

RanLOS BeamForce 42

RanLOS BeamForce 42 is an accurate, cost-effective, and easy-to-use test system enabling OTA and antenna performance measurements. This smart solution is portable and can be used both in existing EMC chambers as well as test tents.



May the
BeamForce
be with you

Key features:

Compact far-field over-the-air (OTA) test system based on the Random Line-of-Sight technology

Outstanding performance versus price

Enables measurements of all relevant standards, such as 4G, 5G, V2X, and WiFi

Frequency band 0.7 to 6 GHz covered by three antenna arrays

Portable system that can be rolled into existing EMC chambers or other test facilities

Comes with RanLOS BeamLab for fast and easy testing

RanLOS BeamForce 42 consists of a cylindrical reflector fed by a dual polarized passive linear antenna array. The test system provides two operational modes: Passive for antenna radiation pattern measurements and active for communication performance testing, for example, throughput.

RanLOS also provides an advanced measurement software, RanLOS BeamLab, for controlling instruments and positioners. Visualization in 1D, 2D and 3D, and analysis of measurement data can conveniently be done directly in the software. A large number of instruments, turntables and other test equipment are compatible with RanLOS BeamLab which enables quick and easy handling of the total test setup.

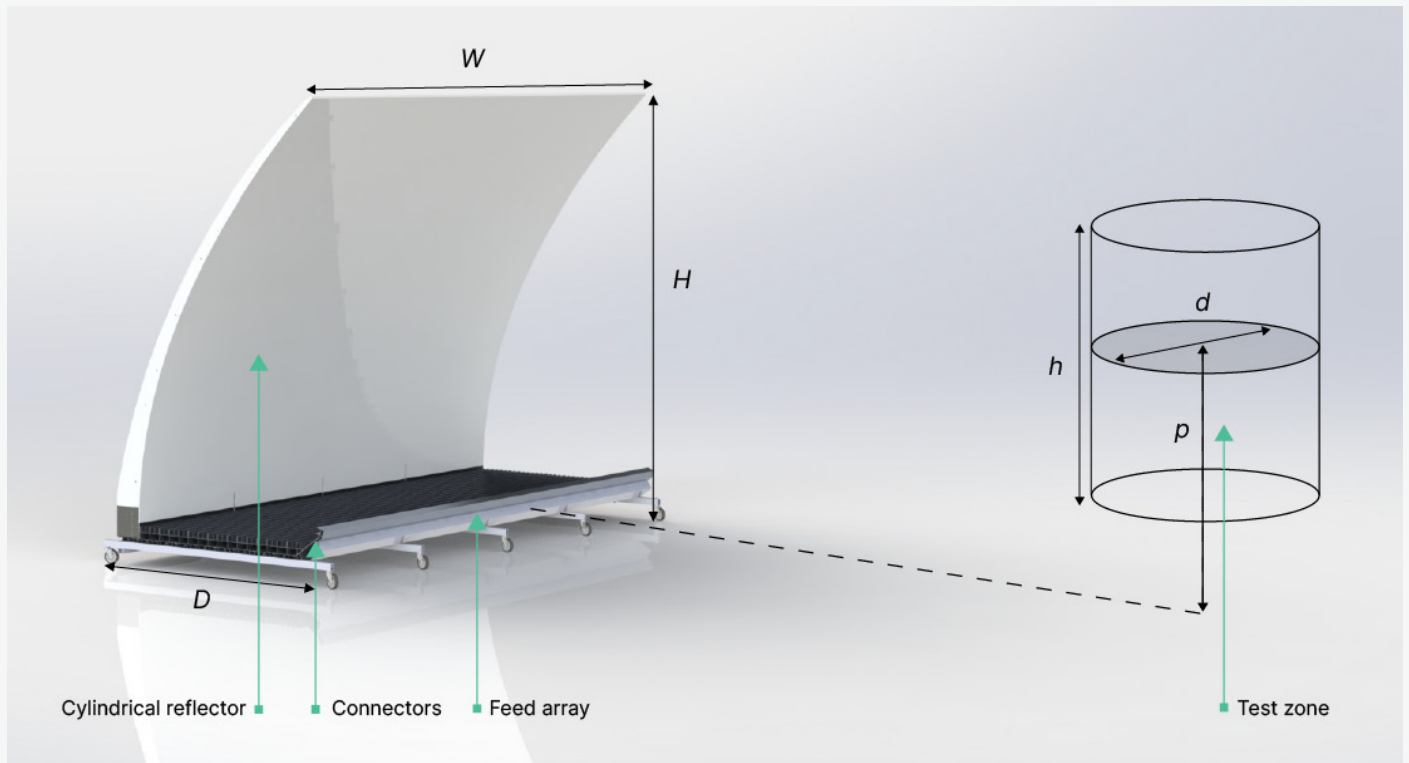
In summary, RanLOS BeamForce 42 is an accurate and cost-effective solution for measuring both antenna and OTA performance.

Specifications

RanLOS BeamForce 42

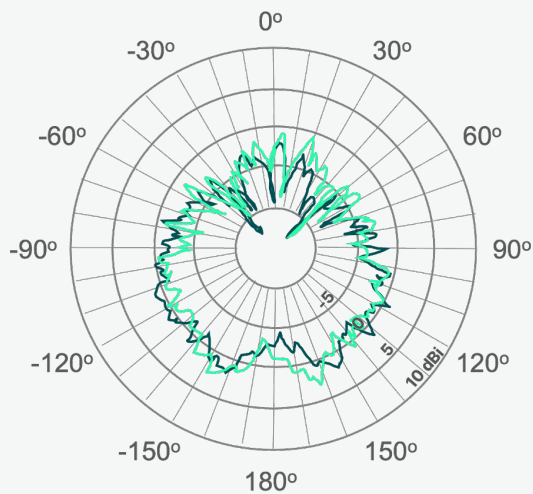
Frequency range ¹⁾		0.7 GHz to 6 GHz (Upgradable to higher frequencies)
Polarization	Feed antenna	Dual polarized
RF connectors	Feed antenna	2 x N-type (female)
Impedance	Feed antenna	50 Ω
Quiet zone quality		
STD (cylindrical volume) ²⁾	Amplitude	< 1.6 dB
STD (cylindrical volume) ²⁾	Phase	< 10°
Peak-to-peak (circular area) ³⁾	Amplitude	< 3 dB
Peak-to-peak (circular area) ³⁾	Phase	< 20°
Repeatability ⁴⁾	Amplitude	< 0.15 dB
Dimensions	D x H x W	1.9 m x 3.4 m x 4.4 m (reflector width 4.2 m)
Weight		Approx. 450 kg

1. The frequency range is covered by using three different antenna arrays, sectioned as follows, 0.7 GHz to 1.5 GHz, 1.5 GHz to 3 GHz and 3 GHz to 6 GHz. Upgradeable to higher frequencies.
2. The standard deviation is calculated in a cylindrical test volume with $d = 1.5$ m, $h = 1.4$ m, and $p = 1.3$ m, see the figure on next page.
3. The peak-to-peak variation is calculated in a circular test plane with $d = 1.5$ m and $h = 0$ m, and $p = 1.4$ m, see the figure on next page.
4. Repeatability based on an MSA analysis at 1.7 GHz done at a customer site with the RanLOS system.



RanLOS vs NF-FF test facility

Measurements of an antenna mounted on the roof of a vehicle. Comparison between measurements using the RanLOS test system and an accredited lab using a NF-FF system.



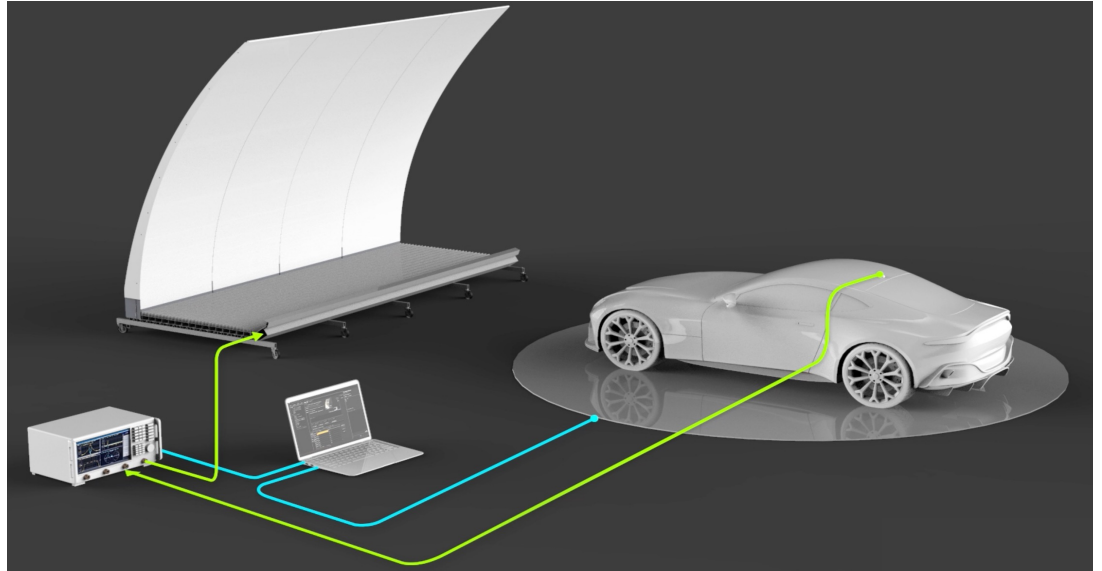
■ RanLOS ■ Accredited test facility

Measurements done during SIVERT - a FFI-Vinnova project

Measurement setups

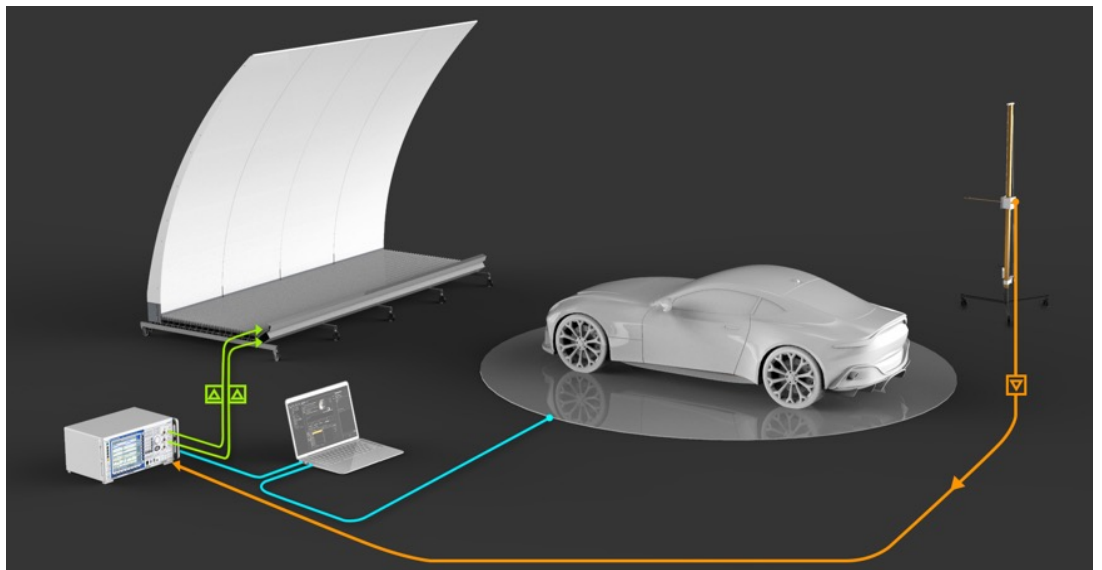
Antenna performance measurements

The setup for antenna performance measurements uses a Vector Network Analyzer to collect the data. The instrument and turntable are controlled by RanLOS BeamLab. It is possible to measure both polarizations simultaneously by using a 4-port instrument.



OTA communications performance measurements

The setup for OTA measurements uses a Communication Tester that acts as the base station and feeds the dual polarized antenna array. A separate uplink antenna is used to keep the connection. The instrument and turntable are controlled by RanLOS BeamLab. Up to 2x2 MIMO measurements can be performed using a single RanLOS BeamForce 42.



This version was updated 2024-03-06

We leave a reservation for any incorrections.
The material in this publication is subject to change without notice.



About RanLOS:

RanLOS is an innovative provider of OTA test solutions for full-vehicle connectivity and antenna testing. The company was founded in 2016 by Professor Per-Simon Kildal, one of the world's most influential antenna experts. Professor Kildal also founded the companies Bluetest and Gapwaves. RanLOS has its origins from Chalmers University of Technology in Gothenburg, Sweden, and is listed on Nasdaq First North Growth Market.

RanLOS aims to provide customers with the most cost-effective and easy-to-use OTA test solutions. The patented hardware and proprietary software are based on several years of research and are designed to test all relevant standards such as 4G, 5G, Wi-Fi, and V2X.

