CLAIMS

1. A procedure for the positioning of aircraft, during which an airspace user initiates using of a service provided by an air traffic manager and sends identifying data to the air traffic manager, the air traffic manager registers the aircraft identifier, carries out standalone positioning;~~, **characterized** in that~~ as identifier the IMSI (International Mobile Subscriber Identity) number of a code card (3) connected to a switched on on-board device (2) and placed on board the aircraft (1) is used, the airspace user logs in to a cellular network (13) contracted by the air traffic manager, time stamps emitted by at least three, but optimally four to six cellular base stations are recorded, **characterized** in that then observed time difference of arrival data (8) proportionate to the distance from cellular base stations (12) are calculated, the observed time difference of arrival data (8) are sent through the cellular network (13) to a location based server (7), and via the location based server (7) to an air traffic management system (10) and then,~~ coupling in real time~~ the observed time difference of arrival data (8) is coupled and compared in real time with at least two further positioning~~independent surveillance~~ data, any outlier and/or corrupt data is identified,
the location based server (7) and/or the air traffic management system (10) determines the validated position of the given aircraft (1), validated position vector data (14) is created,
then the validated position vector data (14) is sent to the given aircraft (1) to inform the aircraft about its real time position, and is forwarded into at least one database (15) accessible to multiple airspace users, the further positioning data being at least one of satellite positioning data, surveillance data and flight plan.

2. The procedure according to claim 1, **characterized** in that flight plan data and/or satellite positioning data (9) are sent through the cellular network (13) to the location based server (7) and to the air traffic management system (10) via the location based server (7).

3. The procedure according to claim 1 or 2, **characterized** in that the position vector data (14) sent to the aircraft (1) is stored and optimally, displayed, with the on-board device (2).

4. The procedure~~arrangement~~ according to any of claims 1 to 3, **characterized** in that the position vector data (14) are stored in the database (15) as coupled to the aircraft (1).

5. The procedure according to claim 2, **characterized** in that the derived observed time difference of arrival data (8) and the flight plan data and/or satellite positioning data (9) are compared by the location based server (7) and/or the air traffic management system (10) and in case of discrepancy, the inaccurate data is indicated to the aircraft (1).

6. An arrangement for carrying out the procedure according to claim 1, the arrangement comprising at least one aircraft (1) and at least three cellular base stations (12), the aircraft (1) carries an identifier equipment equipped with a transmitter/receiver antenna (4), ~~**characterized** in that~~ the identifier equipment is made up of an on-board device (2) capable of identifying the airspace user and also of real-time forwarding the distance of the aircraft (1) from the cellular base stations (12) by means of observed time difference of arrival data (8); the on-board device (2) is connected through a cellular network (13) to a location based server (7) and is equipped with a code card (3) and a modem (5), **characterized** in that the location based server (7) is, via an air traffic management system (10), connected to a database (15) accessible to multiple airspace users; the location based server (7) and/or the air traffic management system (10) is configured to collect and compare the position data yielded from the observed time difference of arrival data (8) and at least two further positioning data, the further positioning data being any of satellite positioning data, other surveillance data and flight plans;
the location based server (7) and/or the air traffic management system (10) is configured to determine a validated position vector data (14); and the validated position vector data (14) is configured to be sent to the aircraft (1).

7. The arrangement according to claim 6, **characterized** in that the on-board device (2) is equipped with a display for displaying position vector data (14).

8. The arrangement according to any of claims 6 or 7, **characterized** in that the code card (3) includes a ROM (Read Only Memory) and/or RAM (Random Access Memory) used generally in cellular communications, the ROM and/or RAM having an individual identifier assigned to the airspace user.

9. The arrangement according to any of claims 6 to 8, **characterized** in that the cellular network (13) is an LTE (long-term evolution) network and the code card (3) is a SIM

(Subscriber Identity Module) card installed into the modem (5), and a USIM (Universal Subscriber Identity Module) card is used as SIM card.

10. The arrangement according to any of claims 6 to 9, **characterized** in that the on-board device (2) is equipped with a GNSS (Global Navigation Satellite System) (6), the GNSS (6) is connected to a satellite system (11) through wireless connection.