



**AUTORITATEA AERONAUTICĂ CIVILĂ
A REPUBLICII MOLDOVA**

GM-HPT-DSN

MATERIAL de ÎNDRUMARE (GM)

la

SPECIFICAȚIILE DE CERTIFICARE (CS)

**pentru proiectarea heliporturilor de suprafață VFR
situate pe aerodromurile care cad sub incidența
Regulamentului nr. 653/2018 privind procedurile
administrative referitoare la aerodromuri**

Ediția 01/ August 2019



ORDIN

**cu privire la aprobarea materialului de îndrumare (GM-HPT-DSN) la
specificațiile de certificare pentru proiectarea heliporturilor de
suprafață VFR situate pe aerodromurile care cad sub
incidența Regulamentului privind procedurile
administrative referitoare la aerodromuri,
aprobat prin Hotărârea Guvernului
nr.653/2018**

nr. 40/GEN din 05.08.2019

Monitorul Oficial nr.256-259/1395 din 16.08.2019

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În temeiul art.7 alin.(3) punctul 1) lit.b) și art.35 alin.(10) din [Codul aerian al Republicii Moldova nr.301/2017](#), întru executarea atribuțiilor ce îi revin Autorității Aeronautice Civile în calitate de autoritate administrativă de certificare, supraveghere continuă și control în domeniul aviației civile, în scopul asigurării implementării Regulamentului privind procedurile administrative referitoare la aerodromuri aprobat prin [Hotărârea Guvernului nr.653/2018](#),

ORDON:

1. Se aprobă materialul de îndrumare (GM-HPT-DSN) ediția 01 la specificațiile de certificare pentru proiectarea heliporturilor de suprafață VFR situate pe aerodromurile care cad sub incidența Regulamentului privind procedurile administrative referitoare la aerodromuri, aprobat prin [Hotărârea Guvernului nr.653/2018](#), conform anexei la prezentul ordin.

2. Autoritatea Aeronautică Civilă va pune la dispoziția tuturor persoanelor interesate anexa la prezentul ordin prin publicarea pe pagina web oficială www.caa.md, la compartimentul Cadrul normativ – Material de îndrumare (GM).

3. Operatorii de aerodromuri/aeroporturi care cad sub incidența Regulamentului privind procedurile administrative referitoare la aerodromuri vor utiliza materialul de îndrumare (GM-HPT-DSN) în scopul proiectării heliporturilor de suprafață VFR.

4. Prezentul ordin intră în vigoare la data publicării în Monitorul Oficial al Republicii Moldova.

DIRECTORUL AUTORITĂȚII AERONAUTICE CIVILE Octavian NICOLAESCU

Nr.40/GEN. Chișinău, 5 august 2019.

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LIST OF ABBREVIATIONS

(used in GM to CS-HPT-DSN)

ASPSL	arrays of segmented point source lighting
APAPI	abbreviated precision approach path indicator
CS-ADR-DSN	certification specifications for aerodromes design
FATO	final approach and take-off area
HAPI	helicopter approach path indicator
HFM	helicopter (aircraft) flight manual
LDAH	landing distance available (helicopters)
LP	luminescent panel
MTOM	maximum take-off mass
PAPI	precision approach path indicator
RTODAH	rejected take-off distance available (helicopters)
TLOF	touchdown and lift-off area
TODAH	take-off distance available (helicopters)
UCW	undercarriage width

CHAPTER A — GENERAL

GM1 HPT-DSN.A.010 Applicability

Further information on operations of performance classes 1, 2 and 3 helicopters are given in Government decision no.831/2018 and Technical requirements (CT-OPS).

GM1 HPT-DSN.A.020 Definitions

CHAPTER B — HELICOPTER OPERATING AREAS

For the purpose of this document "GM-ADR-DSN" the definitions from Certification Specifications for Aerodrome design "CS-ADR-DSN" should apply.

GM1 HPT-DSN.B.100 Aerodrome Reference Code

(a) General:

- (1) A FATO may not be necessary to be provided at an aerodrome, where the runway is used for the purposes of final approach and take-off of helicopters.
- (2) Where a FATO is located near a runway or taxiway, and when simultaneous helicopter and aeroplane operations are planned, the separation distance between the edge of a runway or taxiway and the edge of a FATO should not be less than the appropriate dimension in Table GM1-B-1.
- (3) Operational limitations should be considered under certain wind conditions.

If aeroplane mass and/or helicopter mass are	Distance between FATO edge and runway edge or taxiway edge
up to but not including 3 175 kg	60 m
3 175 kg up to but not including 5 760 kg	120 m
5 760 kg up to but not including 100 000 kg	180 m
100 000 kg and over	250 m
<p><i>Note: The values specified in this table are primarily intended to mitigate risks of wake turbulence encounters. In addition to this table, when positioning a FATO intended to be used simultaneously with a nearby runway or taxiway, attention should be given to other CS ADR-DSN requirements such as the minimum runway strip width. Local environment should be taken into account when setting the separation between the FATO and nearby infrastructure elements to ensure the safety of simultaneous operations.</i></p>	

GM1 HPT-DSN.B.110 Helicopter clearways

General: A helicopter clearway would need to be considered when the heliport is intended to be used by helicopters operating in performance class 1.

GM1 HPT-DSN.B.120 Touchdown and lift-off areas (TLOFs)

Additional TLOFs may be located within runway-type FATOs.

GM1 HPT-DSN.B.130 Safety areas

When only a single approach and take-off climb surface is provided, the need for specific protected side slopes should be determined by a safety assessment.

CHAPTER C — HELICOPTER TAXIWAYS AND TAXI-ROUTES

GM1 HPT-DSN.C.200 Helicopter ground taxiways and helicopter ground taxi-routes

When a taxiway is intended for use by aeroplanes and helicopters, the provisions for taxiways for aeroplanes and helicopter ground taxiways will be taken into consideration and the more stringent requirements should apply.

GM1 HPT-DSN.C.210 Helicopter air taxiways and helicopter air taxi-routes

The part of the helicopter air taxi-route that extends symmetrically on each side of the centre line from 0.5 times the largest overall width of the helicopters it is intended to serve to the outermost limit of the helicopter air taxi-route is its protection area.

CHAPTER D — HELICOPTER STANDS**GM1 HPT-DSN.D.300 Helicopter stands**

- (a) It is not considered good practice to locate helicopter stands under a flight path.
- (b) Where non-simultaneous operations are envisaged, the protection areas of helicopter stands and their associated taxi-routes may overlap (see Figure GM1-D-1).
- (c) Characteristics: For a helicopter stand intended to be used by wheeled helicopters for turning on the ground, the dimension of the helicopter stand and the protection area, including the dimension of the central zone, would need to be significantly increased.

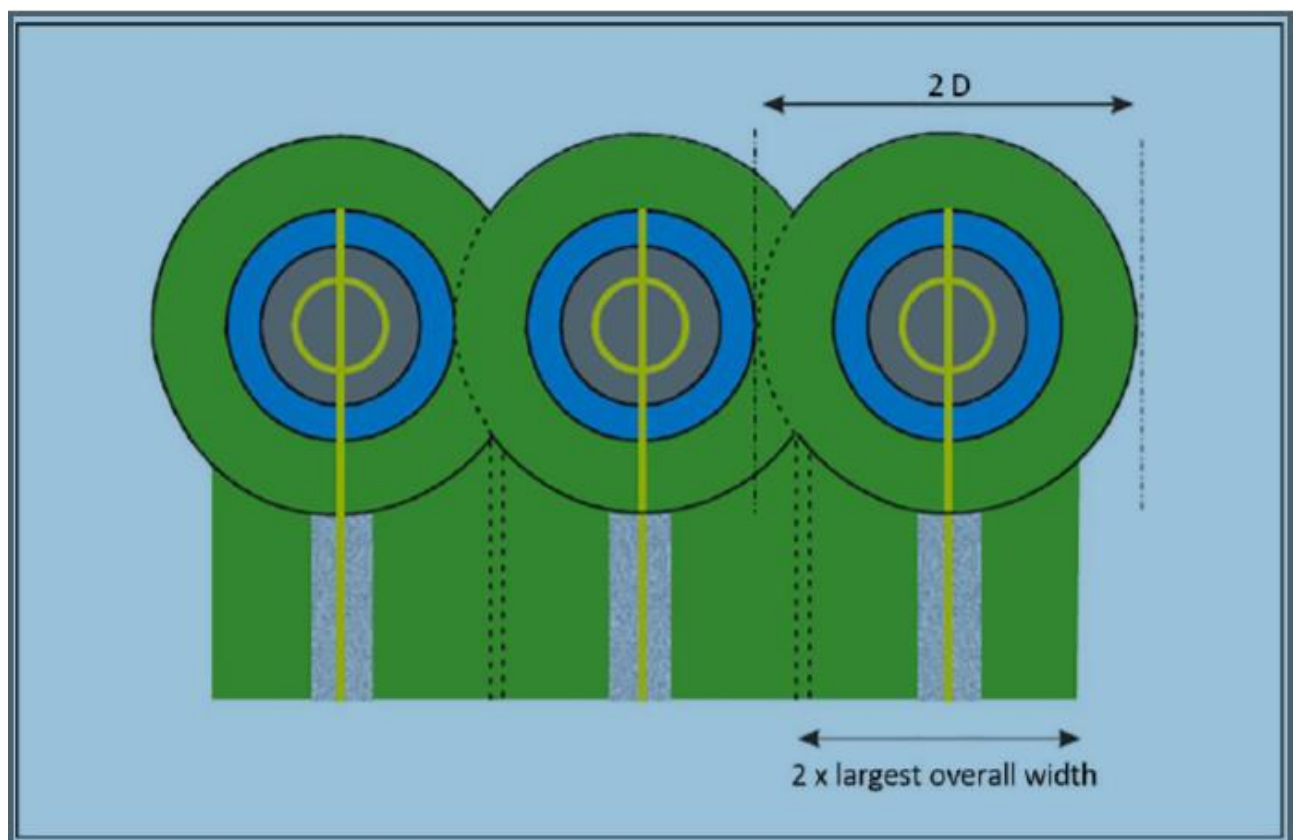


Figure GM1-D-1. Helicopter stands designed for hover turns with air taxi-routes/taxiways – non-simultaneous operations

CHAPTER E — OBSTACLE LIMITATION SURFACES AND REQUIREMENTS**GM1 HPT-DSN.E.400 Applicability**

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GM1 HPT-DSN.E.410 Approach surface

- (a) Consultations with helicopter operators could assist the aerodrome operator in determining the appropriate slope category to apply according to the heliport environment and the most critical helicopter type for which the heliport is intended.

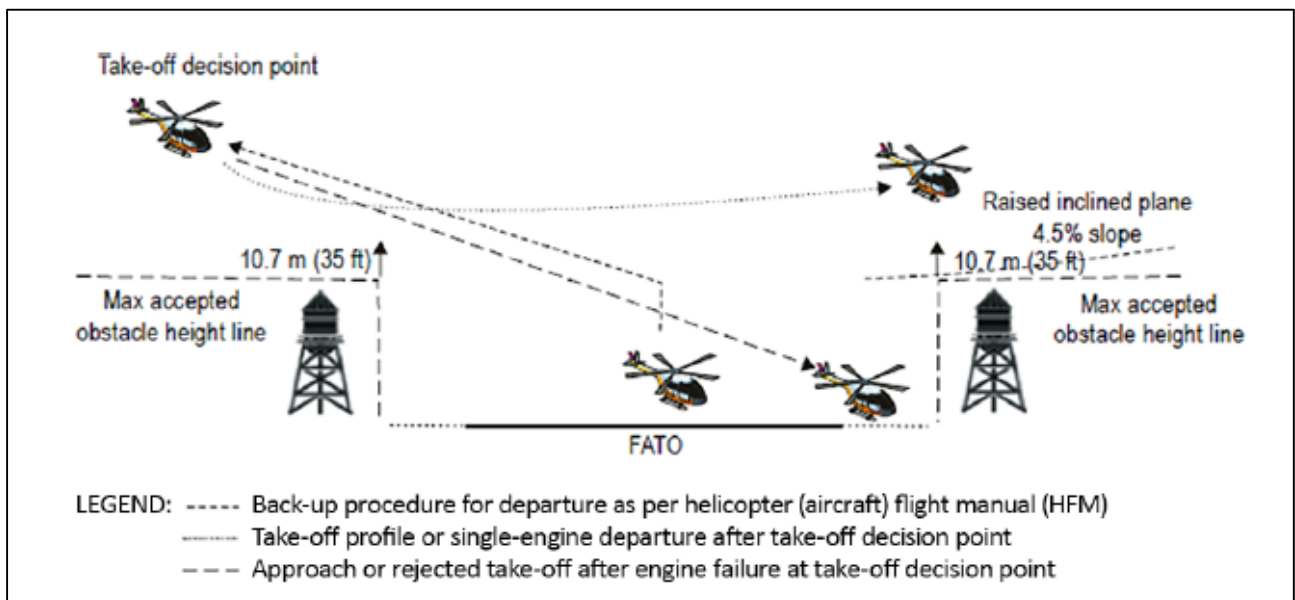


Figure GM1-E-1. Example of raised inclined plane during operations in performance class 1

- (b) The example shown in Figure GM1-E-1 does not represent any specific profile, technique or helicopter type and is intended to show a generic example. An approach profile and a back-up procedure for departure profile are depicted. Specific manufacturers operations in performance class 1 may be represented differently in the specific helicopter (aircraft) flight manual (HFM).
- (c) The approach/landing profile may not be the reverse of the take-off profile.
- (d) Additional safety assessment for obstacles might be required in the area that a back-up procedure is intended. Helicopter performance and the HFM limitations would determine the extent of the assessment required.
- (e) For heliports intended to be used by helicopters operated in performance class 2 and 3, it is good practice for the approach paths to be selected so as to permit safe forced landing or one-engine-inoperative landings such that, as a minimum requirement, injury to persons on the ground or water or damage to property are minimised. The most critical helicopter type for which the heliport is intended and the ambient conditions may be factors in determining the suitability of such areas.
- (f) The approach and take-off surfaces should be offset from each other ideally by an angle of not less than 135 degrees.

GM1 HPT-DSN.E.420 Take-off climb surface

- (a) Helicopter take-off performance is reduced in a curve, so a straight portion along the take-off climb surface prior to the start of the curve allows for acceleration.
- (b) For heliports intended to be used by helicopters operated in performance class 2 and 3, it is an operational requirement for departure paths to be selected so as to permit safe forced landings or one-engine-inoperative landings such that injury to persons on the ground or damage to property are minimised. The most critical helicopter type for which the heliport is intended and the ambient conditions may be factors in determining the suitability of such areas.
- (c) The approach and take-off surfaces should be offset from each other ideally by an angle of not less than 135 degrees.

GM1 HPT-DSN.E.430 Obstacle limitation requirements

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CHAPTER F — VISUAL AIDS

GM1 HPT-DSN.F.500 General

When a runway is marked in accordance with the provisions of CS-ADR-DSN, and is utilised as a FATO, no additional runway markings or lighting are required for helicopter use.

GM1 HPT-DSN.F.510 Wind direction indicators

- (a) General: If the wind direction indicators serving the aerodrome do not clearly indicate the correct wind information at the heliport, additional wind direction indicators should be installed in order to provide wind information to the pilot during approach and take-off.
- (b) Location:
 - (1) A wind direction indicator should be located so as to indicate the wind conditions over the FATO and TLOF and in such a way as to be free from the effects of airflow disturbances caused by nearby objects or rotor downwash. It should be visible from a helicopter in flight, in a hover or on the movement area.
 - (2) Where a TLOF and/or FATO are subject to a disturbed airflow, additional wind direction indicators located close to the area should be provided to indicate the surface wind on the area.
- (c) Characteristics:
 - (1) A wind direction indicator should give a clear indication of the direction of the wind and a general indication of the wind speed.
 - (2) A wind direction indicator for the heliport should be a truncated cone made of lightweight fabric and should have the following minimum dimensions:
 - (i) Length 2.4 m,
 - (ii) Diameter (larger end) 0.6 m, and
 - (iii) Diameter (smaller end) 0.3 m.
 - (3) The colour of the wind direction indicator should be so selected as to make it clearly visible and understandable from a height of at least 200 m (650 ft) above the heliport, having regard to the background:
 - (i) where practicable, a single colour, preferably white or orange, should be used;
 - (ii) where a combination of two colours is required to give adequate conspicuity against changing backgrounds, they should preferably be orange and white, red and white, or black and white, and should be arranged in five alternate bands, the first and last band being the darker colour.
- (d) A wind direction indicator at a heliport intended for use at night should be illuminated.

GM1 HPT-DSN.F.520 Heliport identification marking

On a FATO which does not contain a TLOF and which is marked with an aiming point marking (see CS HPT-DSN.F.550) the heliport identification marking should be established in the centre of the aiming point marking as shown in Figure F-1.

GM1 HPT-DSN.F.530 Final approach and take-off area perimeter marking or markers

- (a) Where a TLOF is coincident with a FATO, the TLOF marking can be used.
- (b) FATO perimeter markers should be of a single colour, either orange or red, or the two contrasting colours of orange and white or, alternatively, red and white should be used

except where such colours would merge with the background. A FATO perimeter marker should have dimensional characteristics as shown in Figure GM1-F-1.

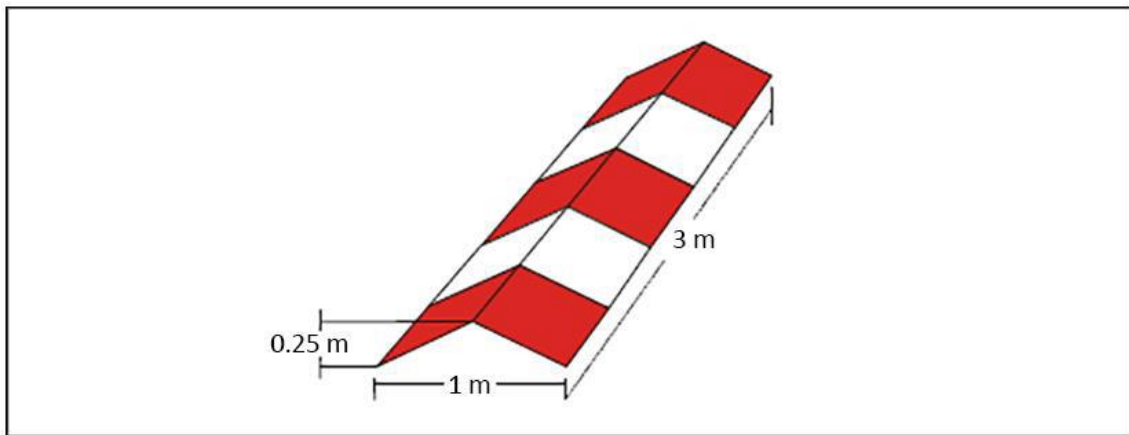


Figure GM1-F-1. Runway-type FATO edge marker

GM1 HPT-DSN.F.540 Final approach and take-off area designation marking

For a runway-type FATO, the numbers and the letter of the marking should have a white colour and should be in the form and proportion shown in Figure GM1-F-2.

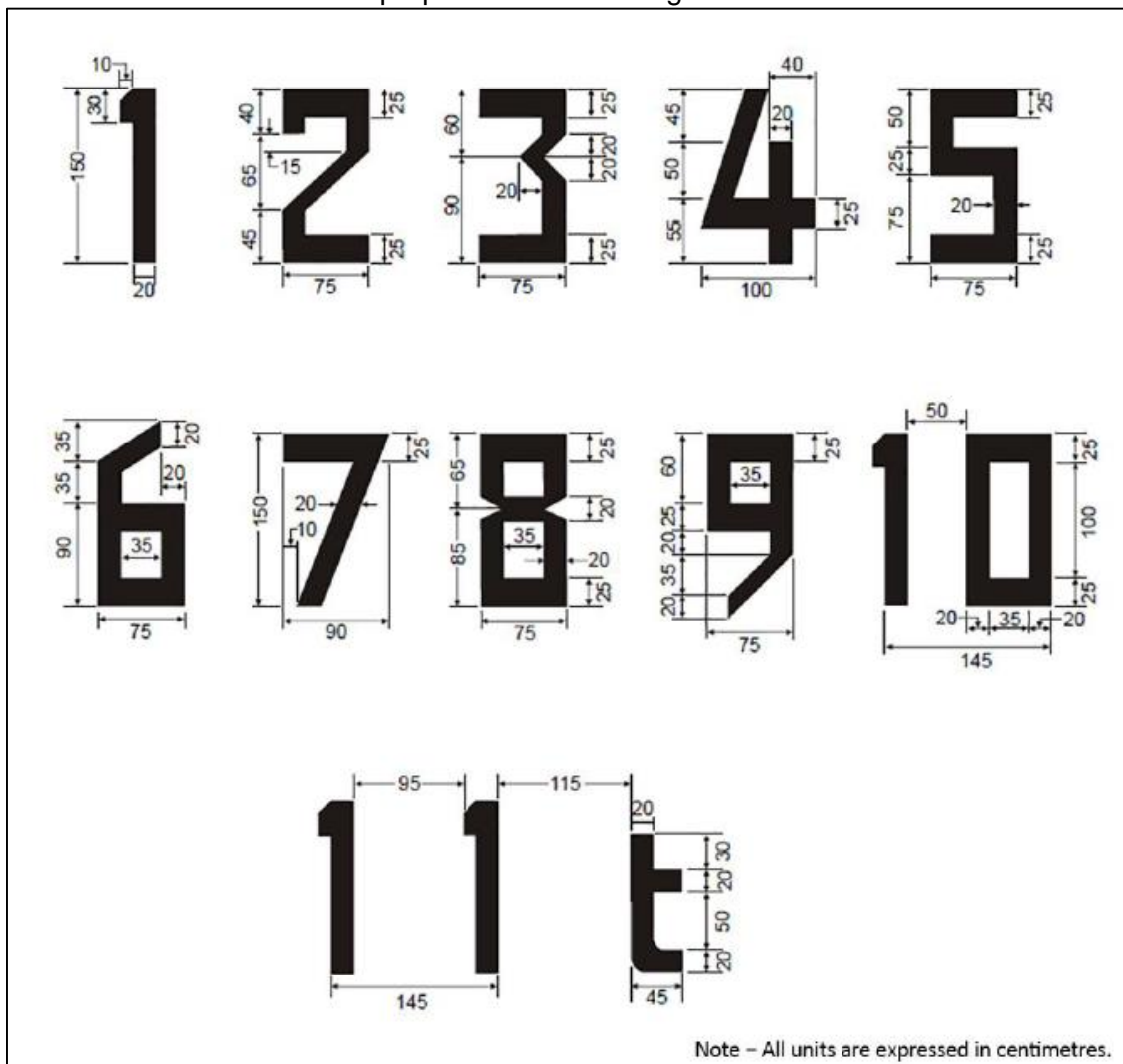


Figure GM1-F-2. Form and proportions of numbers and letter

GM1 HPT-DSN.F.550 Aiming point marking

For all FATOs except runway-type FATOs, the aiming point marking should be located at the centre of the FATO, as shown in Figure F-1.

GM1 HPT-DSN.F.560 Touchdown and lift-off area perimeter marking

A TLOF perimeter marking should be provided on each TLOF collocated with a helicopter stand.

GM1 HPT-DSN.F.570 Touchdown/positioning marking

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GM1 HPT-DSN.F.580 Heliport name marking

- (a) Location: The heliport name marking should be displayed on the heliport so as to be visible, as far as practicable, at all angles above the horizontal.
- (b) Characteristics:
 - (1) A heliport name marking intended for use at night or during conditions of poor visibility should be illuminated, either internally or externally.
 - (2) The colour of the marking should contrast with the background and preferably be white.
 - (3) Runway-type FATOs: The characters of the marking should be not less than 3 m in height.
 - (4) All FATOs except runway-type FATOs: The characters of the marking should be not less than 1.5 m in height.

GM1 HPT-DSN.F.590 Helicopter ground taxiway markings and markers

- (a) Ground taxi-routes are not required to be marked.
- (b) Where necessary, signage should be provided on an aerodrome to indicate that a ground taxiway is suitable only for the use of helicopters.
- (c) A helicopter ground taxiway edge marker should not present a hazard for aircraft operations.

GM1 HPT-DSN.F.600 Helicopter air taxiway markings and markers

- (a) Helicopter air taxi-routes are not required to be marked.
- (b) Where a helicopter air taxiway could be confused with a helicopter ground taxiway, signage should be provided to indicate the mode of taxi operations that are permitted.
- (c) Helicopter air taxiway edge markers should not be located at a distance from the centre line of the helicopter air taxiway of less than 0.5 times the largest overall width of the helicopter for which it is designed.
- (d) Helicopter air taxiway edge markers should not penetrate a plane originating at a height of 25 cm above the plane of the helicopter air taxiway, at a distance from the centre line of the helicopter air taxiway of 0.5 times the largest overall width of the helicopter for which it is designed, and sloping upwards and outwards at a gradient of 5 per cent.

GM1 HPT-DSN.F.610 Helicopter stand markings

Helicopter stand identification markings should be provided where there is a need to identify individual stands.

GM1 HPT-DSN.F.620 Flight path alignment guidance marking

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GM1 HPT-DSN.F.630 Approach lighting system

Additional guidance on light intensity controls is given in GM1 ADR-DSN.M.615.

GM1 HPT-DSN.F.640 Flight path alignment guidance lighting system

The flight path alignment guidance lighting can be combined with a flight path alignment guidance marking (or markings).

GM1 HPT-DSN.F.650 Visual alignment guidance system

A visual alignment guidance system should be provided where one or more of the following conditions exist:

- (a) obstacle clearance, noise abatement or traffic control procedures require a particular direction to be flown;
- (b) the environment of the heliport provides few visual surface cues; and
- (c) it is physically impracticable to install an approach lighting system.

GM1 HPT-DSN.F.660 Visual approach slope indicator

- (a) A visual approach slope indicator should be provided for a heliport where one or more of the following conditions exist:
 - (1) obstacle clearance, noise abatement or traffic control procedures require a particular slope to be flown;
 - (2) the environment of the heliport provides few visual surface cues; and
 - (3) the characteristics of the helicopter require a stabilised approach.
- (b) When more than one visual approach slope indicator is installed at an aerodrome (e.g. PAPI, APAPI), a visual approach slope indicator should be designed and calibrated in order to give a clear and unambiguous indication to helicopter pilots approaching to land.
- (c) A heliport visual approach slope indicator should be located adjacent to the nominal aiming point and aligned in azimuth with the preferred approach direction.
- (d) Care is required in the design of the unit to minimise spurious signals between the signal sectors, and at the azimuth coverage limits.
- (e) Larger azimuth coverage can be obtained by installing the HAPI system on a turntable.

GM1 HPT-DSN.F.670 Final approach and take-off area lighting systems

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GM1 HPT-DSN.F.680 Aiming point lights

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GM1 HPT-DSN.F.690 Touchdown and lift-off area lighting system

TLOF ASPSL and/or LPs to identify the touchdown marking and/or floodlighting should be provided for use at night when enhanced surface texture cues are required.

GM1 HPT-DSN.F.700 Taxiway lights

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GM1 HPT-DSN.F.710 Visual aids for denoting obstacles

- (a) General: If it is not possible to display obstacle lights on obstacles at a heliport intended for use at night, the obstacles should be floodlit.
- (b) Location: Obstacle floodlights should be arranged so as to illuminate the entire obstacle and, as far as practicable, in a manner so as not to dazzle helicopter pilots.
- (c) Characteristics: Obstacle floodlighting should produce a luminance of at least 10 cd/m^2 .