

Leica GPS Spider  
Setting the Standard  
for GPS Networks



## TS 6C – Forum on Techniques for Positioning

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**SmartNet**  
powered by Leica Geosystems

## Network Overview



## Leica SmartNet GB – GNSS Network Services

### Network RTK Corrections - MAX & i-MAX

- MAX - Latest International Network RTK Standard RTCM 3.1 Format driven by Leica Master-Auxiliary Concept
- i-Max Provided in standard baseline individualised Network RTK for legacy receivers
- RTK formats (RTCM v3.1, 2.3, Leica)

### Network DGPS Corrections

- Provided in standard RTCM v2.3 (9, 2) formats

### Web Site – Rinex Downloads

- 1 - 30 sec Rinex data available
- Coordinate converter facility to nearest stations
- QA Plots, active map etc...



### RTK Communication:

- Mobile – GPRS
- Mobile – GSM
- NTRIP
- TCP/IP
- Landline

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## Leica SmartNet GB – Business Model

Commercial Interconnect agreement with OS for data feed from all OSNet stations.

SLA agreement with OS for maintenance of stations, availability of data stream etc..

We pay OS a royalty for each end user license and reflect the price bandings to our end users as follows:

### Annual Subscription Cost:

RTK	Unlimited access	£2,000
RTK	Low rate user (40hrs p/m)	£1,200
DGPS	Unlimited Access	£750
DGPS	Low rate user (40hrs p/m)	£350

Multiple user discounts available

Leica Geosystems has made huge investment in server hardware, software, staff and extra reference station sites as a stand-alone business.

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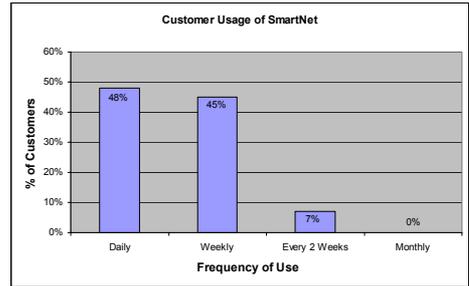


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## User Statistics

## Frequency of Network Use

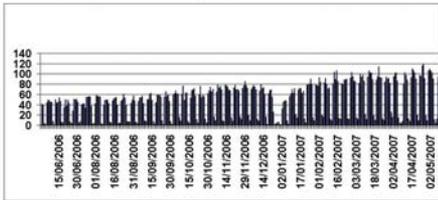


## Network Usage Graphs



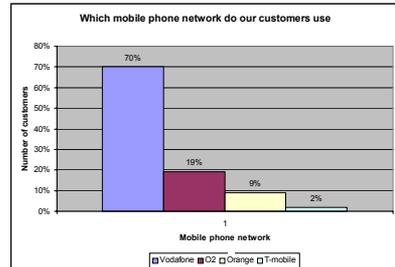
Number of Different Rovers Connected per Day

Over 280 Users today



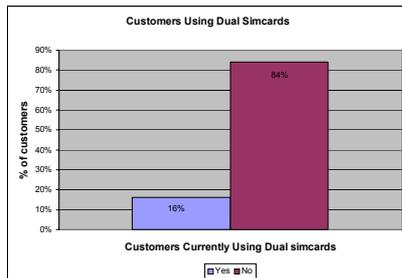
- Currently 99.3% Network availability 24/7
- Shows Industry acceptance for Network RTK
- 95% of annual subscribers are currently renewing their licenses!

## Mobile Phone Networks – Comms is an issue outside our control



Mobile Phone provider claim 99% coverage for GSM in urban areas, but GPRS data channels can be dropped in favour of voice!

## Mobile Phone Networks – Comms is an issue outside our control



- Using dual simcards can improve coverage and GPRS availability
- Users can also have multiple sim cards per license

## What the users say....

**Kevin Wright of Newport City Council**

"Using traditional methods," Kevin says, "would have tied up half of the office for at least six months. By using SmartNet and the Smart Rover one man carried out the survey in half the time .....

**Richard Otto of The Severn Partnership Chartered Surveyors**

"If we were to have to set up our own base station, the typical range is often only 4 to 5 kilometres which makes it impractical for large jobs or job over multiple sites. All this takes a lot of time to set up and costs us money. Using Leica SmartNet can get work done faster and reduce overheads dramatically. Now one receiver is all we need."

**Ian Simpson is a surveyor in Bristol City Council**

"What used to take days to accomplish can now be completed in half the time and with half the resources which is great news for everyone."

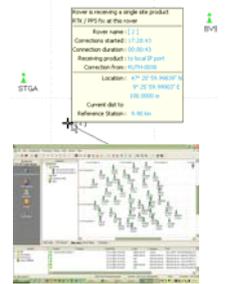
## Subscriber Services

## Leica SmartNet – Subscriber Services

Users see the Network delivery as transparent to their rovers, but demand full support services

### Support Centre

- Real time view of Rover user access
- Field support for users anywhere in the network (GB)
- Complete Rover status monitoring



## Leica SmartNet – Subscriber Services

Messaging, alerts, Backup system, Newsletters etc...

Newsletters, field guides etc..

- SmartNet e-news
- Full backup system, now with seamless switching ability in rover firmware v5
- Answerphone service to access status of the network in the field. 01908 246310
- Immediate SMS Text alerts to every user in the field (mobile number required)
- Backup GSM Config sets, for when GPRS may be a problem. SmartNet e-news
- SmartNet Web site <http://smartnet@leica-geosystems.co.uk>
- Technical Support: 01908 246229 [UK.Support@leica-geosystems.co.uk](mailto:UK.Support@leica-geosystems.co.uk)

## Leica SmartNet – Subscriber Services

New SmartNet Website – Now Available



<http://smartnet.leica-geosystems.co.uk>

- Station information & health
- Network Quality Monitoring
- GNSS QC Quality Assurance
- Customer testimonials



GPS & GLONASS Station Tracking

## Future Technology

## Intelligent Positioning Infrastructure Technology (Surveying in a wireless world of acronyms!)

- Small combined GPS/GSM and radio device – to transmit radio into areas of poor GSM/GPRS coverage.
- Satellite phones for rural comms
- Individualised corrections via repeaters for specific project sites e.g London Olympics construction
- Latest wireless technologies for seamless field data & mapping transfer to the office, 3G, HSPDA etc...
- RFID technology e.g for survey marker/beacon identification etc...
- Real Time Tracking devices for workforce, asset management and security.
- Pseudolite or assisted GPS in urban environments.

A combination of all infrastructure technologies will open up new markets such as LBS and others that have not even been thought about yet.

GPS networks create the backbone to drive these technologies further.

## Intelligent Positioning Infrastructure Technology (Surveying in a wireless world of acronyms!)

- Example – South Africa Wireless Can antenna network!



Conventional wi-fi network setup does not have the range. A regular wi-fi aerial ripples the beam out in every direction, which limits how far it can travel. So.....

Stick the antenna inside the can and the can's shape and characteristics focus all the energy of the beam in one direction!

Connects the poorest towns using other cantennas dotted around the hills in a so called wireless mesh network, which seamlessly passes the signal from one point to another.



- when it has to be right

**Leica**  
Geosystems



**Thank You**



- when it has to be right

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