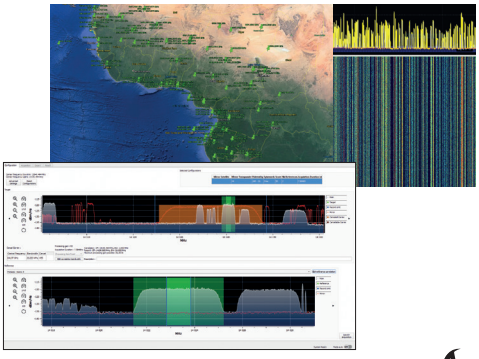
PRELIMINARY

DATA SYSTEMS

TRACK MONITOR ANALYZE GEOLOC

LYNKS LOCATOR

High-Accuracy SatCom Transmitter Geolocation



COMMUNICATION & SITUATIONAL AWARENESS

LYNKS

The Safran Data Systems' LYNKS product series is a scalable Spectrum solution for **analyzing satellite traffic** (detection, Situational characterization, geolocation) and the location. It identifies **the origin of a signal appearing on a satellite communication channel.** Typically, this process is used to mitigate interference or locate any transmitters on communication satellites.

The Safran Data Systems off-the-shelf LYNKS LOCATOR product is a fully passive technology to **geolocate uplinking** events **transmitters with high accuracy,** while simplifying those complex tasks with automatic optimized configurations.

Spectrum Situational Awareness

Automatic geolocation on events

Closely coupled with LYNKS-MONITOR and WeTrack.

FULLY PASSIVE TECHNOLOGY

- Kilometer gde accuracy with direct injection of WeTrack data
- High confidence in the results
- Automatic geolocation of carriers on appearance (even spurious).
- Up to 24 geolocation process in parallel

ENHANCED FEATURES

- TDMA capable
- Unequalled carrier analysis preformance

FULLY COMPLIANT WITH SAFRAN DATA SYSTEMS SERVICE

- Plug-and-play connection to ephemeris service
- WeTrack (registered) read

POWERFUL FRONT-END

- Four L band inputs
- Up to 220 MHz BW per input
- Up to 48 simultaneous acquisition.

USER-CENTRIC SOLUTION

- Automatic geolocation configuration
- One click geolocation
- Automated detection and geolocation on carrier appearance
- Scheduled geolocation process
- Full transponder geolocation

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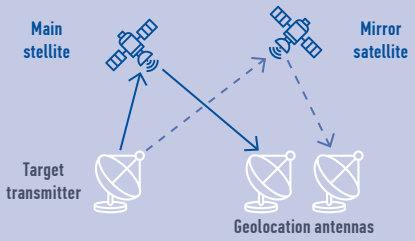
COMMUNICATION & SITUATIONAL AWARENESS

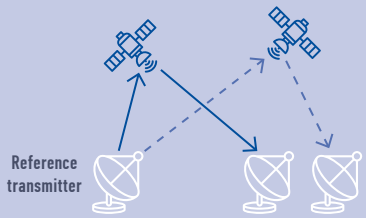
LYNKS LOCATOR

PRELIMINARY

1 **Using mirror satellite to enable TDOA and FDOA computation**



2 **Using reference transmitter to mitigate LO & timing differences between main and mirror satellites**



3 **Correlation to compute TDOA & FDOA solver algorithm to retrieve the transmitter most-likely position**

TECHNICAL SPECIFICATIONS

General characteristics

Inputs ..... 4 inputs
..... Input bandwidth: 950 – 2150 MHz
..... 3dB bandwidth: 220 MHz
..... Nominal input power: -40 up to 0 dBm
.....(max: +13 dBm) in 1.2 GHz of bandwidth
..... Input impedance: 50 Ω
..... Noise Factor: 16 dB typical
..... Internal 10 MHz reference, frequency stability: < ± 3.10^{-8} /y.
..... Phase noise with internal reference:
..... @1KHz < -85 dBc/Hz
..... @1MHz < -115 dBc/Hz
.....External 10 MHz reference: level 0 dBm ± 3 dB, phase noise:
..... @1KHz, minimum -85 dBc/Hz
..... @1MHz, minimum -115 dBc/Hz
..... External 1PPS: Time synchronization,
.....External 1PPS: LVTTL (compatible TTL)
Frequency .....Range 950 to 2150 MHz (resolution 1Hz)
..... for the center frequency.
GPS ..... 10 MHz reference - 1-PPS signal
Processing.....Acquisition, analysis, monitoring, recording
Interfaces.....Ethernet 1 Gbps (RJ45) & 10 Gbps (SFP+)
Output.....XML RPC API

Environmental and physical conditions

Temperature .....Operating: +10°C – +30°C
.....Storage: -20°C - +70°C
Supply..... 100-240 VAC – 50-60 Hz
Consumption.....< 1,000 Watts
Dimension.....2U - 19" rack mountable unit
..... 483 mm x 87 mm x 716 mm (L x W x D)
Weight ..... 25 Kg
CE compliant.....Yes

Find out how our solutions will tranform your operations.

Contact sales team to uncover the amazing features of the Lynks product series.

GEOLOCATION

Geolocation features

Principle .....Cross-correlation using two or three satellites
..... TDOA/FDOA TDOA/TDOA FDOA/FDOA
Reference ..... Use of an existing signal on a compatible transponder
Carrier Cancellation..... Cancellation of carrier on mirror satellite
Ephemeris .....Multiple format (TLE, Operators), WeTrack
Recording ..... Synchronized recording of the 4 inputs, based on
.....geolocation parameters
Automatic processing ..... One-Click (automatic configuration
..... for a carrier)
..... Full transponder geolocation
.....Trigger on event
Matrix.....Automatic management of L-band switching matrix

Geolocation performances

Carrier types.....Digital modulated signals (SCPC)
.....Analog modulated signals (SCPC)
.....Double-Talk
.....TDMA
..... Burst type
.....Spread spectrum
..... Carrier Under Carrier
.....Carrier Over Carrier
.....Carrier Wave
.....Pulsed Signal
Frequency bands ..... VHF, UHF, L, S, C, X, Ku, Ka bands
Typical satellite separation..... C-Band: < 16° for a 3 meters target antenna
.....X-Band: < 15° for a 3 meters target antenna
..... Ku-Band: < 12° for 2.4 meters target antenna
Processing gain .....Up to 84 dB
Geolocation accuracy..... < 10km from best estimated target
.....geolocation to the real position in best conditions
..... with accurate and valid ephemeris.
Geolocation results ..... 95% probability ellipse, TDOA and FDOA line,
.....Best estimated target point on a map.
Display & Export..... Display of all results in a Result Manager.
..... Straightforward exportable and exploitable in excel format.
..... Exportable in KML format.

GLOBAL SALES
5, Avenue des Andes - CS 90101 - 91978 Courtaboeuf Cedex - FRANCE – Tel.: +33 1 69 82 78 00 - Email: sales.sdsy@safrangroup.com

USA
3005 Business Park Dr - Norcross, GA 30071 - USA – Tel.: +1 770 753 4017 - Email: sales@SafranDataSystemsUS.com

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