# High Accurate Positioner Systems

Maturo GmbH is a leading manufacturer of state-of-the-art positioning systems for EMC/EMI-, Antenna Pattern-, MIMO Performance of Wi-Fi, LTE und WiMAX wireless devices, Automotive- and Radar Cross Section measurements.

The product range includes high accurate linear, azimuth, elevation and polarisation positioner systems. All specifications of our standard products can be adjusted according to customers' requests. Maturo also offers a wide range of customer-specific positioning systems.
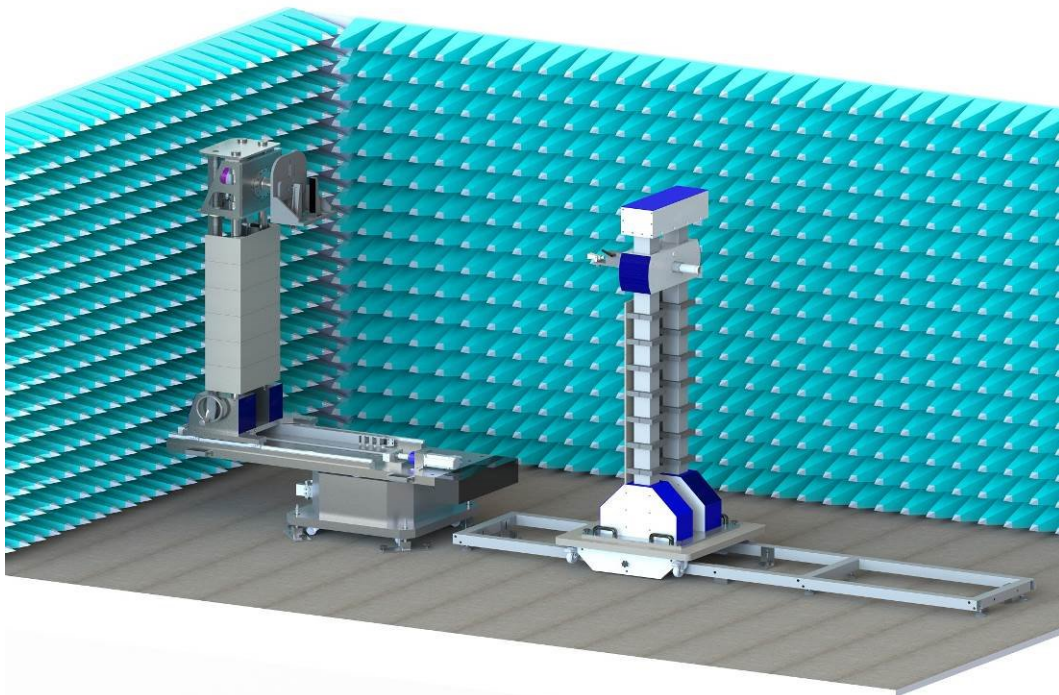

Features:

- For measurements of antennas and wireless devices

- Independent rotations of all motion axis

- Variable speed adjustments at all axis

- Possibility of operation in manual, semi-automatic and simultaneous remote control mode via IEEE 488.2 (GPIB bus) with the controller NCD using fibre optic control

- Readout by high accurate encoders

- Positioning accuracy up to 0.005°

- Use of reliable, long-lasting and maintenance-free components

- Integrated rotary joint for EUT and antennas available upon request

- Easy installation and implementation in existing chambers

Conical Cut Positioner

The state-of-the-art Conical Cut Positioning system is especially designed to provide smooth rotations of test objects in both theta and phi axis. The CCP system performs three-dimensional over-the-air radiation measurements of MIMO-enabled devices.
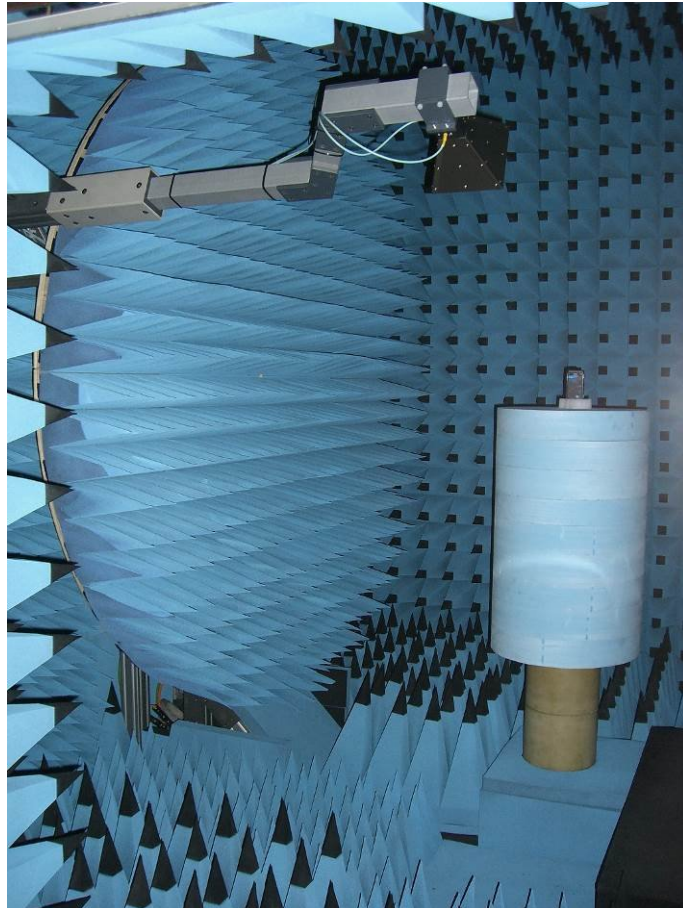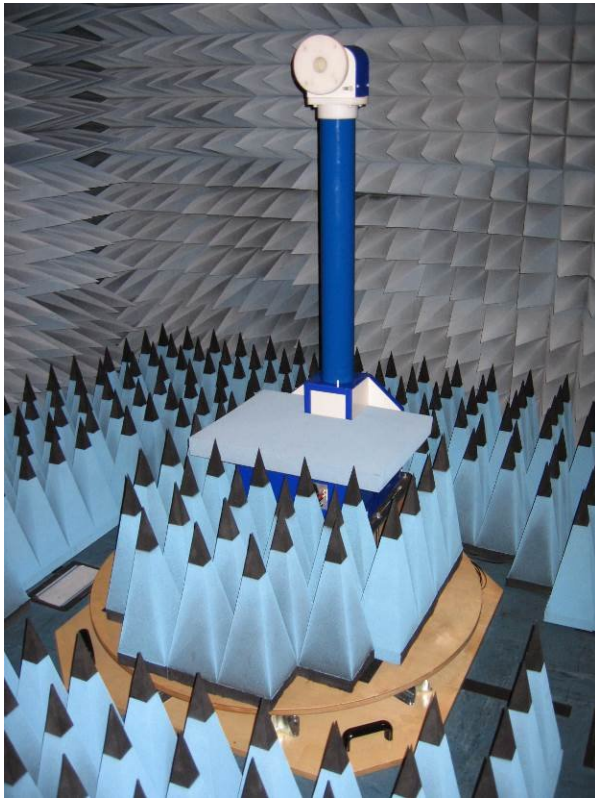

Specifications:

Construction		Dielectric antenna boom and AUT support stand
Drive system		Precision servo motors
Scan Radius	up to	2.5 m (other sizes available)
Rotating speed	up to	72°/sec (Phi axis), 10°/sec (Theta axis)
Rotating angle		360° (Phi axis), up to 330° (Theta axis)
Positioning accuracy		< 0.5° (calculated at outer edge of table top)
Load capability antenna		5 kg
Load capability DUT	up to	100 kg
Control cable		Fiber optic lines
Remote control via		LAN interface

Over The Air Positioner OTAP

The state-of-the-art **OTA P**ositioning system is especially designed to provide smooth rotations of test objects in both theta and phi axis.

The OTAP system performs three-dimensional over-the-air radiation measurements on handheld wireless devices, mainly mobile phones.
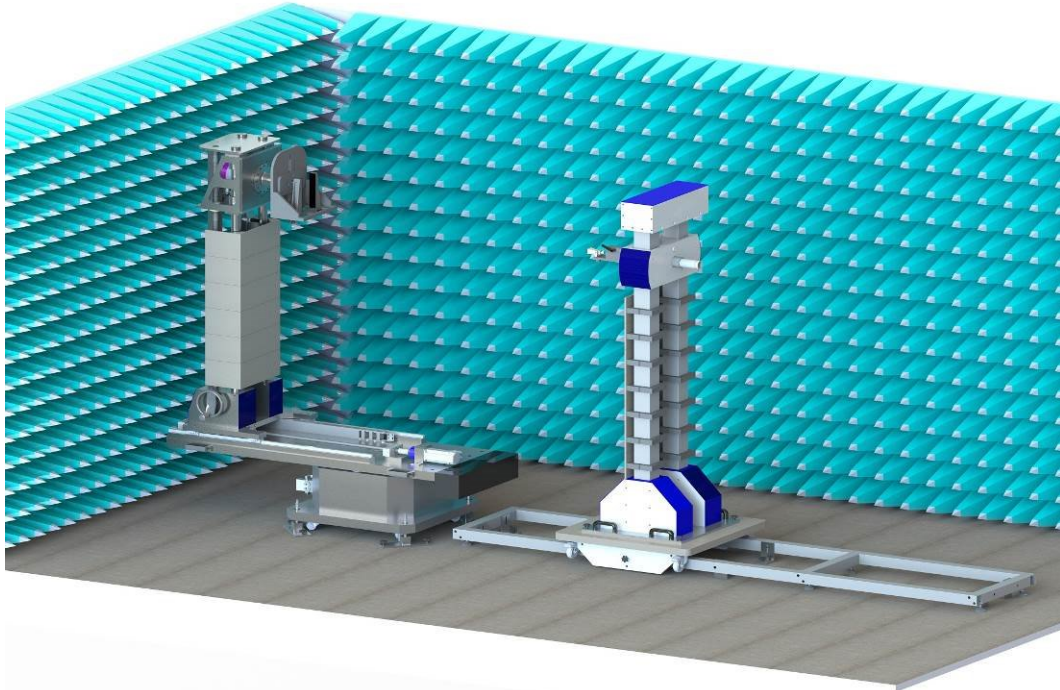

Specifications:

Construction		Dielectric antenna boom and AUT support stand
Drive system		Precision servo motors
Height of rotation axis		1.5 m standard (other sizes available)
Rotating speed	up to	3 rpm
Rotating angles		360°
Positioning accuracy		± 0.5°
Load capability DUT	up to	15 kg
Control cable		Fiber optic lines
Remote control via		LAN interface

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Antenna Positioners

The maturo antenna positioning systems are especially designed for antenna measurements in near-field or far-field. The vertical mast is either dielectric or from aluminium, which can be covered with absorbers.
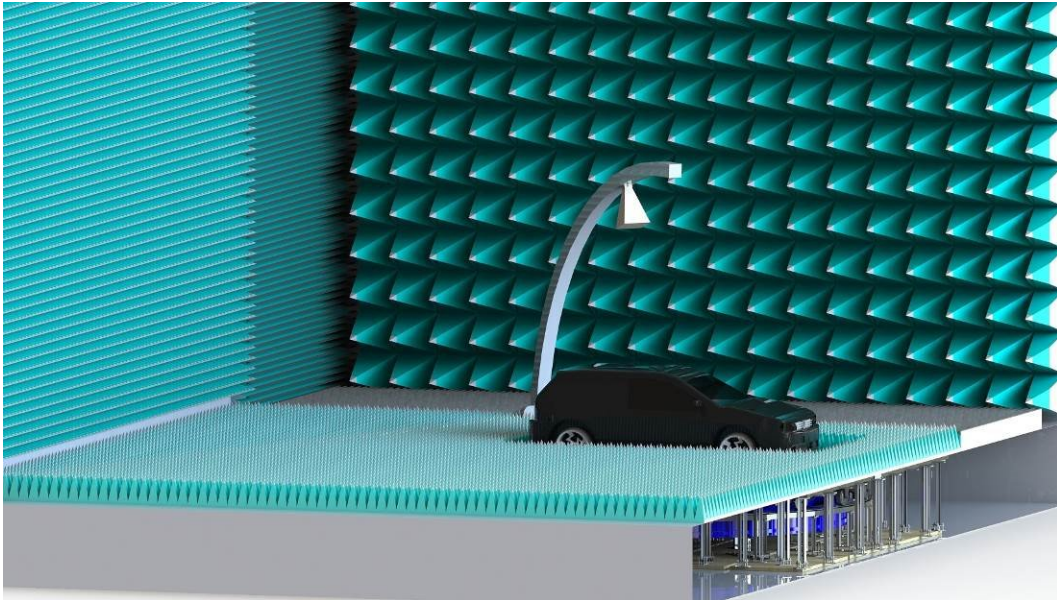

Specifications:

Construction		Aluminium or Dielectric AUT support stand
Drive system		Precision servo motors
Height of rotation axis		1.5 m standard (other sizes available)
Rotating speed	up to	3 rpm
Rotating angles		each 360°
Positioning accuracy		± 0.05°
Repeatability		0.02°
Load capability antenna	up to	50 kg
Load capability DUT	up to	100 kg
Control cable		Fiber optic lines
Remote control via		LAN interface

Spherical Gantry SG

The automatic measurement system Spherical Gantry in combination with a turntable is designed to measure the characteristics of wireless devices installed in or on a vehicle. In combination with the azimuth turntable the system allows fast, automated measurements of TIS, TRP, Gain, Efficiency and radiation patterns.

Specifications:

Construction		Dielectric or aluminium Gantry arm
Drive system		Precision servo motors
Scan Radius	up to	7.0 m (other sizes available)
Rotating speed		10°/sec
Rotating angle		360° (Phi axis), up to 160° (Theta axis)
Positioning accuracy		± 0.5°
Load capability antenna	up to	10 kg
Control cable		Fiber optic lines
Remote control via		LAN interface

Indoor and outdoor versions and turntables available

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Controller NCD for Antenna Positioners

The Multiple Control Device **NCD** is suited for the operation of up to 8 devices with multiple axis of motion. Those devices can be any combinations of antenna masts, turntables, cable guide rails or any other positioning equipment.

This controller NCD permits the operation in manual, semi-automatic and remote control mode via IEEE 488.2 (GPIB bus), or optionally other interfaces, of multiple devices simultaneously.

Figure: NCD with option "tip-up handle"

Technical Data

Data interfaces	IEEE 488.2 (GPIB-Bus) and Ethernet (Optional available: USB, RS232, etc.)
Transmission	Fibre optic cable (up to 2000 m distance)
Transfer rate	Real time 100 Mbit/s (fast Ethernet)
Display	5.7" TFT Touch screen-Display
Voltage	100-240 VAC, 50/60 Hz, single phase
Current consumption	approx. 70W
Fuse	T 0.63A
Size (W X D)	19" Rack mount and table unit (427 x 300 mm) (Optional with tip-up carry handle)
Height	3 HE (133 mm)
Temperature range	5°C - 40°C
Total weight	approx. 8 kg
Accessories	1.5 m power supply cable, Service manual

Brief description of NCD

The multiple control device NCD works with Agilent, Rohde & Schwarz, Teseq and other software. The IEEE 488 (GPIB) is available as a standard interface device. Other interfaces available upon request.

- **User-friendly, time-saving function keys**
  The function keys F1 to F10 allows the implementation of individual, customer-specific sequence programs for user-friendly, times-saving handling and operation. The individual programs can be stored and accessed by one function key.

- **Error analysis based on error codes**
  Diagnosis via USB interface possible
  Optional analysis via internet and Ethernet interface possible

- **USB interface**
  Updates easily implemented by USB stick
  Possibility to plug in a computer mouse and keyboard

- **Easy operation with touch panel**
  Fast and reliable operability based on touch panel technology
  Layout of touch screen display can easily be adjusted according to customers' request

- **Position keys**
  With the position keys Up/DOWN, CW/CCW and VER/HOR the Positioners can easily be moved in manual mode.

- **Real-time capable**
  Each program cycle will finished in the default time frame be no matter how many devices are controlled at the same time. Due to this feature no overflow of commands can happen when using fast remote computers.

- **Handheld control unit**
  Easy implementation of standard or customer-specific handheld control units possible

- **Precise Display Accuracy**
  The display resolution is highly precise with position readout increments of 0.1 mm respectively 0.01 degree.

Information presented enclosed is subject to change as product enhancements are made regularly. Pictures included are for illustration purposes only and do not represent all possible configurations.