



## CASE STUDY

*Remote Tower – Increase efficiency and safety*

**indra**

# REMOTE TOWER

## *Increase efficiency and safety*

AVINOR in Norway is currently implementing the World's largest Remote Tower operation, referred to as NINOX, where 15 airports will be remotely controlled from a Remote Tower Centre in Bodø, Norway.


Indra is assisting AVINOR in implementing this remote tower system. To achieve the required benefits, one important feature is multi-mode operations, where a single operator can handle up to three airports simultaneously. To achieve this, it is important to AVINOR to reduce processes and alleviate the operator's workload.

One detail in reducing workload was to simplify radio communication using a two-button solution. This concept was evaluated by AVINOR and Indra during the SESAR PJ05 trials, which involved testing a two-button microphone solution. This implementation enables the operator to easily change between communicating with aircraft or vehicle radio frequencies. The PJ05 project, conducted from 2016 to 2019, was an industrial research program under the European Union's Horizon 2020 innovation program. Its objective was to establish a remote working multi-mode operation.

The ATCOs and AFISOs responded positively to the trials, and the handling of the solution proved successful.

Following the validation of SESAR PJ05, AVINOR decided to adopt the two-button solution in their Remote Tower Center in Bodø. Bodø is currently the largest Remote Tower Center globally and is expected to handle up to 15 remote locations in 2025. AVINOR requested a solution that included both a hand microphone and a headset to offer flexibility to the users.

Indra approached IMTRADEX with a request to provide a two-button solution after conducting market evaluations. Coincidentally, IMTRADEX had received a similar request from another project and customer. Consequently, both organizations collaborated to develop a solution. This collaboration resulted in the creation of the IMTRADEX PTT-19 Dual. Leveraging the latest technologies, including rapid prototyping and additive manufacturing processes, the prototyping and validation phases proceeded smoothly. The two-button headset solution has been delivered to Avinor and is part of the test and approval of multi-mode operations planned to go operational in 2025.



With single button solutions, ATCOs had to switch between aircraft frequency and vehicle frequency using the VCS panel. The new solution significantly reduces the workload of ATCOs and enhances safety by decreasing the likelihood of errors, such as selecting the wrong radio, transmitting clearance on the wrong radio, or inadvertently deselecting aircraft frequencies and missing important calls. The dual button solution empowers operators to control everything conveniently at their fingertips.

The solution fits nicely with Indra's GAREX Voice Communication System (VCS), a world renowned system for Air Traffic Control communication, and also in use by AVINOR in their Remote Tower operations.

Remote Digital Tower and Remote Tower environments are rapidly expanding fields in the ATM industry. While these advancements aim to increase capabilities and reduce costs, safety remains paramount. The PTT-19 Dual, based on IMTRADEX's existing PTT-19 PTT button, not only ensures safety but also provides a comfortable and familiar solution.

# indra

## About Indra

Indra ([www.Indracompany.com](http://www.Indracompany.com)) is one of the leading global technology and consulting companies and the technological partner for core business operations of its customers world-wide. It's a world leader in providing proprietary solutions in specific segments in the Transport and Defence markets and a leading firm in digital transformation and Information Technologies in Spain and Latin America through its affiliate Minsait.

Its business model is based on a comprehensive range of proprietary products, with a high-value end-to-end focus and with a high innovation component. In the 2023 financial year, Indra achieved revenues totaling €4,343 million, with more than 57,000 employees, a presence in 46 countries and business operations in over 140 countries.

[www.Indra.no](http://www.Indra.no)



IMAGE: Indra Sistemas, S.A. (Indra)

# Imtradex

## About Imtradex

IMTRADEX is a Germany based, owner managed SME company with headquarter in Dreieich, close to Frankfurt/Main. Founded in 1992, IMTRADEX develop, produce and sell communication equipment for mission critical and business critical applications. Since then, a major area of communication solutions are developed for the ATM market, which leads to that IMTRADEX is one of the major manufacture for ATC headsets and equipment for use in different areas, such as center, tower or other control room areas.

IMTRADEX offers a high flexibility with the AirTalk® Family provides a fully package of headsets and respective PTT's and connectivity to global ANSP's and the major manufacturer of VCS systems.

[www.imtradex.de](http://www.imtradex.de)

IMAGE: AVINOR / ØYSTEIN LØWER



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