RanLOS mmWave

The RanLOS mmWave test system is the ideal equipment for measuring devices such as smaller base stations and terminals at higher frequencies. Sold stand-alone or together with small test chamber.

Smart solution for measuring smaller devices

Key features:

- Compact far field over-the-air (OTA) test system based on the Random Line-of-Sight technology
- High performance versus price within a test volume of 21 dm^3
- Covers present and future 5G systems
- Active and passive measurements
- Comes with RanLOS measurement software for fast and easy measuring

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

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

In summary, the RanLOS mmWave test system is an affordable and easy to use solution for testing active and passive smaller devices and antennas.

Specifications

RanLOS mmWave

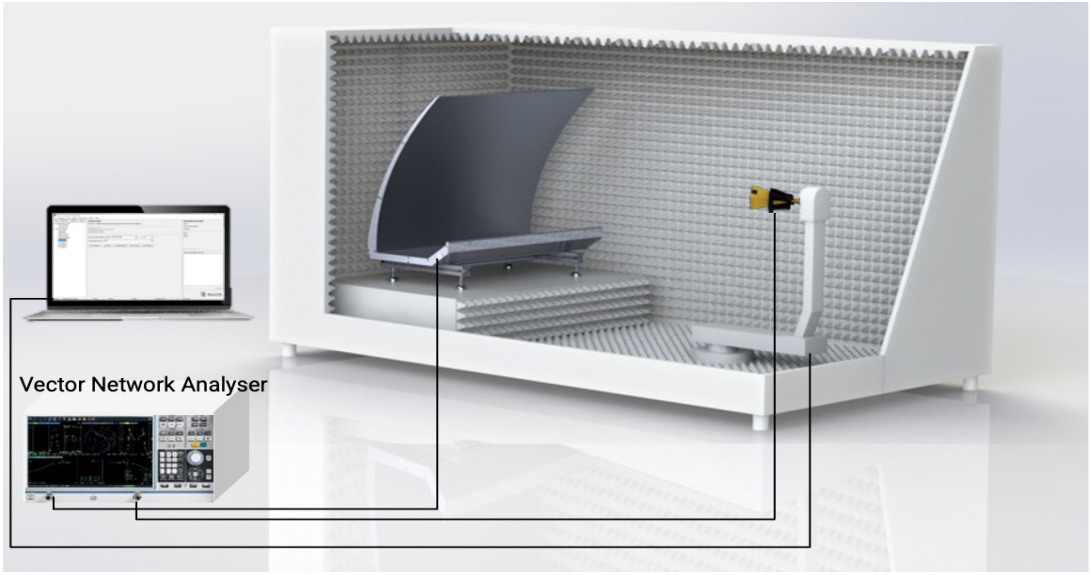
Frequency range [1]		27 GHz to 29 GHz
Polarization	Feed antenna	Dual polarized
RF connectors	Feed antenna	2 × 2.92 mm (female)
Impedance	Feed antenna	50 Ω
Quiet zone quality		
STD (cylindrical volume) [2]	Amplitude	< 1.2 dB
STD (cylindrical volume) [2]	Phase	< 8º
Peak-to-peak (circular area) [3]	Amplitude	< 3 dB
Peak-to-peak (circular area) [3]	Phase	< 20º
Dimensions	W x H x L	0.4 m x 0.6 m x 0.8 m
Weight		Approx. 20 kg

1. The frequency range can be expanded by exchanging the feed array.
2. The standard deviation is calculated in a cylindrical test volume with d = 0.3 m and h = 0.3 m, see the figure on next page.
3. The peak-to-peak variation is calculated in a circular test plane with d = 0.3 m and h = 0 m, see the figure on next page.
4. Repeatability based on an MSA analysis at 1.7 GHz done at a customer site using a RanLOS prototype.

Measurement setup

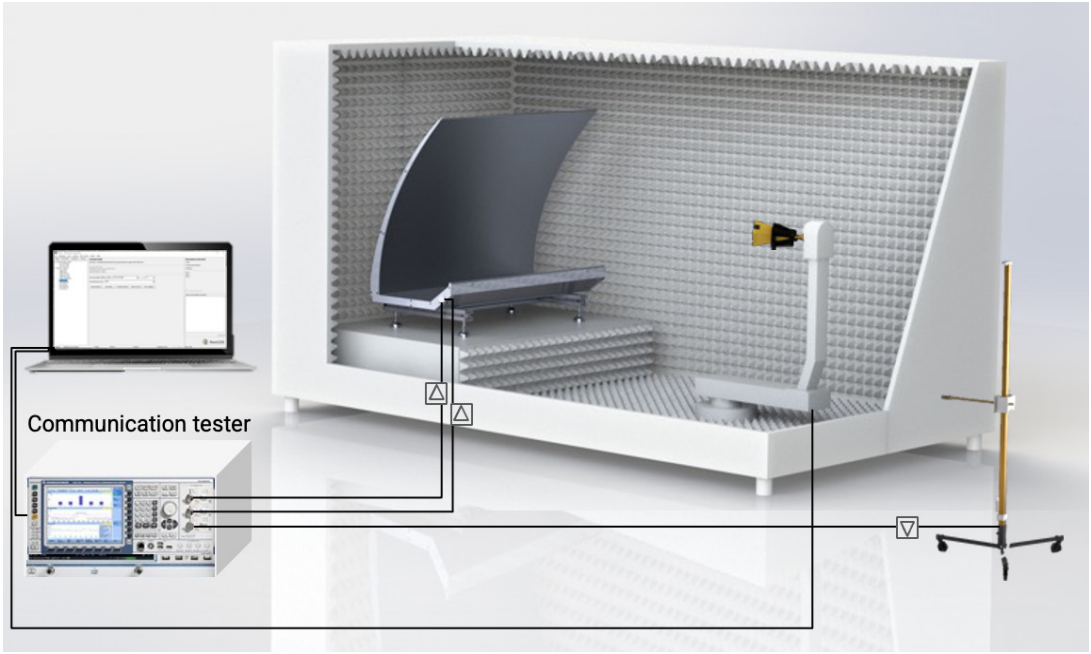
Passive

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



Active

The setup for active 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 the RanLOS software. Up to 2x2 MIMO measurements can be performed.



Setups using the RanLOS mmWave test system

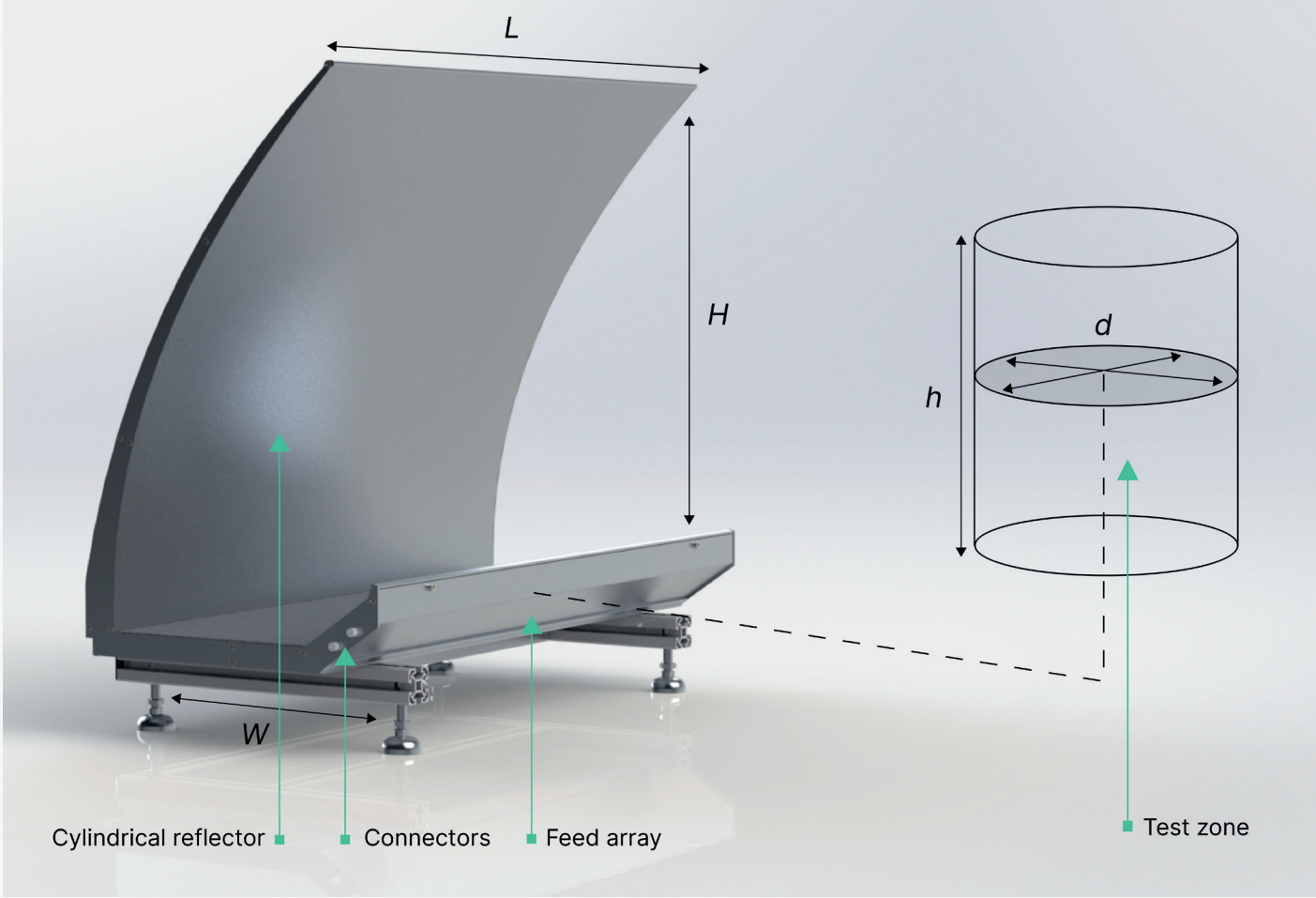
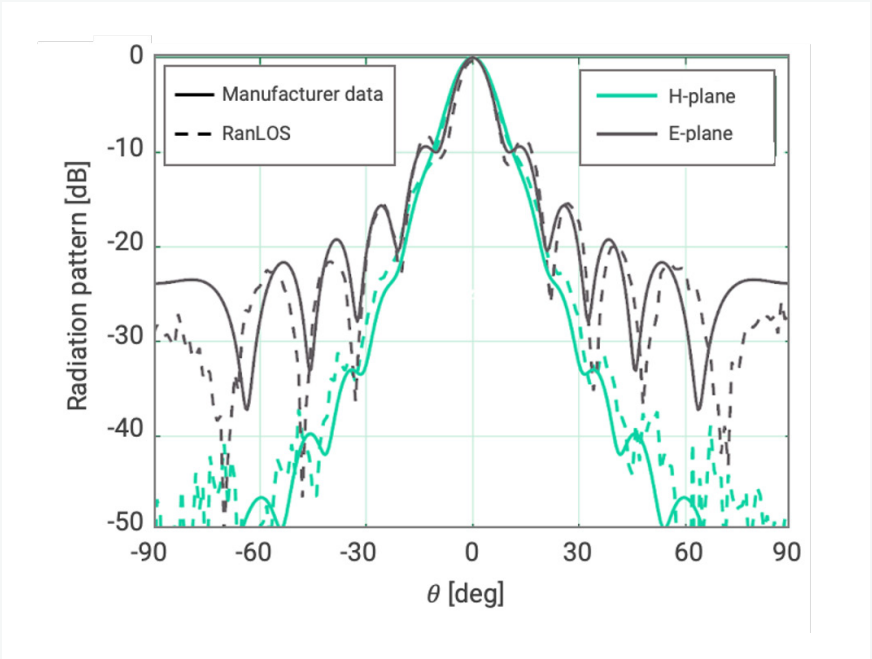


Figure related to specifications

Measurement comparison

Measurements of a standard gain horn antenna. Comparison between measurements using the RanLOS mmWave test system and data from antenna manufacturer.



Reservation made for any incorrections.
The material in this publication is subject to change without notice.

About RanLOS:

The idea of an affordable and easy-to-use OTA measurement system using Random Line-of-Sight (RanLOS) technology came from Professor Per-Simon Kildal (1951-2016) at Chalmers University of Technology.

As a result, RanLOS AB was founded in 2016 and has been granted several patents of the Random Line-of-Sight technology. The products have been realized by PhD Madeleine Schilliger Kildal and Professor Jan Carlsson among others.