

CLAIMS:

1. In a mobile carrier, the mobile carrier comprising a processing and memory circuitry (PMC) and a satellite communications on the move (SOTM) antenna system that includes an antenna and being configured to maintain a communications link from a satellite communications (SATCOM) having a spatial position, a method for determining a position of the mobile carrier, the method comprising, by the PMC:

- (a) obtaining data indicative of the spatial position of the SATCOM;
- (b) obtaining data indicative of an estimated altitude of the mobile carrier;
- (c) obtaining data indicative of an angle of the antenna, wherein the angle is representative of a direction of the antenna towards the SATCOM spatial position; and
- (d) determining the position of the mobile carrier, based on the obtained data indicative of the spatial position of the SATCOM, the obtained data indicative of the estimated altitude, and the obtained data indicative of the angle.

2. The method of claim 1, wherein the mobile carrier is an unmanned aerial vehicle (UAV).

3. The method of any one of the preceding claims, wherein the angle is determined based on a current optimal receipt of a signal emitted from the SATCOM.

4. The method of any one of the preceding claims, wherein obtaining data indicative of the angle of the antenna includes obtaining the azimuth and elevation of the angle, relative to the horizontal plane of earth.

5. The method of any one of the preceding claims, the method further comprising:

repeatedly performing steps (a) to (d).

6. The method of any one of the preceding claims, the method further comprising:

repeatedly performing steps (b) to (d).

7. The method of any one of the preceding claims, wherein the data indicative of the estimated altitude is obtained using at least one of the following: barometric pressure sensors and radar altimeter, fitted on-board the mobile carrier.

8. The method of any one of the preceding claims, wherein the mobile carrier further comprises a GPS receiver configured for receiving a GPS signal from a GPS satellite, and wherein stage (d) is executed in cases where a GPS signal is disrupted.

9. A system implemented in a mobile carrier for determining a position of the mobile carrier, the system comprising:

a processing and memory circuitry (PMC);

a satellite communications on the move (SOTM) antenna system that includes an antenna and being configured to maintain a communications link from a satellite communications (SATCOM) having a spatial position;

the PMC is configured to:

(a) obtain data indicative of the spatial position of the SATCOM;

(b) obtain data indicative of an estimated altitude of the mobile carrier;

(c) obtain data indicative of an angle of the antenna, wherein the angle is representative of a direction of the antenna towards the SATCOM spatial position; and

(d) determine the position of the mobile carrier, based on the obtained data indicative of the spatial position of the SATCOM, the obtained data indicative of the estimated altitude, and the obtained data indicative of the angle.

10. A mobile carrier comprising the system of claim **9**.

11. The mobile carrier of claim **10**, wherein the mobile carrier further comprises a GPS receiver configured for receiving a GPS signal from a GPS satellite, and wherein stage (d) is executed in cases where a GPS signal is disrupted.

12. The system of claim **9**, wherein the mobile carrier is an unmanned aerial vehicle (UAV).

13. The mobile carrier of claim **10** or **11**, wherein the mobile carrier is an unmanned aerial vehicle (UAV).

14. In a mobile carrier, the mobile carrier comprising a processing and memory circuitry (PMC) and a satellite communications on the move (SOTM) antenna system that includes an antenna and being configured to maintain a communications link from a satellite communications (SATCOM) having a spatial position, a non-transitory computer readable storage medium tangibly embodying a program of instructions that, when executed by a computer, cause the computer to perform a method for determining a position of the mobile carrier, the method comprising:

- (a) obtaining data indicative of the spatial position of the SATCOM;
- (b) obtaining data indicative of an estimated altitude of the mobile carrier;
- (c) obtaining data indicative of an angle of the antenna, wherein the angle is representative of a direction of the antenna towards the SATCOM spatial position; and
- (d) determining the position of the mobile carrier, based on the obtained data indicative of the spatial position of the SATCOM, the obtained data indicative of the estimated altitude, and the obtained data indicative of the angle.

15. The non-transitory computer readable storage medium of claim **14**, wherein the mobile carrier is an unmanned aerial vehicle (UAV).