighting vehicles, units</b>
	<b>level A foam</b>	<b>level B foam</b>	<b>level C foam</b>	<b>Dry chemical powders (kg)</b>	
<b>1</b>	350	230	160	45	1
<b>2</b>	1 000	670	460	90	1
<b>3</b>	1 800	1 200	820	135	1
<b>4</b>	3 600	2 400	1 700	135	1
<b>5</b>	8 100	5 400	3 900	180	1
<b>6</b>	11 800	7 900	5 800	225	2
<b>7</b>	18 200	12 100	8 800	225	2
<b>8</b>	27 300	18 200	12 800	450	3
<b>9</b>	36 400	24 300	17 100	450	3
<b>10</b>	48 200	32 300	22 800	450	3

**AD 1.2.2 SNOW PLAN.****1. Organization of winter service.**

1.1 During the winter period BTN 01 NOV and 01 APR, the Aerodrome Service at the aerodromes listed below will conduct the following duties:

- a. maneuvering area and apron surveillance regarding ice, snow or slush removal;
- b. friction coefficient measurement or braking action estimation when more than 10% of the area of the runways, taxiways and aprons are covered with ice, snow and/or slush;
- c. measures taken for the usability of the runways, taxiways and aprons;
- d. reporting of the above mentioned conditions in the a) to c) points.

1.2 Services provided during winter season are established at the following airports:

- LUKK - CHISINAU;
- LUBL - BALTI;
- LUBM – MARCULESTI.

**2. Surveillance of movement areas.**

The Aerodrome Service monitors the condition of the maneuvering area and the apron within the published aerodrome service hours.

### 3. Measuring methods and measurements taken.

3.1 The depth of a layer of snow or slush is measured by an ordinary measuring rod. Measurements will be calculated for each third of the runway. For removal of ice and compacted snow which cannot be removed with mechanical equipment, chemicals are used.

3.2 Whenever information on braking action promulgated in accordance with this snow plan in terms of friction coefficients is used as a basis for assessing the stopping and maneuvering capability of an aircraft, it is of utmost importance to keep in mind that these friction coefficients pertain to a measuring device and therefore, as objective parameters, are valid for that specific device only.

The following methods of measurement will apply:

- a. Continuous method whereby the friction coefficient is recorded continuously by means of special devices ASFT and BV-11;
- b. Retardation measurements with the use of an instrument that only indicates the peak value of the retardation reached during each braking (AFM MK-II).

All measurements and calibrations are accomplished in accordance with the instructions given by the manufacturer for the proper use of the instruments. Measurements are taken, approximately 4M apart, on each side of the centre line of the runway.

ASFT and BV-11 and AFM MK-II are used at CHISINAU/International. ATT-2 is used at BALTI/International and MARCULESTI/International. Some aerodromes have reserve instruments. If a reserve instrument of a type other than the primary is used, it will be announced by ATS and by ATIS where this is available.

### 3.3 Principles used for the determination of value of surface friction. Friction coefficient and/or braking action.

3.3.1 It is taken into attention:

- concurrent use by ICAO both «Braking action» and «Estimated braking action» and «Estimated surface friction» terms;
- provision of ICAO Annex 14 Vol. I (Ed. 7) ATT A-8 "6.3 The friction conditions of a runway can be assessed in descriptive terms of "estimated surface friction". The estimated surface friction is categorized as good, medium to good, medium, medium to poor, and poor, and promulgated in Annex 15, Appendix 2 "SNOWTAM format", as well as in PANS-ATM, Chapter 12, 12.3, "ATC . phraseologies", para. 12.3.1.11 g);
- using by ICAO the same associated descriptive terms for the characteristics "Braking action" and "Estimated surface friction" (Good / Medium to good / Medium / Medium to poor / Poor);
- practically the "technically changing" of the term "Estimated braking action" in the table ATT A-8 ICAO Annex 14 Vol. I (till Ed. 5) to the term "Estimated surface friction" in the table in ATT A-8 ICAO Annex 14 Vol. I (beginning from Ed 6);
- validity (in ICAO Annex 3) of the term "braking action" (see, for example, ICAO Annex 3 Table A3-5. "Ranges and resolutions for the numerical elements included in METAR and SPECI" and Table A3-2. "Template for METAR and SPECI").

3.3.2 When the RWY is contaminated - information about estimated surface friction provides only for compacted snow- or ice- covered RWY. With associated 'Braking action' descriptive terms developed from friction data collected only for compacted snow- and/or ice- covered RWY and should not therefore be taken to be absolute values applicable in all conditions.

3.3.3 "Unreliable" will be reported when the runway surface is covered by standing water, wet ice, dry snow (non-compacted), wet snow, frozen ruts or ridges and/or slush. Braking action estimates are considered absolutely unrealistic in such situations.

### 4. Actions taken to maintain the usability of movement areas.

The snow clearance starts with the beginning of the snow-fall. Measures to improve braking action will be implemented and maintained as long as conditions at the movement area impede the safety and regularity of the air traffic.

Snow clearance, etc. will normally be carried out in the following order:

1. Runway in use, the main taxiways to runway, apron, ILS zone and access road from the fire station;
2. Other taxiways to the runway in use;
3. Parking positions;
4. Other roads and areas.

Measures will be taken to clear the runways to full width but in special cases conditions may dictate that wide runways be opened temporarily for traffic even if cleared to a width of 30M only. Snow clearance will not be completed until the runway is cleared to full width.

The chemical methods will be used for the removal of the ice and compacted snow which cannot be removed with the help of mechanical equipment.

The following chemicals agents are used for both concrete and asphalt-concrete surfaces:

- The "HKMM";
- the "NORDWAY";
- the "PRO MELTER";
- the "UNISALT PF".

Chemical runways' de-icing will be carried out to a width of not less than 15M on each side of the centre line of the runway.

Measures to improve the braking will be carried out until attaining the conditions for safe and regular operation of aircrafts.

## **5. System and means of reporting.**

5.1 Information on runways conditions will be disseminated directly from the Aerodrome Service:

- through a separate series of SNOWTAM. SNOWTAM will be prepared in accordance with *ICAO Annex 15, Appendix 2*. SNOWTAM form will be delivered to NOTAM Office unit for further dissemination.

When there is no ice, snow or slush on the airfield pavement the chemicals are no longer used, and the reporting will cease after the SNOWTAM cancellation.

Other information on snow conditions at aerodromes can be obtained at the aerodrome concerned or will be available at the Briefing Office at aerodrome.

and

- through the information after METAR messages, as one or several coded groups whose content and presentation are depicted below for aerodromes having in charge the issuing of METAR messages via RODEX (Regional OPMET Data Exchange) network. This information will be delivered to the TWR and MET Office unit for further dissemination. METAR will be prepared in accordance with *ICAO Annex 3*.

5.2 **Contents and presentation of METAR coded group.**

The runway surface condition information part issued at the end of the weather message (METAR) broadcast on RODEX network, gives a description of the precipitants present on runways, the information of the extent of contamination, layer depth and friction coefficient (or braking action).

These data are coded into a character group **Rnn/P<sub>R</sub>C<sub>R</sub>E<sub>R</sub>E<sub>R</sub>B<sub>R</sub>B<sub>R</sub>** whose meaning is as follows:

**Rnn:** runway identification  
**P<sub>R</sub>:** type of precipitant  
**C<sub>R</sub>:** extent of the contamination  
**E<sub>R</sub>E<sub>R</sub>:** layer depth  
**B<sub>R</sub>B<sub>R</sub>:** friction coefficient or braking action

#### 5.2.1 Runway designator (Rnn/).

**Rnn/** group is coded according to following instructions:

- Always letter R (for “Runway”);
- Always nn for characters indicating runway number, for instance 08, 26 etc.;
- Always symbol / (slash) before next part of the runway’s conditions encryption.

#### 5.2.2 Type of precipitant (runway deposits) (P<sub>R</sub>).

5.2.2.1 The **P<sub>R</sub>** data is composed of one figure between 0 and 9, or one slash, per the following code:

- 0 - Clear and dry runway
- 1 - Damp
- 2 - Wet (or water patches)
- 3 - Rime or frost covered (depth normally less than 1 mm)
- 4 - Dry snow
- 5 - Wet snow
- 6 - Slush
- 7 - Ice
- 8 - Compacted or rolled snow
- 9 - Frozen ruts or ridges
- / - Type not stated (due to runway clearance in progress)

5.2.2.2 The following definitions have been adopted:

**Slush** - water-saturated snow that with a heel-and-toe slap-down motion against the ground will be displaced with a splatter; specific gravity: 0.5 up to 0.8.

*Note: Combinations of ice, snow and/or standing water may, especially when rain, rain and snow, or snow is falling, produce substances with specific gravities in excess of 0.8. These substances, due to their high water/ice content, will have a transparent rather than a cloudy appearance and, at the higher specific gravities - will be readily distinguishable from slush.*

#### **Snow (on the ground).**

- a. **Dry snow.** Snow which can be blown if loose or, if compacted by hand, will fall apart again upon release; specific gravity: up to but not including 0.35;
- b. **Wet snow.** Snow that, if compacted by hand, will stick together and tend to or form a snowball; specific gravity: 0.35 up to but not including 0.5;

- c. **Compacted snow.** Snow which has been compressed into a solid mass that resists further compression and will hold together or break up into lumps if picked up; specific gravity: 0.5 and over.

### 5.2.3 Extent of runway contamination (C<sub>R</sub>).

The extent of ice, snow and/or slush on a runway is reported on the basis of an estimation of the covered area and given in percentage of the total area of the runway.

The C<sub>R</sub> data is expressed as a single digit or as a slash in accordance with the following code:

- 1 - Runway contaminated (covered) less than 10 %
- 2 - Runway contaminated (covered) 11 - 25 %
- 5 - Runway contaminated (covered) 26 - 50 %
- 9 - Runway contaminated (covered) 51 - 100 %
- / - Extent not reported (due to runway clearance in progress).

### 5.2.4 Depth of layer (depth of deposit) (E<sub>R</sub>E<sub>R</sub>).

The E<sub>R</sub>E<sub>R</sub> data is composed of 2 digits taken from the following scale:

- 00 - less than 1 mm
- 01 - 1 mm
- 02 - 2 mm
- etc. ... etc.
- 10 - 10 mm
- etc. ... etc.
- 20 - 20 mm
- etc. ... etc.... up to 90 - 90 mm

for higher values, the following code will be used:

- 92 - 10 cm
- 93 - 15 cm
- 94 - 20 cm
- 95 - 25 cm
- 96 - 30 cm
- 97 - 35 cm
- 98 - 40 cm or more
- 99 - Runway(s) out of service for reason of snow, slush, ice, heavy snowbanks or clearing operation in progress, without depth indication
- // - layer depth meaningless for operational purposes or not measurable.

Note: 1. *This code does not mean that depths should be measured with 1 mm precision. Larger intervals, up to 90 mm, can be expressed using the above scale.*

Note: 2. *When the depth is measured at several points along a runway, the transmitted value is the mean value or the highest value when this is important for operational purposes.*

Note: 3. *Code group 91 is not used; depth in cm can be obtained by multiplying the last digit by 5 (e.g. 94 = 4 x 5 = 20 cm).*

Note: 4. *For layers corresponding to code figures 1, 6, 7, 8 and 9, the depth is normally cannot be measured representatively, not significant and the entry can be two slashes (/). Likewise, water depth will not be given unless a precise and representative measurement can be guaranteed.*

### 5.2.5 Friction coefficient or braking action (Code METAR - the B<sub>R</sub>B<sub>R</sub> data; SNOWTAM - "H"-row & "T"-row)

5.2.5.1 In the Code METAR the **B<sub>R</sub>B<sub>R</sub>** data is composed of two digits corresponding to friction coefficient or, failing that, to assessed braking action.

5.2.5.1.1 When the Code METAR **B<sub>R</sub>B<sub>R</sub>** data corresponding to Friction coefficient ( $\mu$ ):

In the Code METAR (**B<sub>R</sub>B<sub>R</sub>** data) two indicated digits are corresponded to the two decimals of the measuring friction coefficient ( $\mu$ )

For example:  
Code METAR (**B<sub>R</sub>B<sub>R</sub>** data):                **B<sub>R</sub>B<sub>R</sub>**= 29 if the friction coefficient is worth 0,29

In the **SNOWTAM** ("T"-row) - by the plain-language remarks the friction coefficient for each third of the runway.

For example:  
**SNOWTAM** ("T"-row):                **FCT 29/29/29** if the friction coefficient for each third of the runway is worth 0,29;

5.2.5.1.2 When the Code METAR **B<sub>R</sub>B<sub>R</sub>** data corresponding to Braking action::

Information on braking action will be given:

- by digits code in the Code METAR the **B<sub>R</sub>B<sub>R</sub>** data

or/and

- by descriptive terms in the **SNOWTAM** ("H"-row)

5.2.5.2 In transmissions the following descriptive terms/special code will be used:

Measured friction coefficient ( $\mu$ ) (are given as an indication)	Braking action (descriptive terms)	Code METAR ( <b>B<sub>R</sub>B<sub>R</sub></b> data)	SNOWTAM ("H"-row)
0,40 and above	good	95	5
0,39 - 0,36	good to medium	94	4
0,35 - 0,30	medium	93	3
0,29 - 0,26	medium to poor	92	2
0,25 or below	poor	91	1
If measuring equipment can't provide measurement of friction because of damage.	unreliable	99	
If braking conditions can't be specified (due to RWY clearance in progress, RWY unserviceable, RWY not operational, lack of measure during airport closing) the code // (two slashes) will be used not reported	not reported	//	
When the RWY is contaminated by standing water, wet RWY, wet ice, dry snow (non-compacted), wet snow, frozen ruts or ridges and/or slush in the code METAR ( <b>B<sub>R</sub>B<sub>R</sub></b> ) will be used the friction coefficient taken by the instrument measurement.	unreliable	Friction coefficient ( $\mu$ ). Note: as example see para 5.2.5.1.1	

In the table above:

- with associated Braking action' descriptive terms developed from friction data collected only for compacted

snow- and/or ice- covered RWY and should not therefore be taken to be absolute values applicable in all conditions;

- the figures in the "Measured Coefficient  $\mu$ " column are given as an indication;
- the  $\mu$  values given are specific to each friction measuring device as well as to the surface being measured and the speed employed. In addition, the kind of measuring device used will be reported in the SNOWTAM 'T'-row.

Note: 1. *Braking action will be estimated if the friction coefficient cannot be measured due to lack of equipment or for other reasons.*

Note: 2. *Where braking action is assessed at a number of points along a runway, the mean value will be transmitted (or the lowest value if operationally significant).*

#### 5.2.5.3 Examples of "runways conditions" group messages in case in the Code METAR the $B_R B_R$ data as Braking action:

**Example 1.1** (in METAR messages broadcast on RODEX):

For fictitious snow conditions at DONLON/(LUXX): R08/821093

Meaning: Runway 08: compacted or rolled snow, contamination 11% to 25%, deposit is 10 mm deep

Braking action (= estimated surface friction = estimated braking action) is medium

**Example 1.2** (during SNOWTAM-issue period to the SNOWTAM "T"-row included the FCT information):

**SNOWTAM**

FROM: DD DEC 20YY HH:MM

A) LUXX

B) 12DDHHMM C) 08 F) 8/8/8 G) 10/10/10

N) 2

R) 2 S) 12DDHHMM

T) RWY, TWY'S AND APRON CONT 25 PER CENT. **FCT 33/33/33** SFH)

**Example 2.1** (in METAR messages broadcast on RODEX):

For fictitious snow conditions at DONLON/(LUXX): R08/691099

Meaning: Runway 08: slush, contamination 51% to 100%, deposit is 10 mm deep

Braking action (= estimated surface friction = estimated braking action) is unreliable

**Example 2.2** (during SNOWTAM-issue period to the SNOWTAM "T"-row included the FCT information):

**SNOWTAM**

FROM: DD DEC 20YY HH:MM

A) LUXX

B) 12DDHHMM C) 08 F) 6/6/6 G) 10/10/10

N) 2

R) 2 S) 12DDHHMM

T) RWY, TWY'S AND APRON CONT 100 PER CENT. **FCT 37/32/24** SFH)

#### 5.2.5.4 Distribution of runway surface condition messages during non-routine situation

a. When ice, snow, slush, etc. clearing operations are in progress on a runway:

- the digits corresponding to the type of precipitant ( $P_R$ ) and to extent of contamination ( $C_R$ ) are both of them replaced by a slash (/)
- the digits corresponding to the layer depth ( $E_R E_R$ ) are replaced by the group 99
- the digits assessing the braking action ( $B_R B_R$ ) are replaced by two slashes (/).

Example: R26///99// : runway 26 non-operational due to runway clearance in progress.

- b. When runways are contaminated but there is no report available due to aerodrome closure or curfew etc... this fact must be indicated by replacing in the code message the group **P<sub>R</sub>C<sub>R</sub>E<sub>R</sub>E<sub>R</sub>B<sub>R</sub>B<sub>R</sub>** by six slashes (/////).

Example: R08/////

- c. When the conditions of contamination have ceased to exist and therefore, when aerodrome operating conditions return to normal, a code group composed of the runway identification and abbreviation CLRD followed by two slashes sent instead of the normal characters.

Example: R08/CLRD//

5.2.5.5 When information on runway conditions is given section-wise, it is done in the order in which the conditions in question are encountered at take-off or landing in the runway direction, which is indicated by the runway will thus always be in accordance with the order in which the conditions in question are encountered during take-off and landing.

## 6. The cases of runway closure.

In cases when a postponement of clearance operations would involve a definite risk of the situation developing into a crisis, e.g. when a fall in temperature causes water or slush to become solid ice, the snow clearance service is authorized to demand that sections of the movement areas to be closed to traffic.

## 7. Distribution of information about snow conditions.

Information on snow conditions at CHISINAU, BALTI and MARCULESTI Aerodromes during SNOWTAM-issue period will be disseminated directly from the corresponding Aerodrome Service in a separate series of NOTAM (SNOWTAM) and through the information after METAR messages, as one or several coded groups (at the end of the weather message (METAR) broadcast).

SNOWTAM will be prepared in accordance with *ICAO Annex 15, Appendix 2*.

Other information on snow conditions at aerodromes can be obtained at the aerodrome concerned or will be available at the Briefing Office at Aerodrome.