

REGULATING SATELLITE CONSTELLATIONS: ITU COMPLIANCE

HOW INTEGRASYS ENSURES EFFICIENT
REGULATORY COMPLIANCE

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Why Regulating NGSO is Much More Important Than Before

- LEOs are **starting to provide Direct-to-Device (D2D) connectivity disrupting local TELCOS.**
- **Local** and global **satellite industry** has been completely disrupted by now due to US new business models and interference.
- LEOs provide **services without licenses**, and there are not many regulators that can detect or regulate it.
- **Local** and global **telecommunication companies** are threatened as satcom was 15 years ago, and now almost non-existent industry.



SATCOM disruption



hispasat

ABS
ACILITY BEYOND SPACE

ISAT
International

eUTELSAT
OneWeb

measat

SES[^]
your satellite company
INTELSAT

عرب سات
ARABSAT



TELCO disruption



T Mobile

verizon

T Deutsche
Telekom

orange™

AT&T

vodafone

Telefónica



How can INTEGRASYS help?



PROTECTING TELCOS

Protecting TELCOs & SATCOM by analyzing Articles 21 & 22.



PROTECTING COUNTRIES

Protecting countries by analyzing satellites with illegal transmission over them.



AUTOMATION

Measurement automation for new talents who may not be experts in NGSO constellations.

INFRASTRUCTURE

Set up the required infrastructure and provide the systems and reports as perpetual capability or ongoing service.



**GEO
OPERATOR**



TELCO



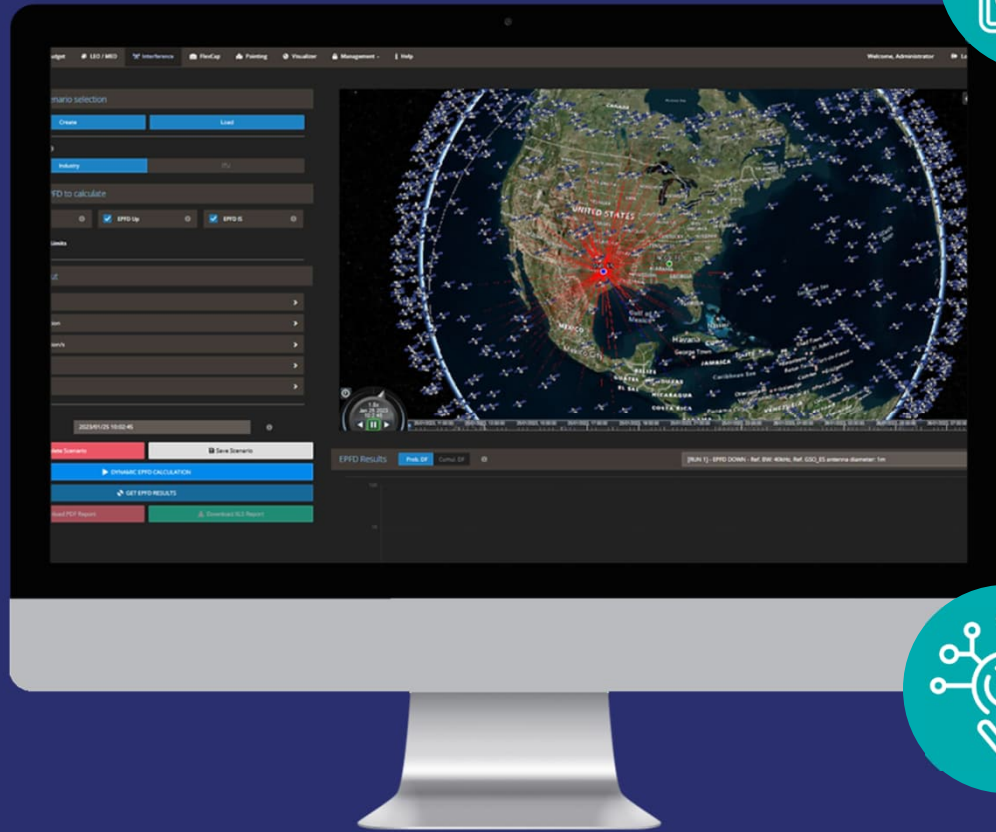
REGULATOR



VeryFiling

ITU/FCC FILING SOFTWARE

INTEGRASYS



Used for communications, and APNT or EO satellites



Calculation software aligned with the ITU-R S. 1503-3 standards

Allows complying with the ITU/FCC regulations before approval request

Allows regulators to test constellations and provide recommendations

Virtualized in the cloud

Complete 100+ pages PDF customizable report

EPFD calculations: pass/fail under ITU Articles 21 & 22

Saves 95% of the time developing calculations and 95% of the OPEX with the Press & Go button



Multi-mode specially built for industry and coordinating regulators

Special mode designed for regulator's (ITU, FCC...) review

LEOREG

EPFD REGULATORY MONITORING SYSTEM



Evaluates NGSO constellation for compliance after launch

Real-time EPFD verification for existing constellation



Intuitive 3D visualization for situational awareness and constellation tracking

Antenna management modules for parabolic and flat panel

Reduces spectrum congestion

Automated and AI-driven algorithms to ease operations

Pass/fail summary for ITU

Certification of cells not transmitting with 5° pointing at GEO

Reporting under Articles 21 & 22



A World First Deployment SRMC (South Korean Regulator Authority) Success!

KAI Networks and INTEGRASYS Achieve World's First NGSO Regulatory and Monitoring System Deployment



Seoul, South Korea – November 12, 2025 — [KAI Networks](#) has been honored by the Ministry of Technology during the 4th Satellite Radio and Satellite Technology Conference in Seoul, recognizing the company's groundbreaking work implementing INTEGRASYS' [LEOREG](#), the first (NGSO) monitoring system deployed for regulating newspace, being the first system of its kind globally.

This milestone marks a major advancement in the regulation and oversight of next-generation satellite constellations, setting a global precedent for NGSO monitoring.

LEOREG enables real-time spectrum monitoring and protection for existing geostationary satellite services while managing the rapidly growing number of low Earth orbit (LEO) satellites such as Starlink and OneWeb. By ensuring compliance with [International Telecommunication Union \(ITU\)](#) regulations, Article 21 & 22, the solution reinforces national spectrum sovereignty and lays the groundwork for future interference response systems.



"We are honored by the trust of the Korean radio frequency regulator leadership in adopting the first NGSO regulatory system, LEOREG. Their forward-thinking approach is the new way to regulate NGSO constellations," said [Álvaro Sánchez](#), CEO at INTEGRASYS. "We are proud to contribute to this pioneering success alongside KAI Networks, AVL, and KNS."

The project's success was powered by close collaboration among KAI Networks, INTEGRASYS, and antenna technology partners [AVL Technologies](#) and [KNS Technologies](#), integrating advanced flat-panel and multi-orbit XY antenna systems. These antennas are now operating at peak performance, fully orchestrated with INTEGRASYS' monitoring solution requirements to ensure high-precision signal tracking and continuous monitoring.

KAI Networks oversaw the full coordination of the installation, including logistics, equipment deployment, and operational readiness. Their meticulous management ensured seamless integration across all system components with record time of less than 5 months from contract award to system acceptance.

The customer reported high satisfaction with the performance of the complete solution—particularly the INTEGRASYS' LEOREG NGSO monitoring system, which proved instrumental in orchestrating multiple hardware elements while enabling advanced analytics and live interference detection. This capability has positioned the system as a benchmark in LEO regulatory monitoring worldwide.

This award-winning achievement underscores the strength of the long-standing partnership between KAI Networks, INTEGRASYS, KNS, and AVL. Together, the companies are exploring new opportunities to expand NGSO satellite monitoring capabilities to meet global demand as the satellite industry enters a new direct to device era.



Hybrid Antenna Architecture

Combine and Win

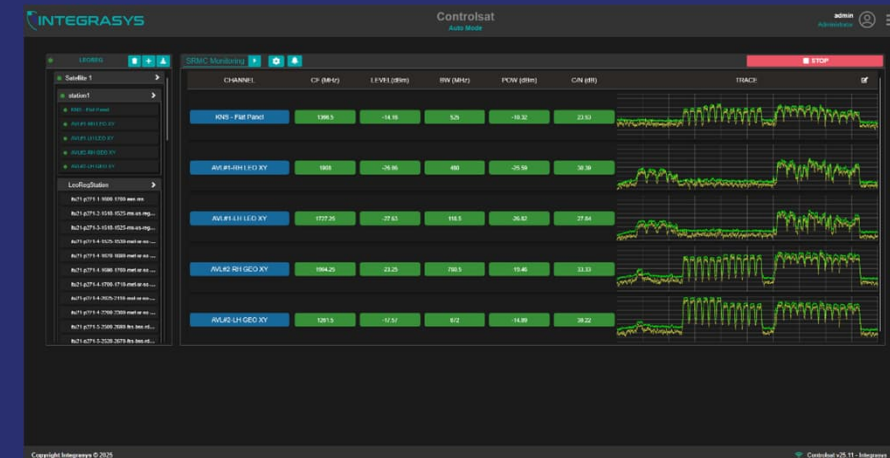
The monitoring system combines **two large parabolic antennas and one flat panel antenna**, providing complementary tracking capabilities for NGSO satellite monitoring.

TWO LARGE XY PARABOLIC ANTENNAS

- **Fast & High-mobility XY satellite tracking.**
- Designed to follow **fast-moving LEO satellites** across their visible pass.
- Provide **accurate and continuous signal acquisition.**

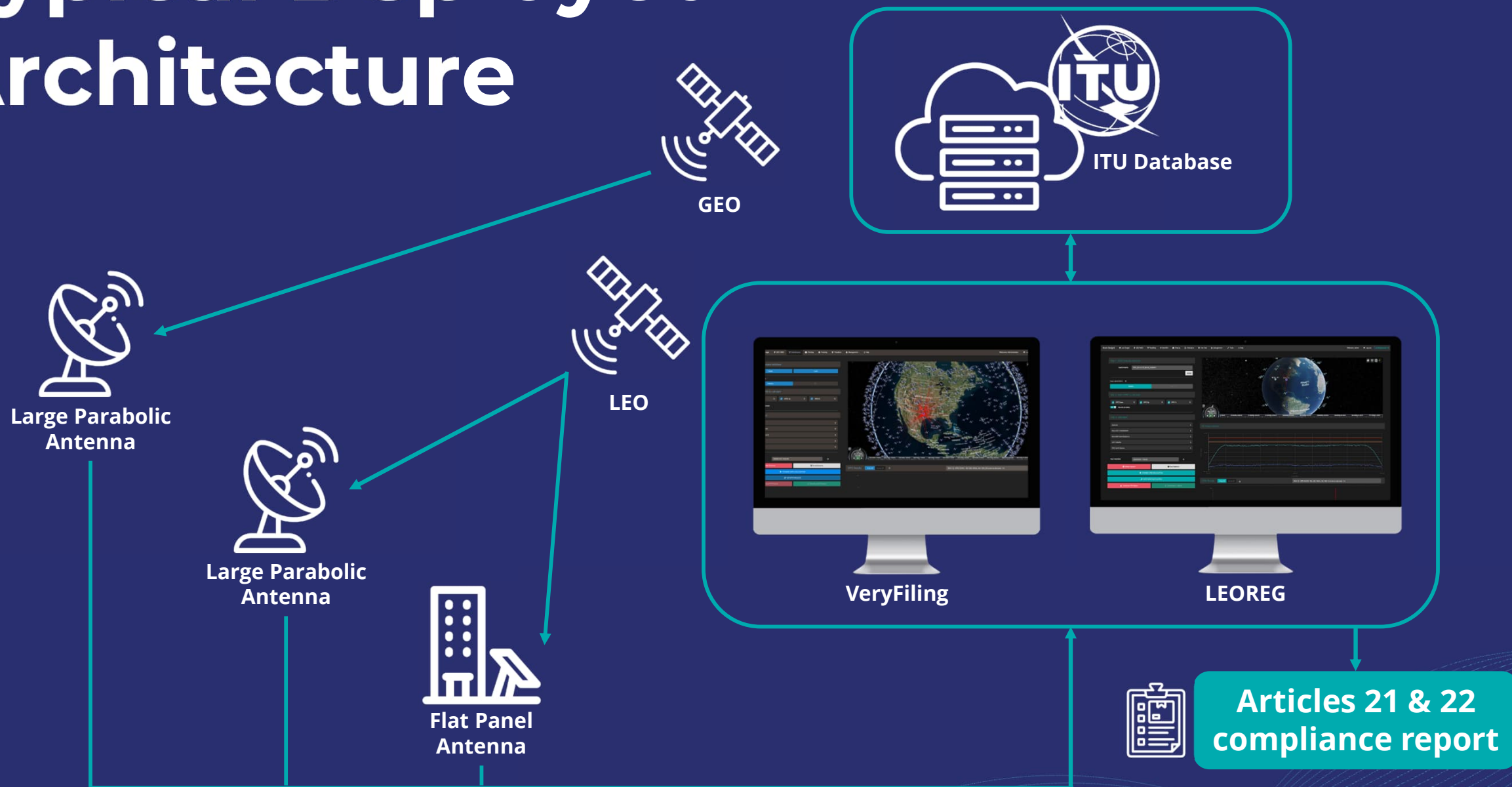
ONE FLAT PANEL ANTENNA

- **Very fast electronic pointing (multiple models & Country of Origin supported).**
- Rapid acquisition and tracking of **fast-moving LEO satellites.**
- Complements the parabolic antennas to provide a **flexible monitoring architecture onsite or on vehicles.**



Less than 4-month deployment SRMC Success

Typical Deployed Architecture



SRMC LEO Monitoring System

From Deployment to Operational Capability in Less Than four Months.

INTEGRASYS and KAI Networks successfully deployed the **first phase of the NGSO regulatory monitoring system at South Korea's Satellite Radio Monitoring Center (SRMC).**

In **less than four months**, the complete infrastructure and monitoring environment were **installed, integrated, commissioned and placed into operation.**

- **Complete ground infrastructure deployed.**
- **Two parabolic antennas + one flat panel antenna integrated.**
- **Monitoring software and RF systems commissioned.**
- **Phase 1 – ITU Article 21 fully operational.**
- **Phase 2 – ITU Article 22 ready to install**

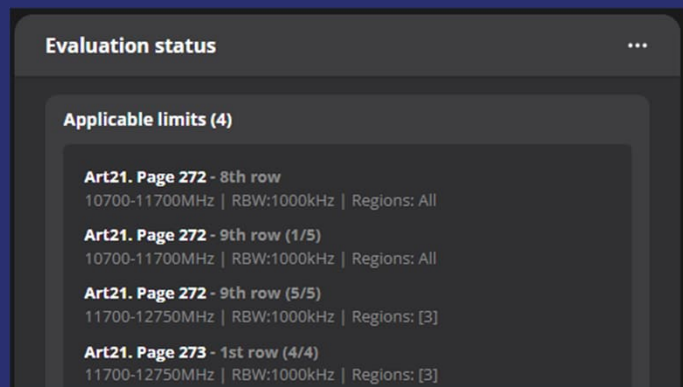


TWO – PHASE REGULATORY DEPLOYMENT

The SRMC project is being implemented in **two phases as specified by the customer**, progressively expanding its regulatory monitoring capabilities.

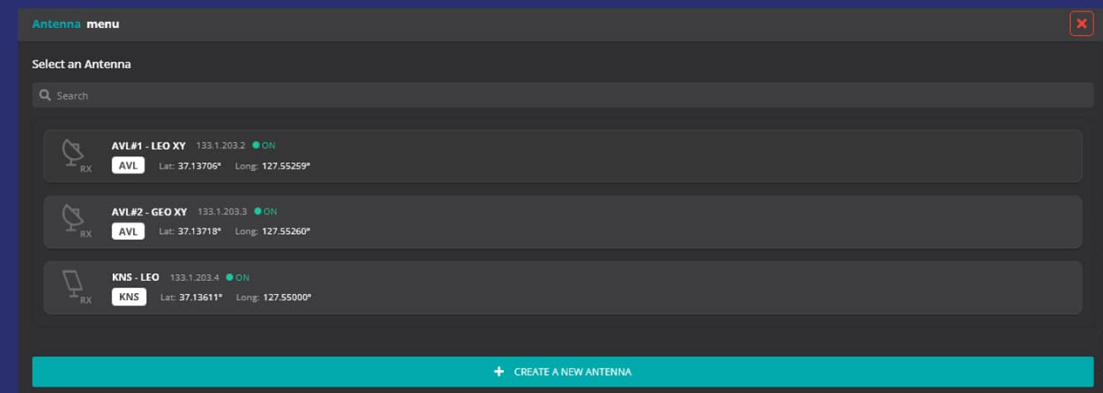
PHASE 1 – ARTICLE 21 DEPLOYED & OPERATIONAL (September 2026)

- Infrastructure and systems deployed.
- Article 21 measurements operational.
- Screenshots and video correspond to **Phase 1**.
- **In operation 4 months after contract award**



PHASE 2 – ARTICLE 22 – SEPTEMBER 2026 (awarded June 2026)

- Article 22 monitoring capability.
- Integration into the existing SRMC system.
- EIRP Calibration deployment.
- Updates.



System Deployment



System Deployment

Phase 1 was **deployed on-site at SRMC**, integrating the antenna infrastructure, RF equipment and software environment required for **ITU Article 21 monitoring operations**.

The complete infrastructure was **installed, integrated and placed into operation in less than four months** by KAI Networks & Integrasys.

- Two parabolic tracking antennas.
- One fast-pointing flat panel antenna.
- Integrated monitoring environment.
- Article 21 capability fully operational.

Partnership with Local Industry drives success in deployment, and support.



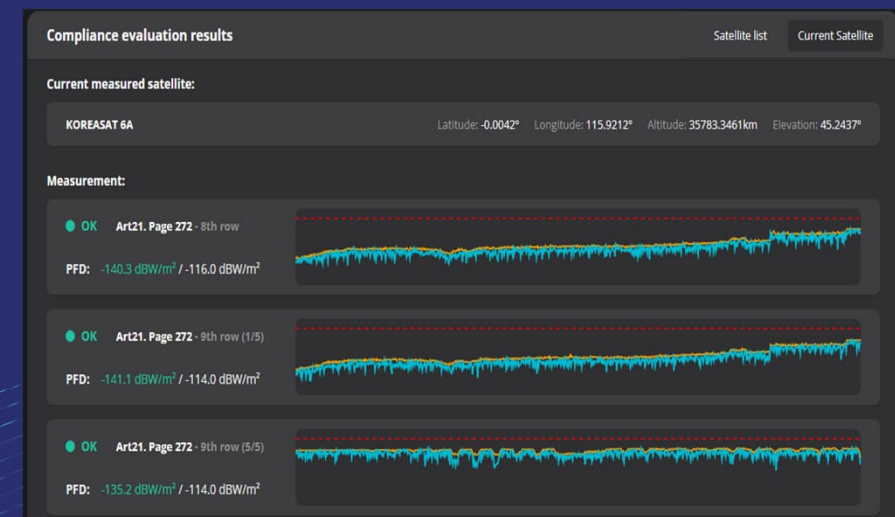
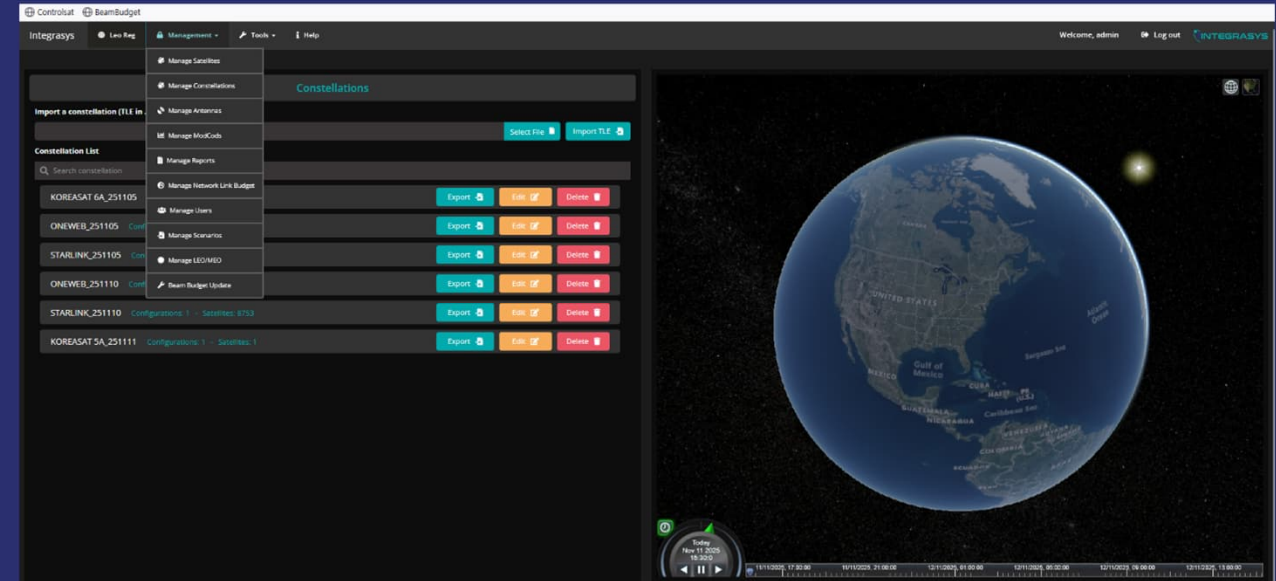
Article 21 – Operational Monitoring

Phase 1 Successfully Deployed

The screenshots below show **real measurements from the operational SRMC deployment**, supporting monitoring and regulatory assessment under **ITU Article 21**.

- **Real SRMC measurements.**
- **Automated monitoring and analysis.**
- **Article 21 regulatory assessment.**

REAL SRMC MEASUREMENTS – ITU ARTICLE 21

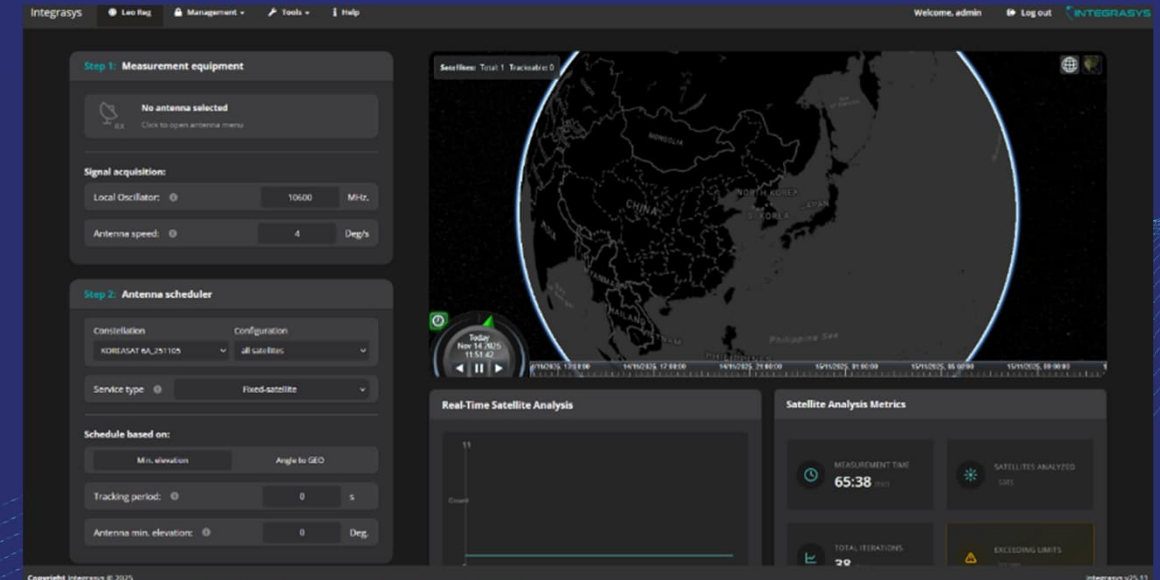


Real Time Spectrum

ControlSat Operational Capabilities

ControlSat provides real-time visibility of the RF spectrum, supporting continuous monitoring and analysis of satellite signals.

- Real-time carrier monitoring
- Spectrum visualization and analysis
- RF interference detection



SYSTEM DEMONSTRATION

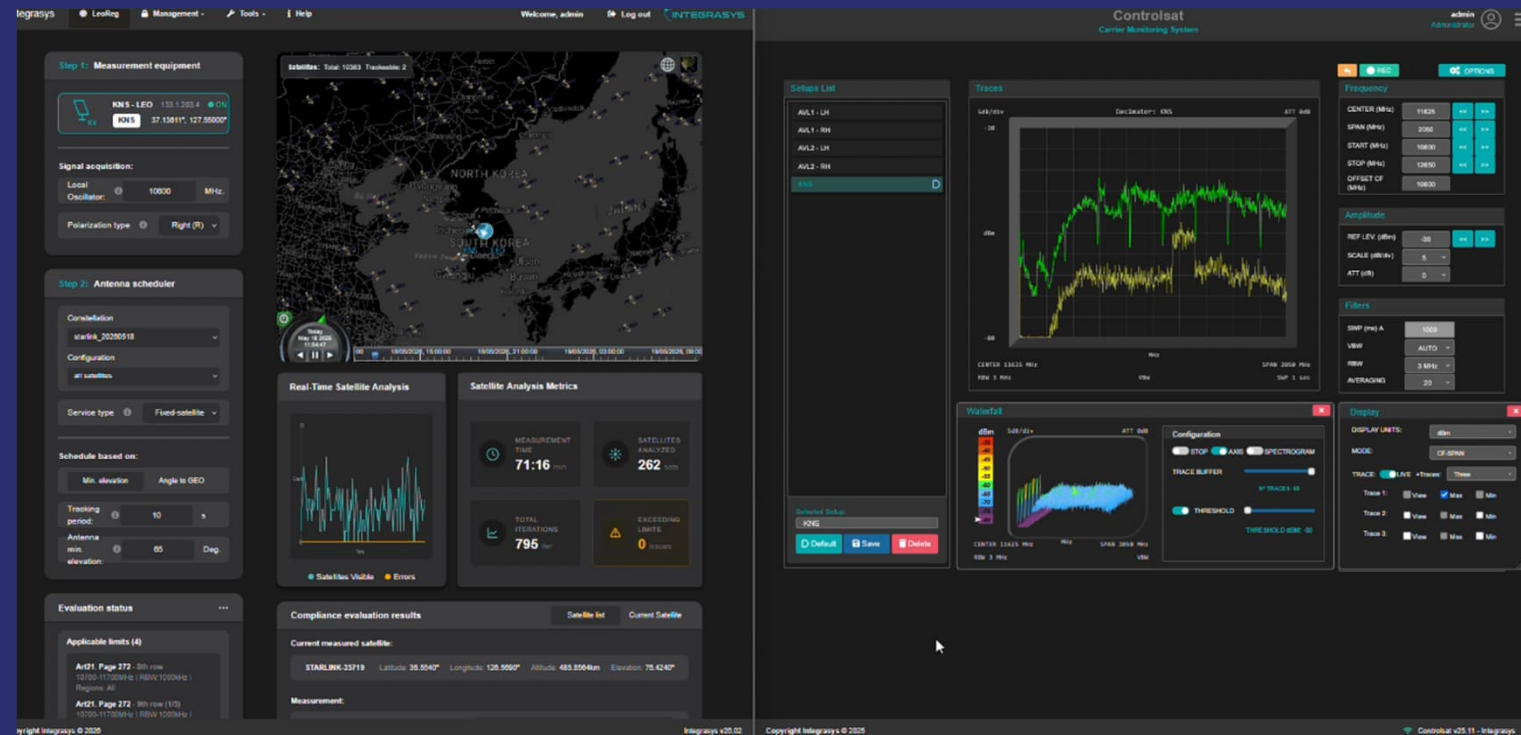


ITU Article 21 – Phase 1 in Operation

The demonstration shows the Phase 1 system currently deployed and operational at SRMC, including the monitoring environment and Article 21 measurement capabilities.

This demonstration corresponds to ITU Article 21 – Phase 1.

WATCH THE DEMO:

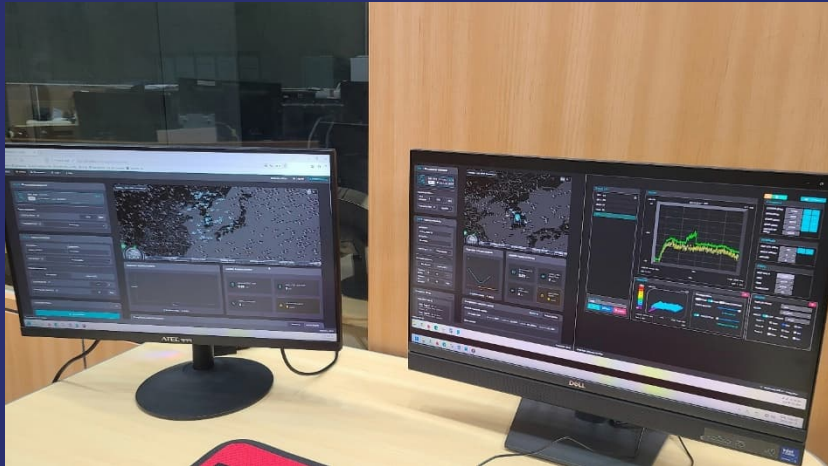


DEPLOYMENT

From Deployment to Daily Operations

The complete **Phase 1 environment is now operational at SRMC**, enabling personnel to perform continuous monitoring and regulatory analysis.

- **Infrastructure fully deployed**
- **Systems integrated and operational**
- **SRMC personnel using the solution**
- **Article 21 capability in operation**



Conclusion: Deployed, Ready, Trusted, Successful





Building Success from Innovation



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