NATO STANDARD

ANEP-88

STANDARD FOR THE REQUIRED LEVEL AND MEASUREMENT OF COEFFICIENT OF FRICTION ON FLIGHT DECKS

Edition A Version 1

JUNE 2017

NORTH ATLANTIC TREATY ORGANIZATION

ALLIED PROCEDURAL PUBLICATION

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NORTH ATLANTIC TREATY ORGANIZATION (NATO)

NATO STANDARDIZATION OFFICE (NSO)

NATO LETTER OF PROMULGATION

1 June 2017

1. The enclosed Allied Procedural Publication ANEP-88, Edition A, Version 1 STANDARD FOR THE REQUIRED LEVEL AND MEASUREMENT OF COEFFICIENT OF FRICTION ON FLIGHT DECKS, which has been approved by the nations in the Military Committee Maritime Standardization Board (MCMSB), is promulgated herewith. The agreement of nations to use this publication is recorded in STANAG 1278.

2. ANEP-88, Edition A, Version 1 is effective upon receipt.

4. This publication shall be handled in accordance with C-M(2002)60.

Edvardas MAŽEIKIS
Major General, LTUAF
Director, NATO Standardization Office

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RESERVED FOR
NATIONAL LETTER OF PROMULGATION

RECORD OF RESERVATIONS

CHAPTER	RECORD OF RESERVATIONS BY NATIONS

The reservations listed on this page include only those that were recorded at time of promulgation and may not be complete. Refer to the NATO Standardization Document Database for the complete list of existing reservations.

RECORD OF RESERVATIONS

NATION	SPECIFIC RESERVATIONS
The reservations listed on this page include only those that were recorded at time of promulgation and may not be complete. Refer to the NATO Standardization Document Database for the complete list of existing reservations.	

GENERAL INSTRUCTIONS

1. ANEP-88 promulgates the textual information previously contained in STANAG 1278 – STANDARD FOR THE REQUIRED LEVEL AND MEASUREMENT OF COEFFICIENT OF FRICTION ON FLIGHT DECKS in a separate Allied Publication. STANAG 1278 Edition 2 (with all textual information removed) now forms the Covering Standard for ANEP-1278.

2. This publication is designed to be issued on CD only. Change instructions are not provided as this version incorporates all previous changes and is a direct replacement for the preceding edition of STANAG 1278.

TABLE OF CONTENTS

LIST OF TABLES AND FIGURES

REFERENCES

1. STANAG 1194/MPP-02 – Helicopter Operations from Ships other Than Aircraft Carriers (HOSTAC)

2. DEFSTAN 80-134, Annex E – Paint System, Anti-Slip for Ships Decking, Multi-pack

3. STANAG 1474/APP-29 (Draft) – Embarked Aviation Crossdeck Clearance Criteria and Procedures For Assessing Interoperability

4. STANAG 1162/MPP-02.3.3 – Vertical Replenishment (VERTREP) Operating Area Marking, Clearance and Lighting

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Chapter 1 - General Information and Definitions

0101 PURPOSE AND SCOPE

The aim of this document is to establish the minimum standard requirements of Coefficient of Friction (CoF) of ships' flight decks in order to reduce the possibility of aircraft slipping.

0102 AGREEMENT

Participating nations agree to:

a. Maintain a minimum CoF of the flight deck coating of 0.6.

b. Adopt the methods of inspection and measurement as specified herein.

0102 DETAILS OF THE AGREEMENT

1. **Method of Inspection**. Dynamic measurements are to be taken with a measuring device in the vicinity of the landing spot(s) and also in random areas wherever aircraft are liable to be traversed or parked. Measurements are to be taken when flight deck is dry. An example of a suitable manual measuring device is detailed at Annex A, Figure 1. Annex B, Figure 2, details an electronic automated measuring device capable of measuring the CoF over short distances of flight deck.

2. **Occasions of Inspection**. The CoF shall be measured:

a. After initial application of the flight deck coating.

b. After re-application of the coating during maintenance periods.

c. When doubt exists concerning the effectiveness of the anti-slip properties of the deck coating.

3. **Deck Coatings**. Additionally, the deck coatings will be maintained in accordance with National Standards or as detailed Reference 1a.

Annex A

MANUALLY OPERATED COEFFICIENT OF FRICTION TEST RIG 'BEDFORD PAD'

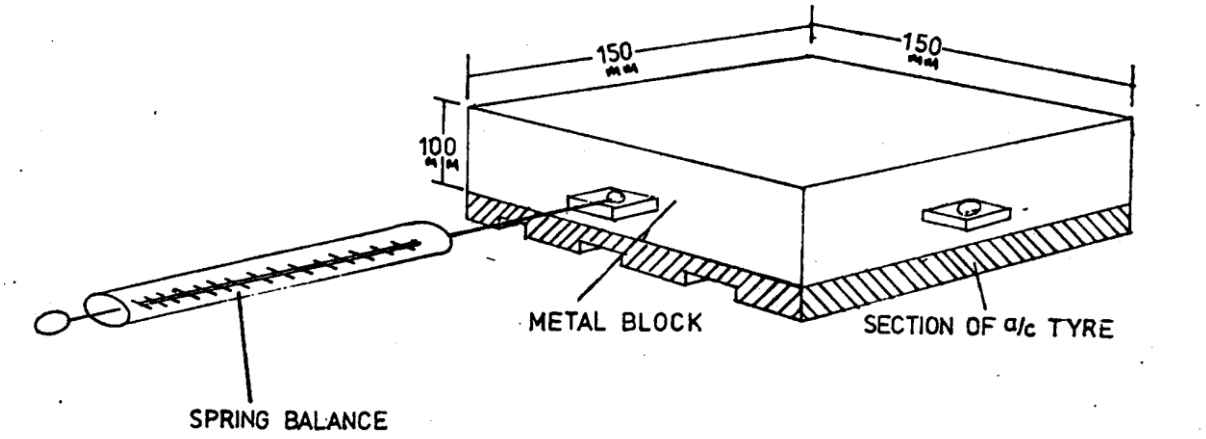

Figure 1 – Bedford Pad

1. CHARACTERISTICS

a. The block is 150 x 150 mm² metal block with lugs on two sides drilled to take the hook of a spring balance.

b. A section of rubber aircraft tyre typically of the following characteristics:
Shore hardness A: 50, thickness 5 mm with chamfered edges, is secured to the bottom of the block by impact adhesive.

c. The whole assembly, including rubber tyre, weighs 2.5 kg.

2. METHOD OF MEASUREMENT

a. Place the device with one lug in the fore and aft direction and the other athwartships.

b. Connect a spring balance to the athwartship lug.

c. Pull the device athwartship and note the reading during the time the device moves uniformly over the deck, keeping the spring balance parallel to the deck.

d. Connect the spring balance to the fore and aft lug and proceed as in 2.c. in a fore and aft direction.

e. Add the results obtained in c. and d. then divide by 2 times the weight of the block. The result is the CoF.

Annex B

AUTOMATICALLY OPERATED COEFFICIENT OF FRICTION TEST METER

FIGURE 2 - SLIPSTOP FSC 2000

1. CHARACTERISTICS

a. The instrument is an electronic box measuring 288x177x113 mm and has a motorized drive that pulls a measuring rubber glider along the flight deck.

b. The traction force of the glider is measured through an internal downward force of 24 N (load G).

c. The glider causes the DMS potentiometer to register the force (Fz) necessary to constantly drag the downward force and therefore calculates the CoF.

d. A diagram of the instrument is detailed in Figure 3 and technical data in Table 1.

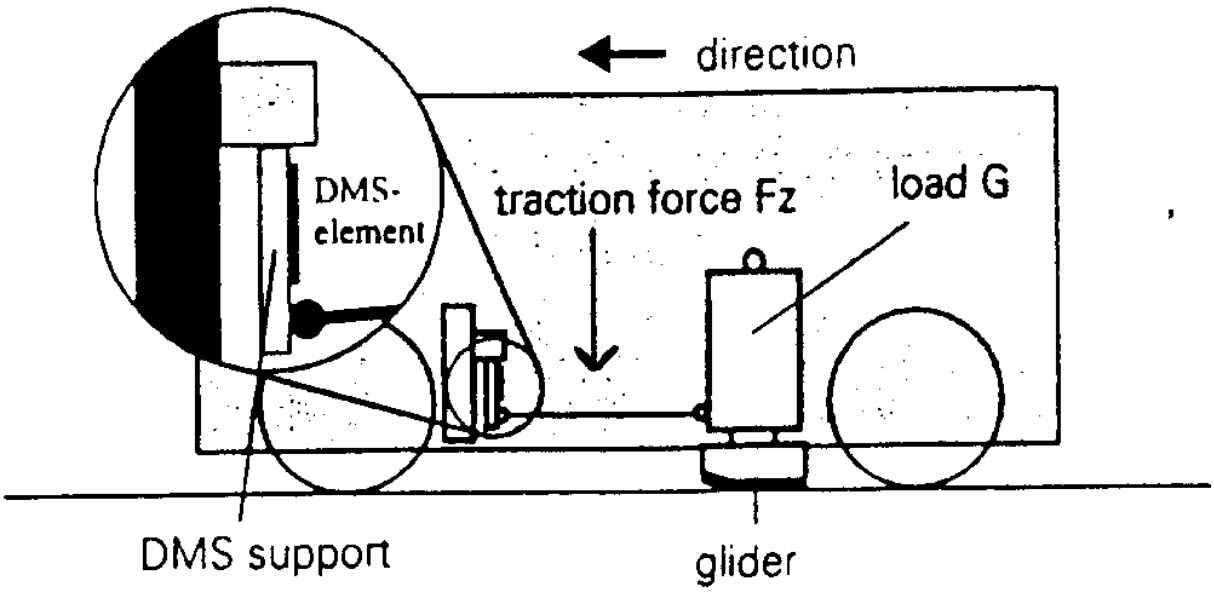

FIGURE 3 - Diagram of Slip-Stop FSC 2000 Instrument

2. METHOD OF MEASUREMENT

a. Ensure the Slip-Stop FSC 2000 instrument battery is fully charged.

b. Place the Slip-Stop FSC 2000 instrument on an area of flight deck from the centreline in the direction of port or starboard.

c. Select START 2 Button for 60 cm run.

d. Once the 60cm run is complete obtain a printout of the CoF over 60cm.

e. Examine the printout and note the maximum CoF calculated by the instrument. This represents the maximum CoF for the surface under test and correlates with the measurements of the 'Bedford Pad' block detailed at Annex A.

f. Repeat the procedure 2.b. to e. and calculate the average maximum CoF.

g. Repeat the procedure 2.b. to 2.f. on four more areas of the flight deck and calculate the average maximum CoF.

Table 1 - Slip-Stop FSC 2000 Technical Data

Dimensions:	288 x 177 x 113 mm
Weight:	7.5 Kg
Chassis:	4 wheel chassis with swing rear axis
Speed:	200mm/s, electronic - stabilized
Modes:	Wet or Dry measurement
Glider:	Motor driven glider rise and lower. 4 types of glider, leather, rubber, plastic, uncoated with internal microchip to identify glider logging data.
Glider Down Force:	24 N
Measuring Sensor:	DMS - System (stretch measure stripe) 2% accuracy.
Printer:	High speed thermo printer Paper width 80 mm Paper length 25 M
Printout:	Standard printout: date, time, glider type, min/max values, average value.

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