

CLAIMS

1. A method implemented in an aircraft docking system (100) for guiding a pilot of an approaching aircraft (10) to a stop position (160) at a stand (20), wherein the aircraft docking system (100) comprises a position monitoring system (110), a control unit (120), and a display (130), said method comprising:
- 5 the position monitoring system (110) monitoring (S102) a position of the approaching aircraft (10) within a volume (112) at the stand (20), wherein said volume has a longitudinal extension along an approach direction (L) towards an expected entrance position (115) of the aircraft (10),
- 10 the control unit (120) comparing (S106) said monitored position with a first area (140), said first area (140) enclosing the stop position (160) and extending along the approach direction (L) to define a front boundary (142) facing the approaching aircraft (10),
- 15 the control unit (120) comparing (S108) said monitored position with a subsection (140a) of the first area (140), said subsection (140a) enclosing the stop position (160) and extending along the approach direction (L) to meet a portion of the front boundary (142) of the first area (140), such that the subsection (142a) shares a portion of its boundaries with the front boundary (142) of the first area (140),
- 20 if said monitored position is found to be inside said subsection (140a) of the first area (140):
- the control unit (120) transmitting (S110) information to the display (130) to show an indication to the pilot of the approaching aircraft (10) to proceed approaching the stand (20),
- 25 if said monitored position is found to be inside the first area (140) but not inside said subsection (140a) of the first area (140):
- the control unit (120) transmitting (S112) information to the display (130) to show an indication to the pilot of the approaching aircraft (10) to stop the aircraft (10).
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2. The method according to claim 1, further comprising if said monitored position is found to be inside said subsection (140a) of the first area (140):

5 determining (S114), based on said comparison, a lateral deviation from an expected position within said subsection (140a), and the control unit (120) transmitting (S116) information pertaining to said relative deviation to the display (130) to show an indication to the pilot to adjust the course of the aircraft (10) during approach to the stand (20).

10 3. The method according to any one of claims 1 or 2, wherein a lead-in line (170) extends from the stop position (160) along the approach direction (L) for providing further guidance to the pilot, and wherein said subsection (140a) of the first area (140) is defined so as to encompass the portion of the lead-in line (170) being inside the first area (140).

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4. The method according to claim 3 when dependent on claim 2, wherein the lateral deviation is a lateral distance between the monitored position and the lead-in line (170).

20 5. The method according to any one of claims 1-4, further comprising: the control unit (120) comparing (S104) said monitored position with a second area (150), said second area (150) extending outwardly from the front boundary (142) of the first area (140) to define a front boundary (152) of the second area (150),

25 if said monitored position is found to be inside the second area (150): determining (S118), based on said comparison, a lateral deviation from an expected position within said second area (150), and the control unit (120) transmitting (S120) information pertaining to said relative deviation to the display (130) to show an indication to the pilot to
30 adjust the course of the aircraft (10) during approach to the stand (20).

6. The method according to any one of the preceding claims, wherein the position monitoring system (110) is a laser-based position monitoring

system adapted to continuously scan the volume (112) at the stand (20), said volume (112) covering at least the first area (140).

7. The method according to any one of the preceding claims, wherein
5 said monitored position pertains to the position of the nose (12) of the approaching aircraft (10).

8. The method according to any one of the preceding claims, wherein
the extension of the first area (140) and/or the extension of the subsection
10 (140a) of the first area (140) is determined based upon one or more from the list of: dimensions of an aircraft expected to approach the stand, dimensions of the aircraft (10) approaching the stand, dimensions of aircrafts at neighboring stands, an approach direction from which an aircraft approaches the stand area, and a lead-in line assigned to the approaching aircraft (10).

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9. The method according to claim 8, wherein determining the extension of the subsection (140a) of the first area (140) includes determining a lateral dimension and/or a longitudinal dimension thereof, said dimensions being determined such that sufficient clearance is provided to the approaching
20 aircraft (10).

10. The method according to any one of the preceding claims, wherein
the extension of the first area (140) and/or the extension of the subsection
(140a) of the first area (140) can be adjusted during an approach of the
25 aircraft (10).

11. The method according to claim 10, wherein said adjusting of the
extension(s) is determined based on one or more from: dimensions of
aircrafts at neighboring stands, positions of aircrafts at neighboring stands,
30 and the monitored position of the approaching aircraft (10).

12. A computer-readable medium comprising computer code instructions which when executed by a device having processing capability are adapted to perform the method according to any one of claims 1-11.

- 5 13. An aircraft docking system (100) for guiding a pilot of an approaching aircraft (10) to a stop position (160) at a stand (20), the aircraft docking system (100) comprising:
- a position monitoring system (110) arranged to monitor a position of an approaching aircraft (10) within a volume (112) at the stand (20), wherein said
- 10 volume (112) has a longitudinal extension along an approach direction (L) towards an expected entrance position (115) of the aircraft (10),
- a display (130) for providing instructions to the pilot of the approaching aircraft (10), and
- a control unit (120) operatively connected to the position monitoring
- 15 system (110) and the display (130), wherein the aircraft docking system (100) is configured to perform the method according to any one of claims 1-11.