



Telit® wireless
solutions
Making machines talk.®

Telit GNSS Products Roadmap

Product Management EMEA
December 14th, 2011



AGENDA

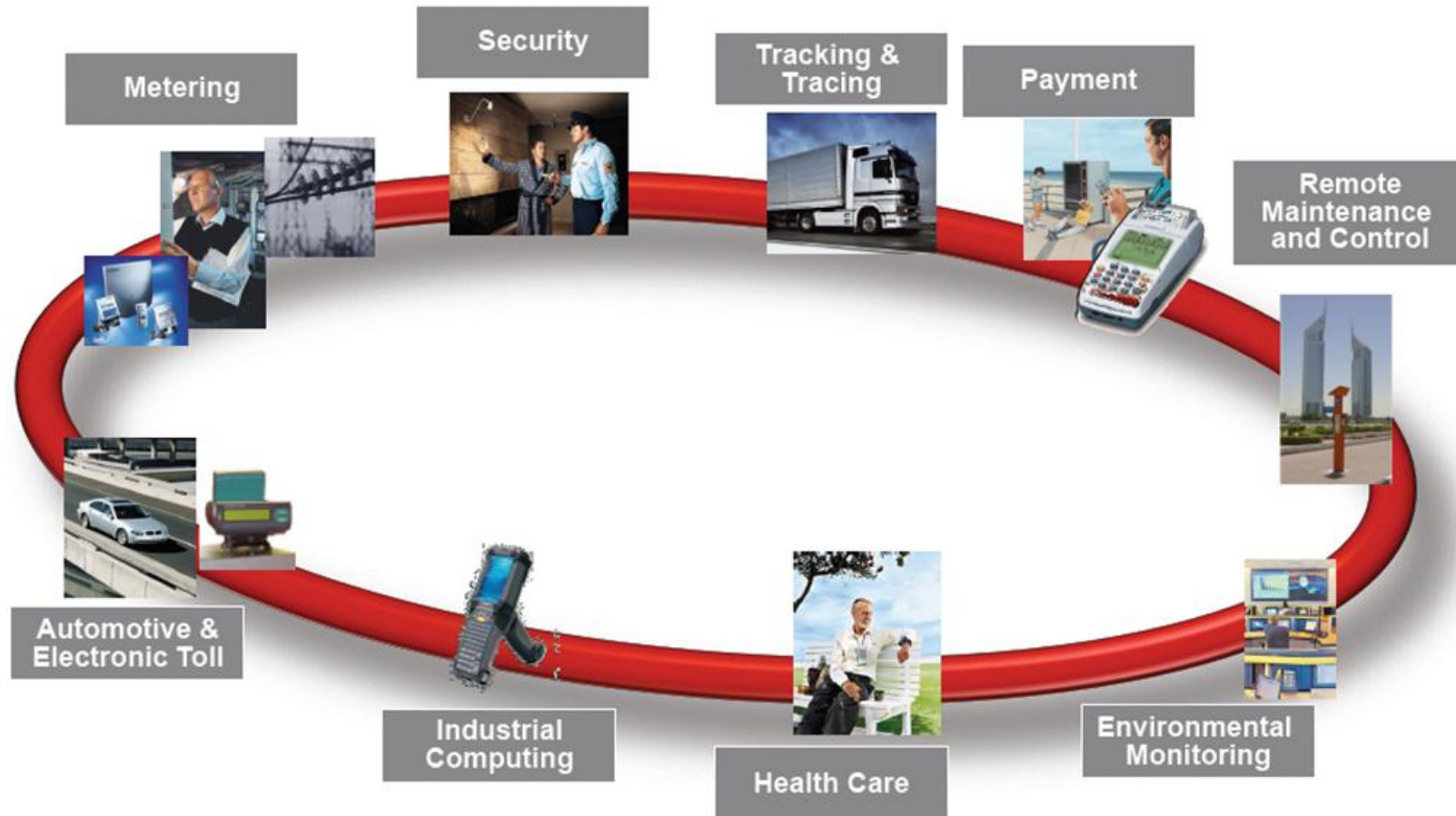
AGENDA:

- GNSS Technology evolution in Telit
- Telit Combo GSM+GPS modules
- Telit standalone GPS modules
- New GNSS standalone modules
- GNSS Roadmap





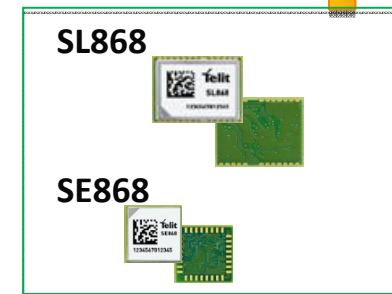
GNSS Market





GNSS technology evolution in Telit

Combo Cellular + GPS modules



Standalone GPS modules



GPS Solutions launched in 2011

- SL868 (FLASH)**
 - 12x16mm
 - GPS, FLASH
- SE868 (FLASH)**
 - 11x11mm
 - GPS, FLASH
 - SGEE, CGEE



- SL868-R ROM**
 - 12x16 mm
 - GPS, ROM
- SE868-R ROM**
 - 11x11mm
 - GPS, ROM
 - HOST(CG/SGEE)

- ✓ Sensitivity: -163dBm (TRK), -147dBm (ACQ)
- ✓ Full Power: <40 mA (TRK)
- ✓ Low Power: <16mW (1Hz updates)
- ✓ Single Power Supply: 1.8V or 3.0V
- ✓ Dual LNA Gain Setting
- ✓ Integrated Temperature Sensor
- ✓ 2 Update Rates: 1Hz and 5Hz
- ✓ UART
- ✓ I2C, SPI (SE868 only)
- ✓ **Tracks and Removes up to 8 CW Jammers**

2011



Telit SE868 : Main Features

Designed for:

high integrated solutions for positioning applications requiring accurate position, low power consumption and very small footprint.



QFN: Quad Flat No-Lead

Main characteristics

- Ultra Compact
- QFN Package
- High Sensitivity
- NMEA NMEA 0183
- < 2.5m Position Accuracy icon"/> < 2.5m Position Accuracy
- Low Power Consumption
- WAAS, EGNOS, MSAS and GAGAN capable
- 48 Channel GPS Receiver
- A-GPS
- Ephemeris File Injection
- RoHS Compliant
- Extended Temperature Range

- SiRF Star IV – 48 channel GPS core
- Flash memory embedded for SW upgrade and AGPS file storage
- 32-pad QFN package
- Size: 11 x 11 x 2.3 mm
- High sensitivity GPS receiver with sensitivity
 - up to -163 dBm in tracking
 - up to -148 dBm in acquisition
- Supply voltage 1.75 – 1.9V
- Hot Start < 1s, cold start < 35s
- Power consumption
 - <17 uA @ Hibernate mode
 - 10 mA @ Trickle power more
 - 36 mA @ Navigation
- Temperature range -40 / +85 °C
- Interfaces: UART, SPI, I2C
- Internal LNA, Jamming Remover
- Assisted GPS (InstantFix)
- PPS signal
- GPIOs
- SBAS: WAAS, EGNOS, MSAS, GAGAN



Telit SL868 : Main Features

Designed for:

high integrated solutions for positioning applications requiring accurate position, low power consumption and a mounting technology allowing easy manual soldering/reworking.



LCC: Lead-less Chip Castellation

Main characteristics

- Ultra Compact
- LCC Package
- High Sensitivity
- NMEA NMEA 0183
- < 2.5m Position Accuracy
- Low Power Consumption
- WAAS, EGNOS, MSAS and GAGAN capable
- 48 Channel GPS Receiver
- A-GPS
- Ephemeris File Injection
- RoHS Compliant
- Extended Temperature Range

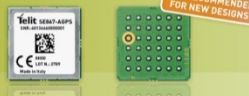
- SiRF Star IV – 48 channel GPS core
- Flash memory embedded for SW upgrade and AGPS file storage
- 24-pad LCC package
- Size: 16 x 12.2 x 2.3 mm
- High sensitivity GPS/A-GPS receiver with sensitivity
 - up to -163 dBm in tracking
 - up to -148 dBm in acquisition
- Supply voltage 2.85 – 3.6V
- Hot Start < 1s, cold start < 35s
- Power consumption
 - <40 uA @ Hibernate mode
 - 10 mA @ Trickle power more
 - 32 mA @ Navigation
- Temperature range -40 / +85°C
- Interfaces: UART, I2C (for MEMS only)
- Internal LNA, Jamming Remover
- Assisted GPS (InstantFix)
- PPS signal
- SBAS: WAAS, EGNOS, MSAS, GAGAN



GNSS Continuous Evolution : GLONASS

Satellite

SE 867-AGPS
GPS Standalone
Embedded



NOT RECOMMENDED FOR NEW DESIGNS

Satellite

SE 868
GPS Standalone
Embedded



Satellite

SL868
GPS Standalone
Embedded



Satellite

SL 869
GPS&Glonass Standalone
Embedded



GPS + GLONASS + GALILEO

Legacy Formfactor

Latest GPS Standalone Families

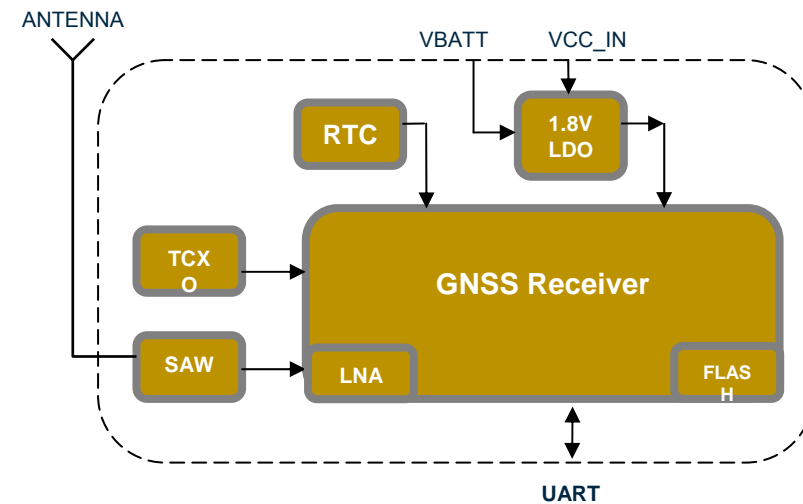
Next Evolution



SL869 Overview

FEATURES:

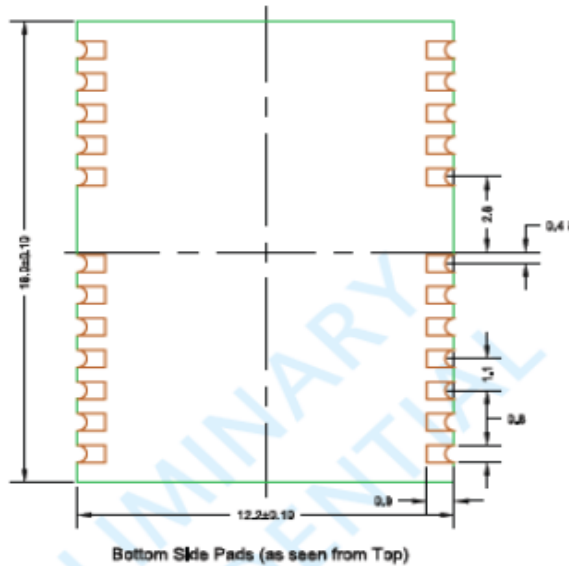
- Multi GNSS Receiver
 - GPS/Galileo/QZSS + GLONASS
- 3V Operation
- UART Interface
- Sensitivity
 - Acquisition -146dB
 - Tracking -162dB
- AGPS
 - Local / Server Ephemeris predictions
- Embedded Flash Memory
- Low Power Modes
- -40 to +85°C





SL869 Footprint

- **SL869 Form-Factor**
 - Drop-in replacement for SL868
 - 12mm x 16mm



GND	24	1	NC
VCC_IN	23	2	NC
VBATT	22	3	1PPS
RX	21	4	EXT_INT
TX	20	5	NC
SCL2	19	6	NC
SDA2	18	7	NC
NC	17	8	NC
NC	16	9	VCC_IN
NC	15	10	GND
NC	14	11	RF_IN
GND	13	12	GND



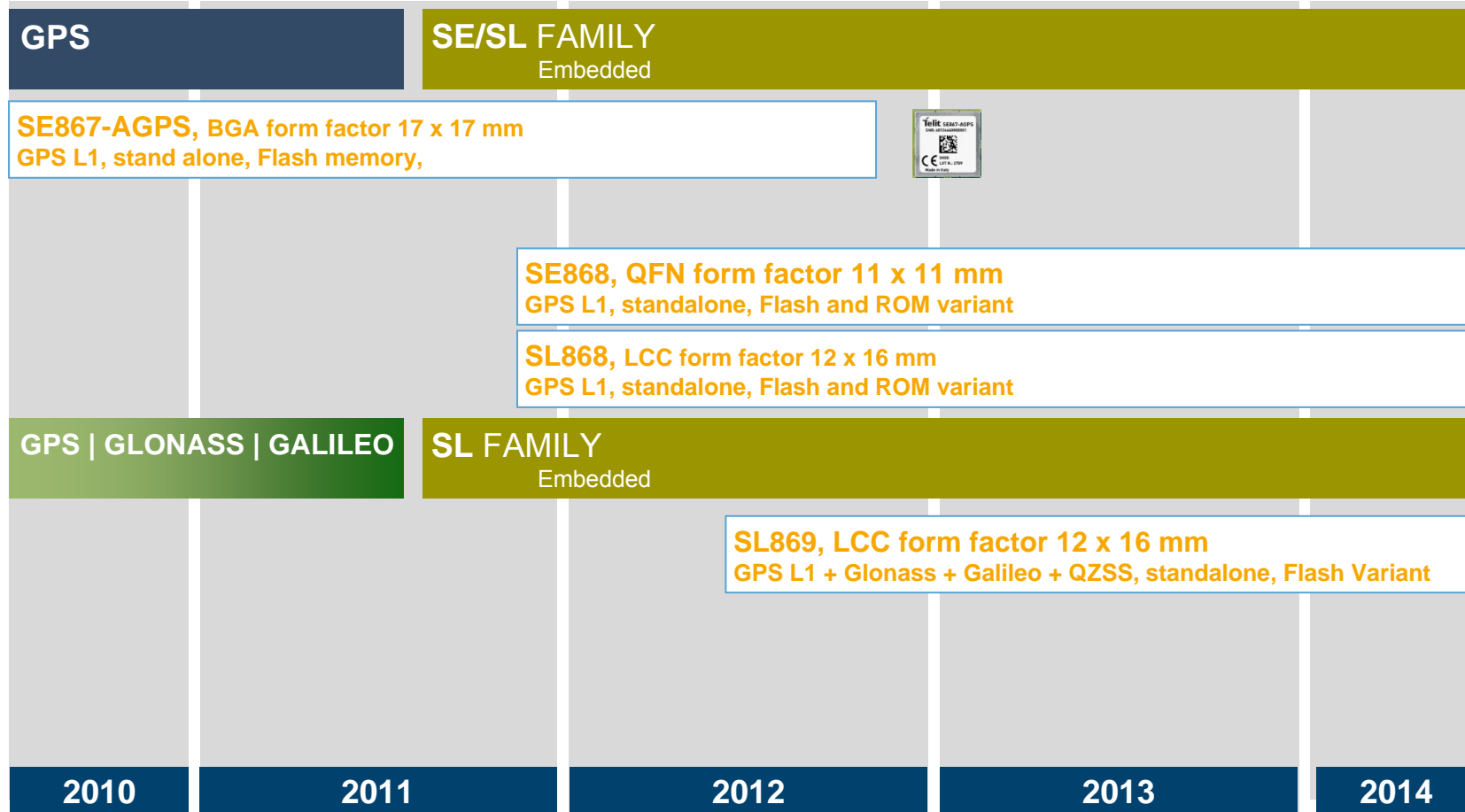
SL869 Schedule

- First Samples (MKT samples) end of Feb 2012
- Engineering Samples Apr 2012
- Mass Production Jun 2012
- Collateral (Preliminary) Mar 2012



The future on the screen.

GNSS Standalone Products >> SL, SE families

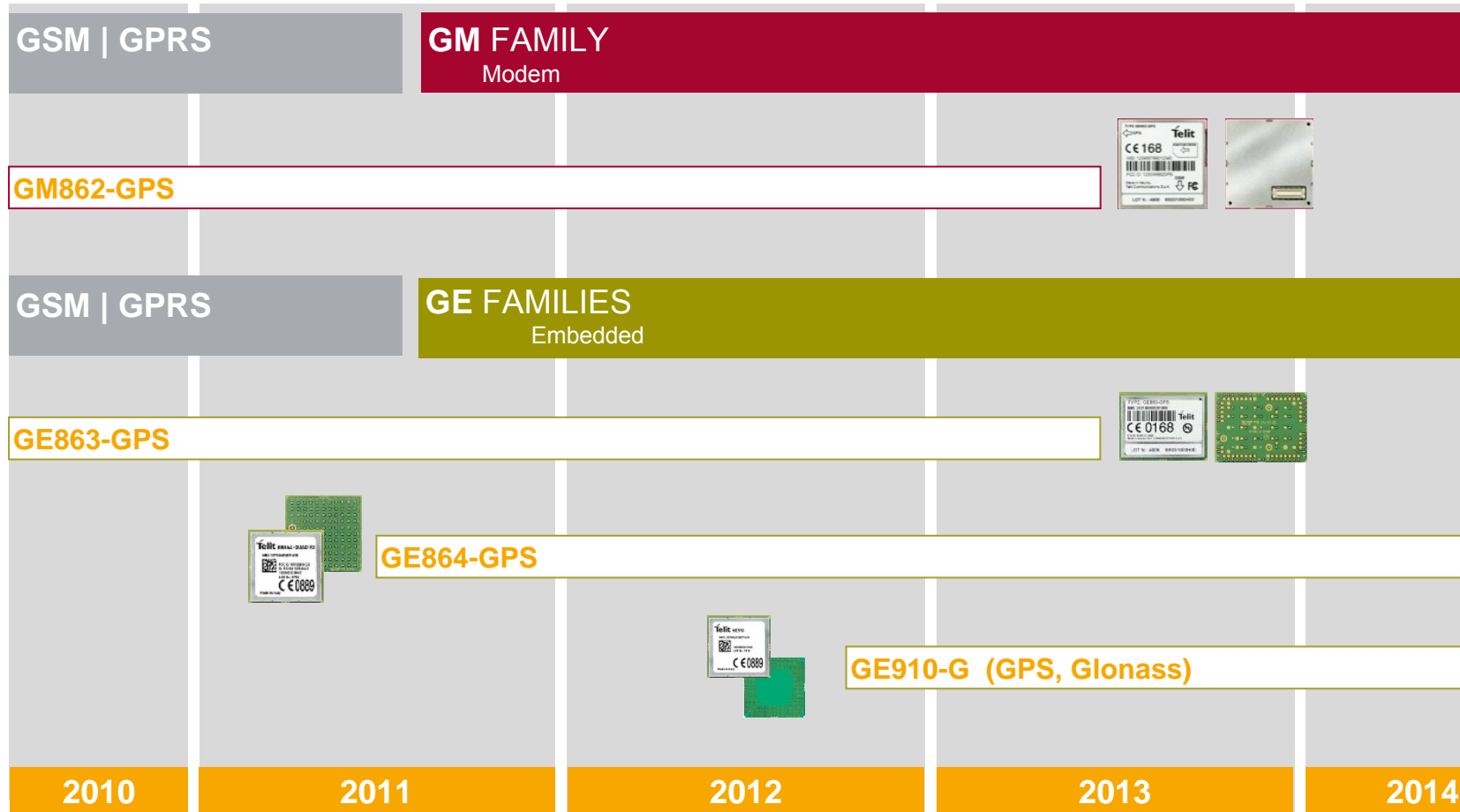




The future on the screen.

Cellular Products with GNSS

>> 2.5G Product Roadmap – GM, GE families

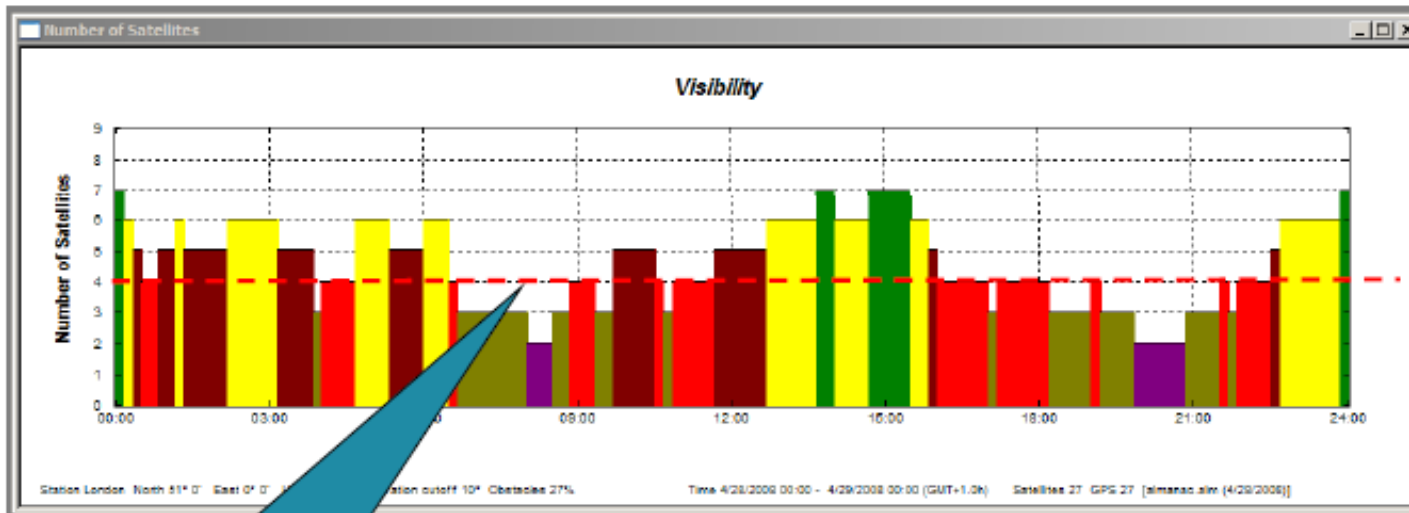




GPS+Glonass Benefit vs GPS only

Issue: GPS alone has limited satellite visibility in Urban Canyons

London street with 5 story buildings
GPS Visibility in a 24 hour period



GPS visibility often drops below minimum 4 satellites for a fix

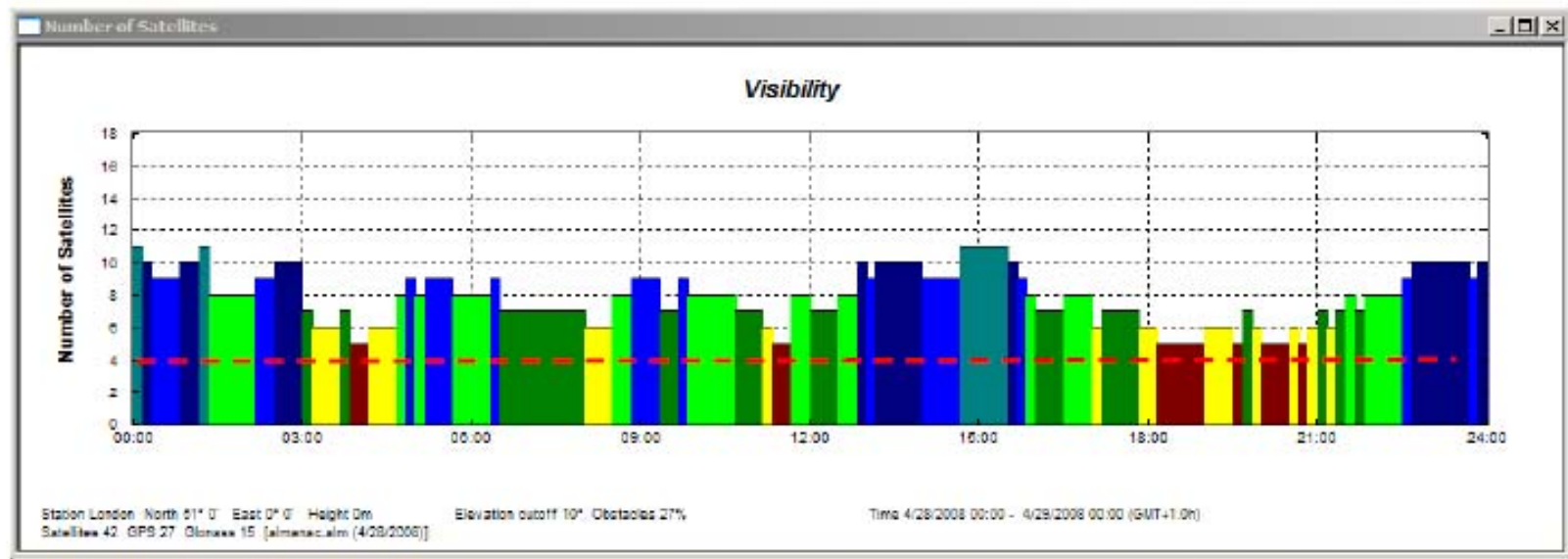
3D Fix requires a minimum of 4 satellites



GPS+Glonass Benefit vs GPS only (cont'd)

Solution: With addition of GLONASS, satellite visibility never drops <5

London street with 5 story buildings
GPS + GLONASS Visibility in a 24 hour period



FEATURE: GPS + GLONASS = higher percentage time in Nav



Acronyms

Acronym	Definition	Notes
GNSS	Global Navigation Satellite System	Generally used to indicate a navigation satellite system
GPS	Global Positioning System	US Satellite Navigation System
GLONASS	G LObal'naja N avigacionnaja S putnikovaja S istema	former USSR Satellite Navigation System
Galileo	Navigation Satellite System	future EU Satellite Navigation System
QZSS	Quasi Zenith Satellite System	Used to enhance GPS coverage in Japan area
SBAS	Satellite Based Augmentation system	Used to increase GPS position by means external aids
WAAS	Wide Area Augmentation System	SBAS system for North American region
EGNOS	European Geostationary Navigation Overlay Service	SBAS System for European region
MSAS	Multi-functional Satellite Augmentation System	SBAS System for Japanese Area
GAGAN	GPS-Aided Geo-Augmented Navigation	SBAS system for Indian region



Contact us.



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