ADVANCED GNSS TEST SOLUTIONS & FLEXIBLE GNSS R&D TOOLS

IfEN GmbH

WHO WE ARE

- ✓ Founded in **1998**
- ✓ Focused on all aspects of **SATELLITE NAVIGATION**
- ✓ Company locations in Poing, **GERMANY** and Corona, **US**
- ✓ Working on **EGNOS** and **GALILEO** since the beginning
- ✓ Experience on **ESA**, **GSA** and **EC** projects
- ✓ Operator and main architect of **GALILEO TEST RANGE 'GATE'**
- ✓ **20+ YEARS** OF EXPERTISE IN LEADING EDGE GNSS TECHNOLOGY

NCS TITAN GNSS Simulator

NCS Essential GNSS Simulator

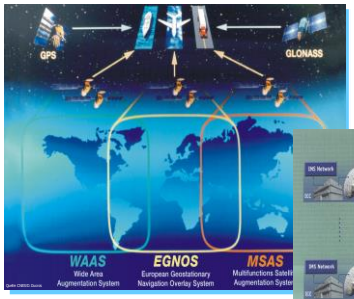
SX3

NTR

TWO LINES OF BUSINESS MODELS

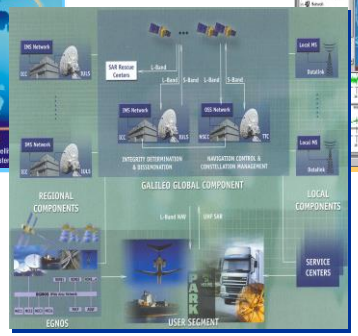
SERVICES

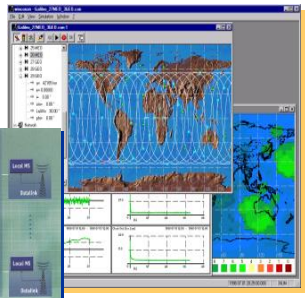
- System Concept Studies & Algorithms Development
- High Precision Navigation, Sensor Fusion & Integrity
- SIS, Navigation & Integrity Performance Analysis
- Software Development & Verification
- Development of Hard- & Software System Solutions



EGNOS

GALILEO





GPS

PRODUCTS

- GNSS Constellation Simulators
- GNSS SW Defined Receivers
- GNSS Software Receivers
- GNSS Simulation & Processing Framework

IFEN GNSS PRODUCTS

NCS TITAN

Multi-GNSS , Multi-Frequency and Multi-RF Simulator

NavX-NCS Essential

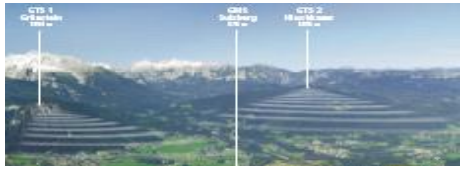
Multi-GNSS and Single-Frequency Simulator

NavX-NTR

Multi-GNSS and Multi-Frequency Test & Verification Receiver

SX3 – Single, Dual and Quad Antenna

Multi-GNSS and Multi-Frequency Software Receiver



GATE - GNSS Test Infrastructure

Galileo Test Range

NCS GNSS SIMULATORS

THE TEST REFERENCE FOR MULTI-FREQUENCY AND MULTI-CONSTELLATION GNSS APPLICATIONS

- **Various GPS/GNSS test applications**
  from single-frequency mass market, automotive and LBS
  to high-precision, high-sophisticated professional and Safety-of-Life (SOL)

- **Multi-constellation, multi-frequencies** and **multi-RF** outputs

SX3 – GNSS SOFTWARE RECEIVER

MODULAR MULTI-GNSS AND MULTI-FREQUENCY SOFTWARE RECEIVER

- Easy **SW licensing scheme**: GNSS capabilities according to the individual needs.
- Quad-band RF-FE with 55 MHZ RF bandwidth per RF chain
- Real-time and post processing capability
- 300 channels **real-time tracking**
- Leading weak-signal capability
- **Customizable** with own processing through **APIs**: Baseband, Sensor, Assistance, Navigation

NavX-NTR - Navigation Test Receiver

SOFTWARE DEFINED MULTI-GNSS RECEIVER TEST AND VERIFICATION PLATFORM

…for all existing or coming GNSS systems.

Currently used as

- Galileo FOC satellite payload test receiver
- Galileo Commercial Service test receiver
- IRNSS satellite payload test receiver
- IRNSS RS test user receiver

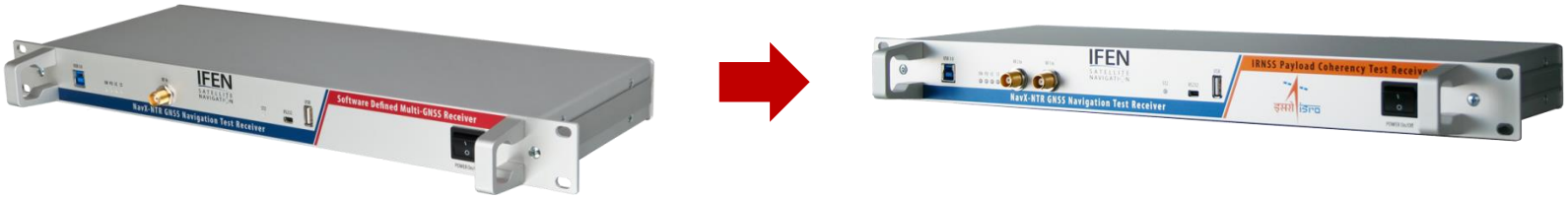
IFEN GNSS Services & Customization

GNSS R&D ENGINEERING SERVICES

- Algorithms design and verification
- SW & HW development for Galileo, EGNOS, GPS,etc.

PRODUCT CUSTOMIZATION – THE PATH TO YOUR NEEDS

From standard **NavX-NTR** Test Receiver to custom **IRNSS Payload Coherency Test Receiver**



SIGTB - ESA GALILEO 2G SIS TEST BED

BASED ON NEW GENERATION NCS TITAN RF-SIMULATOR

- Supporting all current GNSS systems
- Supporting future Galileo 2G signal and message structures:
  - Supports flexible navigation message generation (FlexNav)
  - Supports flexible generation of G2G signals beyond CDMA/FDMA (FlexSignal)

SIGTB TEST BENCH ALSO INCLUDES

- Enhanced (non-) intentional interference capabilities
- Advanced message generation capabilities (NMA, ..)
- A set of COTS receiver and specific test receivers
  - IFEN SX3 receiver extended with FlexNav and FlexSignal capabilities
  - IFEN SX3 RF-bandwidth increased to cover new G2G signals

SIGTB BENEFITS

- Providing a unique signal test bench for the ongoing Galileo 2G Definition

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THANK YOU FOR YOUR ATTENTION!