



INTERSOFT
S E R V I C E S

CNS SERVICES

Unburden certification testing
and performance evaluation



CNS SERVICES

Value Proposition

Executive Summary

Safe skies are a must. That's why standards and regulations exist. Testing Communication, Navigation and Surveillance (CNS) systems for certification and compliance with those standards can be a costly and cumbersome obligation.

Regulation authorities such as ICAO and EUROCONTROL define different levels of testing and state a wide range of protocols. The complexity of certification is often too great for CNS operators to build all that expertise in-house. We're talking about testing NavAids such as ILS, TACAN, VOR, DME, etc. but also primary and secondary radar, and even Mode 5 IFF.

Legacy certification methods are often quite intrusive, have poor repeatability and create a significant operational impact. Think about long system down-times or runway allocations for test flights, limiting airport operations. Getting hands-on with specialized test equipment requires not only the investment in the tools, but also training of staff and securing in-house knowledge.

Clearly, next to the real cost in the books, testing incurs a considerable intangible cost as well. And those are all recurring costs. The yearly price tag of certification cannot be hidden.

CNS Services allow to test CNS systems against the standards with a minimal operational impact, at an unrivalled price.
CNS Services provide insightful data and system intelligence.
CNS Services support certification testing, taking the burden out of it.

What's the total cost of certification and performance evaluation of your CNS systems?

Challenges of certification testing and performance evaluation

Complexity of testing against standards

CNS systems must comply to **mandated standards** from ICAO, EUROCONTROL, SESAR JU, EUROCAE and RTCA. Those standards not only define sensor performance figures. They also define safety procedures, test scenarios and environmental test conditions. Different types of CNS systems, operating in different environments must comply to different standards. The performance of a **wide range of CNS systems** must be evaluated six-monthly with flight checks; newly commissioned systems must pass site acceptance testing; and manufacturers must demonstrate Quality of Service (QoS) and perform factory acceptance tests. **Different stakeholders** have different needs.

Impact of testing

Testing for certification and performance evaluation on an operational system can have a significant **impact**. Downtimes must be scheduled and hooking up test equipment can be an intrusive activity. In case of test flights, flight plans must be approved, runways allocated, etc. This must all be coordinated well with the controllers.

Don't forget that there's often also a considerable **environmental impact**. There are carbon emissions from test flights, but also from flying in test pilots and possibly from diverted flights.

Cost of testing

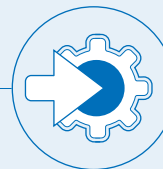
Obviously, the operational impact mentioned above has a certain **intangible cost**. Managing and carrying out certification testing and performance evaluation also has a **real cost**. Do you want to invest in specialized test equipment? In training technicians? In securing that knowledge in-house?

The impact and total cost of testing is hard to quantify. All stakeholders – ANSP's, MoD's, manufacturers, integrators, MRO's – would love to have more control over this.

CNS SERVICES

For ANSP's, MoD's, manufacturers, integrators and MRO's

CNS Services are the most reliable
and cost-effective way to test,
evaluate and calibrate your sensors.



CERTIFIED TEST PROTOCOL

Repeatable measurements
Compliant to mandated standards



MINIMAL OPERATIONAL IMPACT

Reduce downtime and logistics
Save tangible and intangible costs



REDUCED CARBON EMISSIONS

Reduce test flights up to 50%
Local support

Certified test protocol

Repeatable measurements,
compliant to mandated standards



CNS Services rely on specialist tools that were developed in cooperation with EUROCONTROL. Consequently, CNS Services apply test protocols **compliant to mandated ICAO and EUROCONTROL standards**.

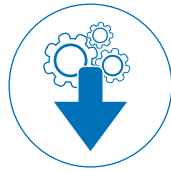
Moreover, thanks to an extensive experience in CNS measurements and analysis, CNS Services are available for certification testing and performance evaluation of a **wide range of systems**, differing in type and make, **manufacturer independent**.

That same experience makes Intersoft Services staff experts on the job. They come on-site to perform the certification testing and performance evaluation according to the test protocol. Unlike theoretical modelling and simulations at intermediate frequencies, CNS Services rely on real, **repeatable measurements** that assure reliable system assessment and status monitoring over time.

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Minimal operational impact and cost

Save tangible and
intangible costs



With CNS Services you save the cost of investing on specialized test equipment. Obviously, there are basic tools to do basic measurements, but testing against all standards for certification and mandated performance evaluation is quite a comprehensive job. With CNS Services, you exchange a low, if not negative ROI CAPEX investment for a **controlled OPEX expenditure**.

The cost of training personnel and securing the specific knowledge to perform certification testing and performance evaluation in-house may even exceed the real investment on test equipment. It's Intersoft Services staff core business to do this job. They are technically trained and can deal with the whole process, **coordinating with all stakeholders**.

Consequently, certification testing and performance evaluation are **well controlled processes**, resulting in a significant **reduction of operational impact**.

Less downtimes, less test flights, less administration and logistics. All this makes a **strong safety case**.

Exchange a low,
(or even negative) ROI CAPEX investment
for a well controlled OPEX expenditure.

Reduced carbon emissions

Minimize test flights and
get local support



ICAO states that the **frequency of test flights can be reduced** when ground and flight measurements correlate. With CNS Services, this correlation can be demonstrated, meaning that flight checks can be performed only once a year instead of twice. That's particularly thanks to the use of SkyRF® drone based measurements, avoiding obstacles in line of sight and reflections.

This is obviously a huge operational advantage and a cost saving, but also **reduces carbon emissions, noise and the need to reroute commercial flights**. That's an important benefit, while aviation is under pressure to reduce its environmental footprint.

Note that Intersoft Services has a **worldwide network of local subsidiaries and representatives with trained staff**. So there's no need to fly in experts from the other side of the world.



CNS Services Portfolio

Services for any NavAid or radar system

The CNS Services portfolio addresses the needs of different stakeholders just at the right demand. This Services portfolio can be categorized in three fields of applications: Certification Testing, Performance Evaluation & Field Calibration, Training & Studies.

A wide range of CNS systems can be tested, evaluated and studied with CNS Services. Among those are NavAids such as ILS, VOR, TACAN, DME and several others, as well as primary and secondary radar, IFF and Mode 5. Multiple CNS systems can be assessed together during a single measurement campaign.

CNS Services are capable for full Mode 5 testing

■ Certification Testing as a Service

Certification Testing unburdens the assessment of nav aids and radar sensors against the mandated ICAO and EUROCONTROL standards. Typical applications are factory acceptance, site acceptance and commissioning.

■ Performance Evaluation & Field Calibration

ANSP's and MoD's are due to frequent performance evaluation and calibration of their CNS systems. A complete CNS Services Pack can be offered, tailored to the operational fleet and their needs. With CNS Services, calibrations can be done in the field.

■ Training & Studies

With CNS Services you can get training for any level of testing, be it for certification testing, performance evaluation or day to day monitoring. Specialized consultancy and specific studies are available as well. Wind Turbine Mitigation studies for example, offer clear information about the feasibility of wind farm projects.

Local Presence and call to action

Intersoft Services is a global organization and is part of the Intersoft Electronics Group. With a pedigree of 40 years in development, manufacturing and field services, Intersoft Services has become the reference in radar and CNS measurements worldwide.

Trained staff are available to serve customers locally through a worldwide network of subsidiaries and representatives.





contact us for more information
on CNS SERVICES for you

Together we make the sky safer



www.intersoft-electronics.com