Industry Presentation at the IFTA Audit Workshop 2012

GPS Explanation

GPS uses four satellites to determine position. The signal sent by the salellites include the time of transmission and the position of the satellite in orbit. The receiver must translate the signal calculating the time it took the signal to arrive and plotting the point of intersection from 4 satellites. A marine vessel only needs 3 satellites but a land-based vehicle needs 4 in order to calculate elevation.

The receiver clock accuracy is critical because it records the reception time of the signal, which is the beginning of the position calculation. Considering that the signal travels at the speed of light, you get an understanding of how accurate the clock must be in order to determine position within 1 meter.

A receiver has an antenna, receiver-processor and a highly accurate clock.

Satellite Communications

Qualcomm participated in the development of the Globalstar satellite system along with Loral Space & Communications. It uses a low-earth orbit (LEO) satellite constellation comprising 44 active satellites. The system is used for voice telephony via hand-held satellite phones, asset tracking and data transfer using mobile satellite modems. The satellite must always be able to see both the handset and the base station to establish a connection, therefore, there is no coverage over the Earth's poles where there are no satellite orbits.

Priorities for Considering an On-Board Communication System

1. Coverage – Carriers are moving more toward cell-based systems. They are cheaper since the technology is cheaper and they are used by millions of users. Satellites are expensive to use and maintain. However, any provider of a cell-based system must have similar coverage to satellite providers and must have satellite back-up in the event of tower outage.

2. Reliability – Both system and unit hardware.

3. Functionality – This relates to the ease of use of the on-board communication devices and display.

4. Truck routing showing fuel stops and hazmat routes.

5. In-truck scanning & transmission of documents

6. E-Log Capability

7. Internet Capable

8. Geofencing (Alerts for out-of-route movements)

9. Truck inspection entry and transmission

10. ECM monitoring for vehicle maintenance scheduling

11. Driver Analytics – monitoring and analyzing driver habits of shifting, hard braking, etc. (Wish List)