

CORPORATE OUTLINE

Short Version

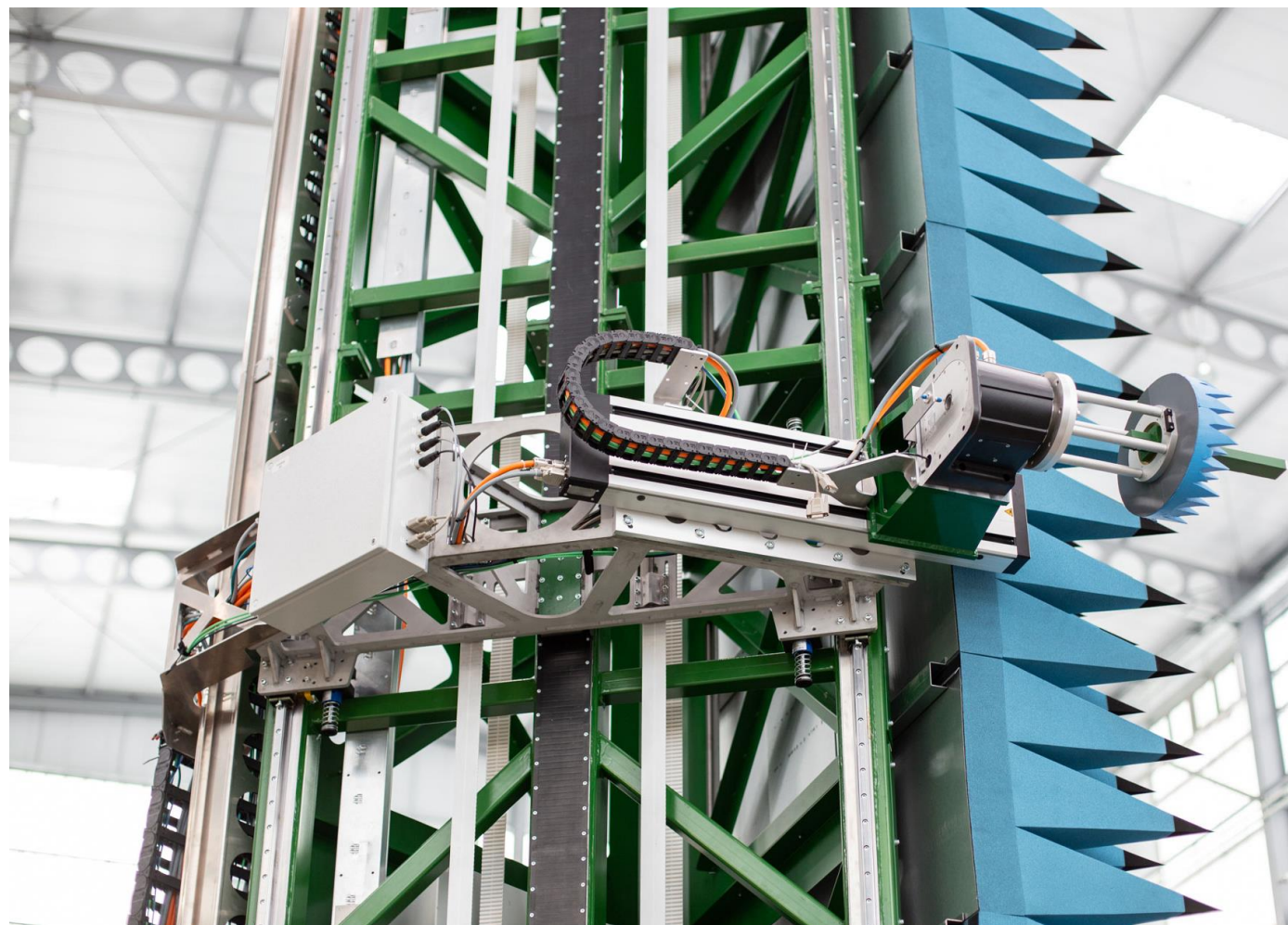
Where Innovations is Standard
Antenna, Radome & RCS Testing



02/02/2023

Who we are?

We are a Company
WHERE INNOVATION IS STANDARD
We provide TURNKEY solutions
& components for
active and passive devices and antenna
measurements



Antenna Systems is part this consortium

RF & EM Tech.

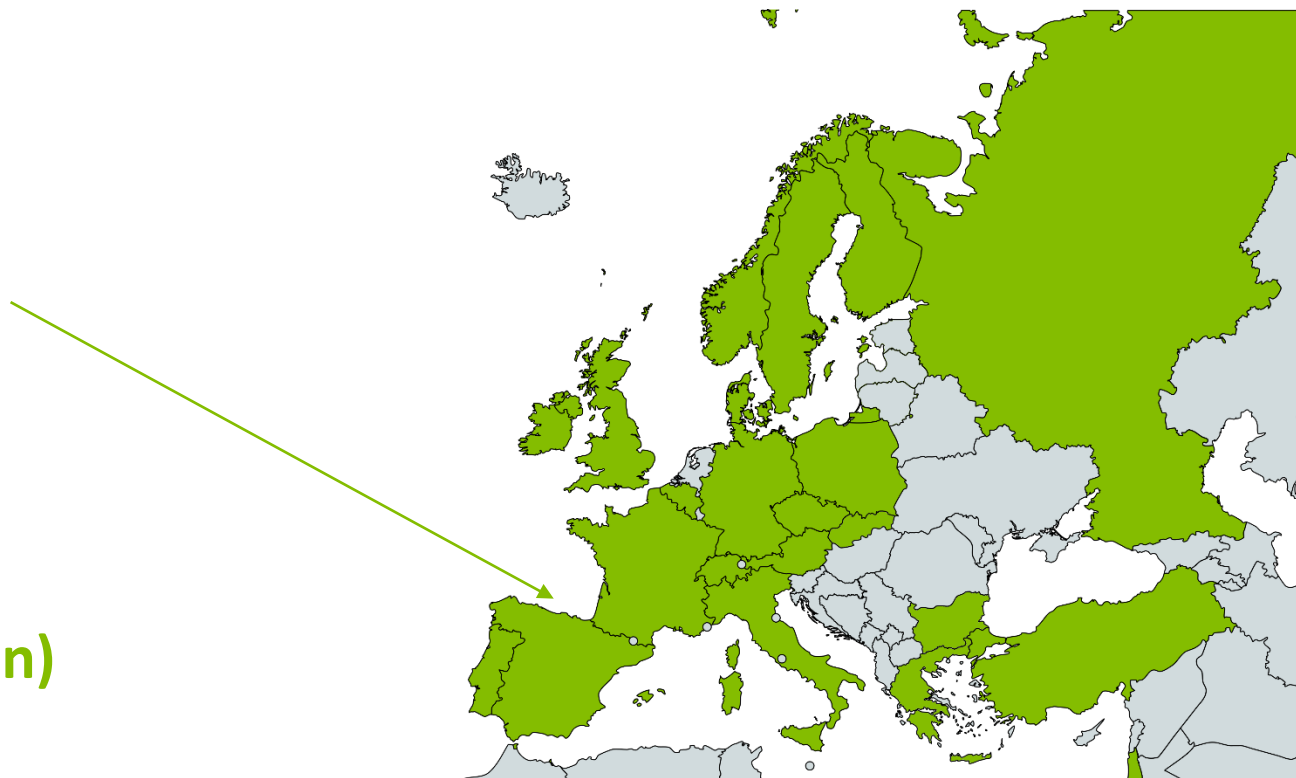


- Antenna Test Systems & chambers
- Passive Antennas & Probes



- Antenna Test Systems & chambers
- Passive Antennas & Probes

Antenna Systems Solutions Location



Corporate Offices: **Santander (Spain)**

Distributors and Representatives:

Europe | UK, Ireland, Italy, Spain, Portugal, France, Germany, Sweden, Finland, Poland, Turkey, Denmark, Czech Republic, Slovakia, Russia, Greece, Bulgaria

Rest of the World | South Africa, India, China, Japan, Korea, Israel, USA, Australia

ASYSOL Management Team



José Alonso
Chairman & Partner
(ex ESTEC-ESA)



Tony Sánchez
CEO (ex NSI-MI, Orbit
(MVG))



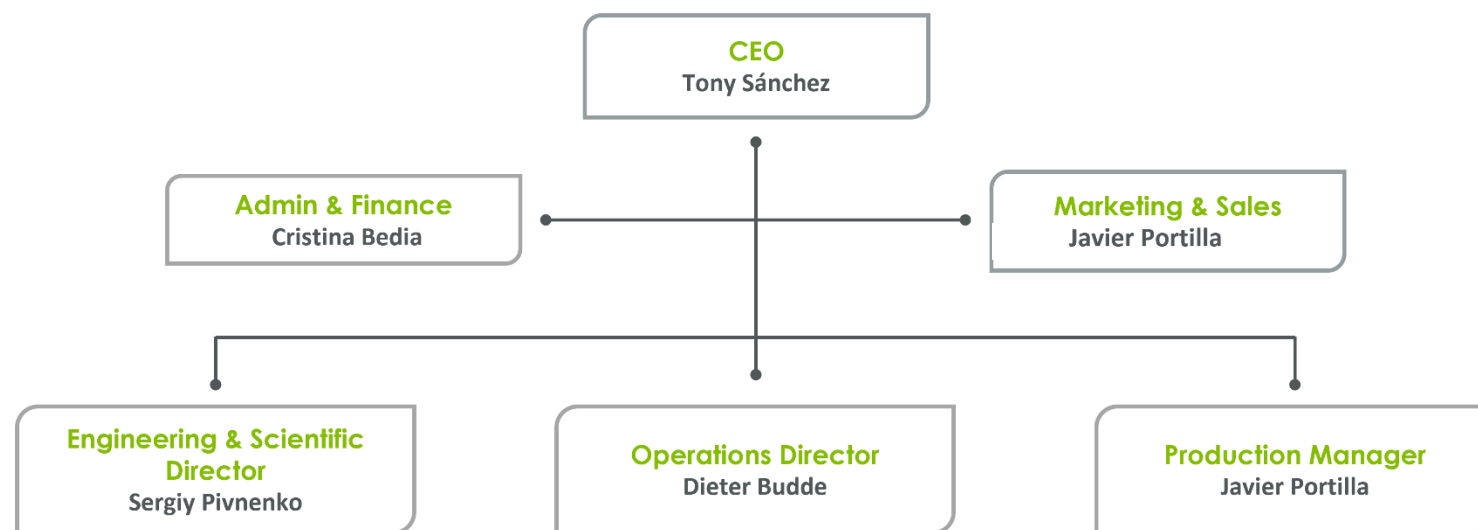
Javier Portilla
Business Unit
Director
(ex Airbus)



Sergiy Pivnenko
Engineering &
Scientific Director
(ex TUD-ESA)



Marc Dirix
Deputy Engineering
& Scientific Director



Antenna Systems Solutions Customer Base

Worldwide turnkey solution provider



Ericsson (Sweden)

ART Advanced Radar Technologies (Spain)

Airbus Space (Spain)

University of Cantabria (Spain)

Indra (Spain)

GMR-UPM (Spain)

University of Seville (Spain)

Universidad de Valencia (Spain)

Universidad de Oviedo (Spain)

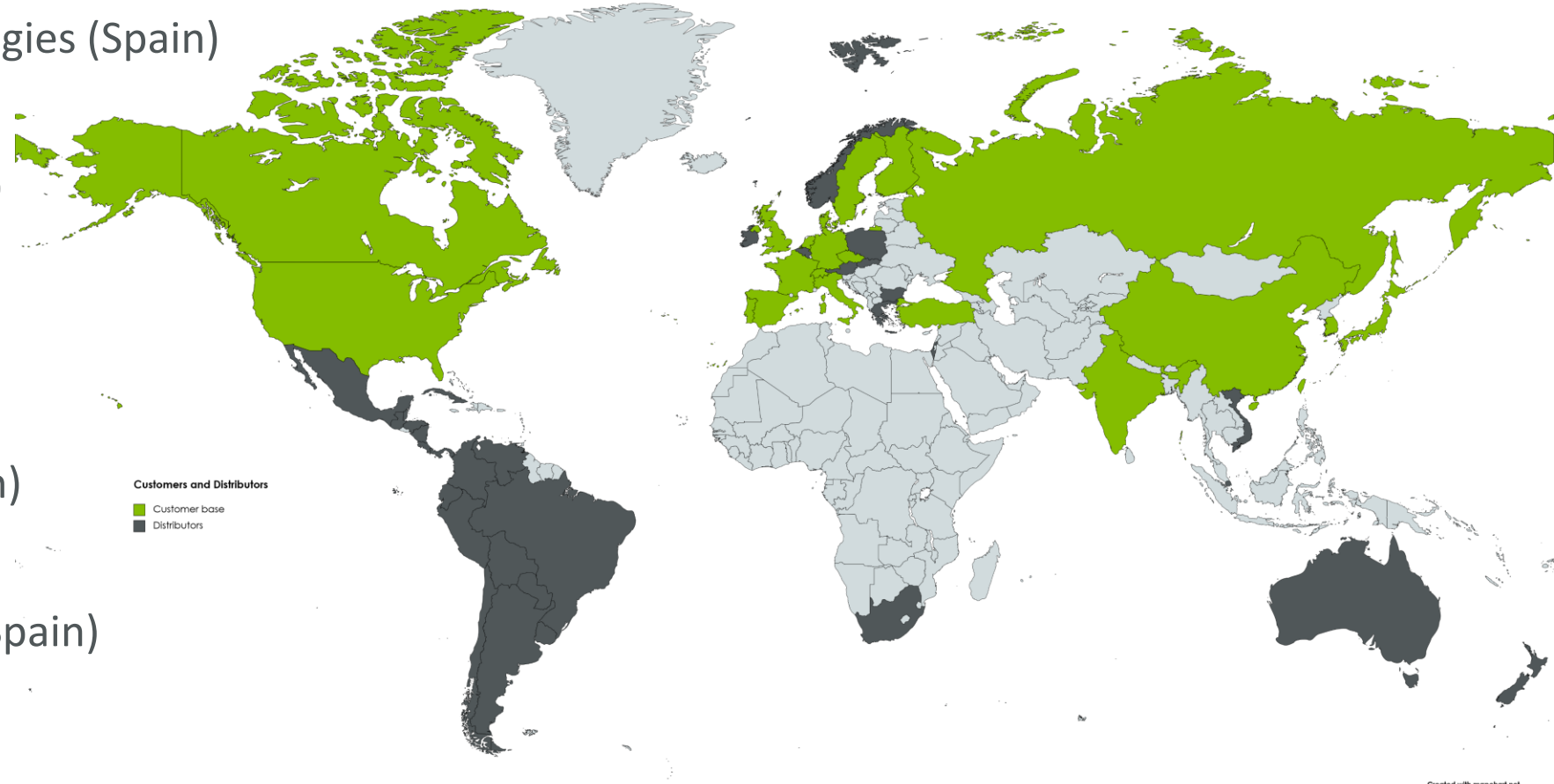
Universidad Rey Juan Carlos (Spain)

EMITE (Spain)

TTI (Spain)

CEA GRENOBLE (France)

Orange Labs – University of Nice (France)



Antenna Systems Solutions Customer Base

Worldwide turnkey solution provider



THALES (UK, France)

University of Kent (UK)

ALL-Space (UK)

Cambium Networks (UK)

CTG (UK)

Catapult Space Applications (UK)

University of Aveiro (Portugal)

Huawei (Italy)

Telecom Italia (Italy)

METASENSING (The Netherlands)

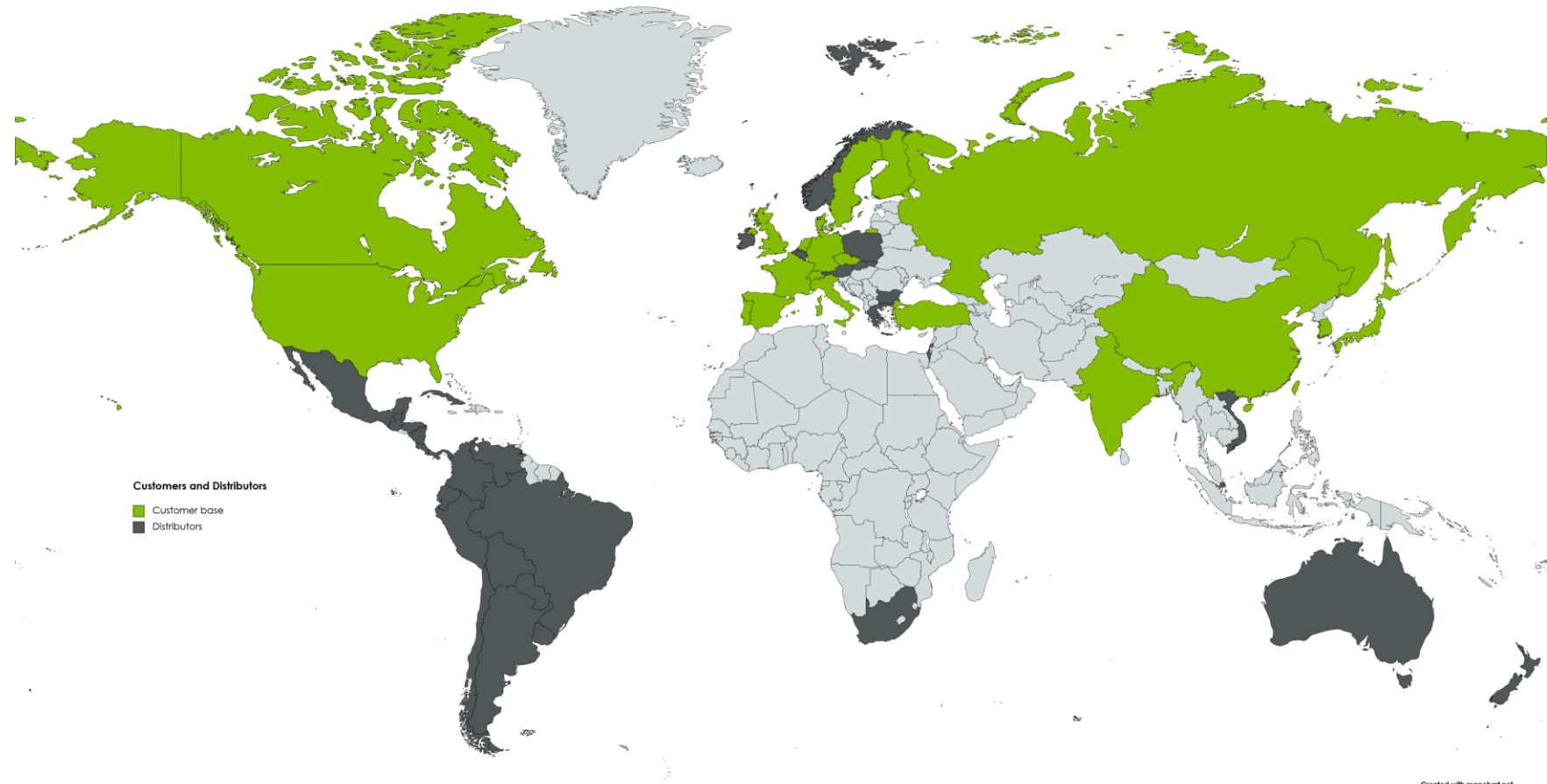
Testar (The Netherlands)

Huawei (Germany)

QEST (Germany)

University of Aalborg (Denmark)

University of Aalto (Finland)



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Antenna Systems Solutions Customer Base

Worldwide turnkey solution provider



Chalmers University of Technology (Sweden)

SAAB DYNAMICS (Sweden)

KTH (Sweden)

Filtronics (Sweden)

ERA (Czech Republic)

Viasat (Switzerland)

Swiss to 12 (Switzerland)

KETZ (Russia)

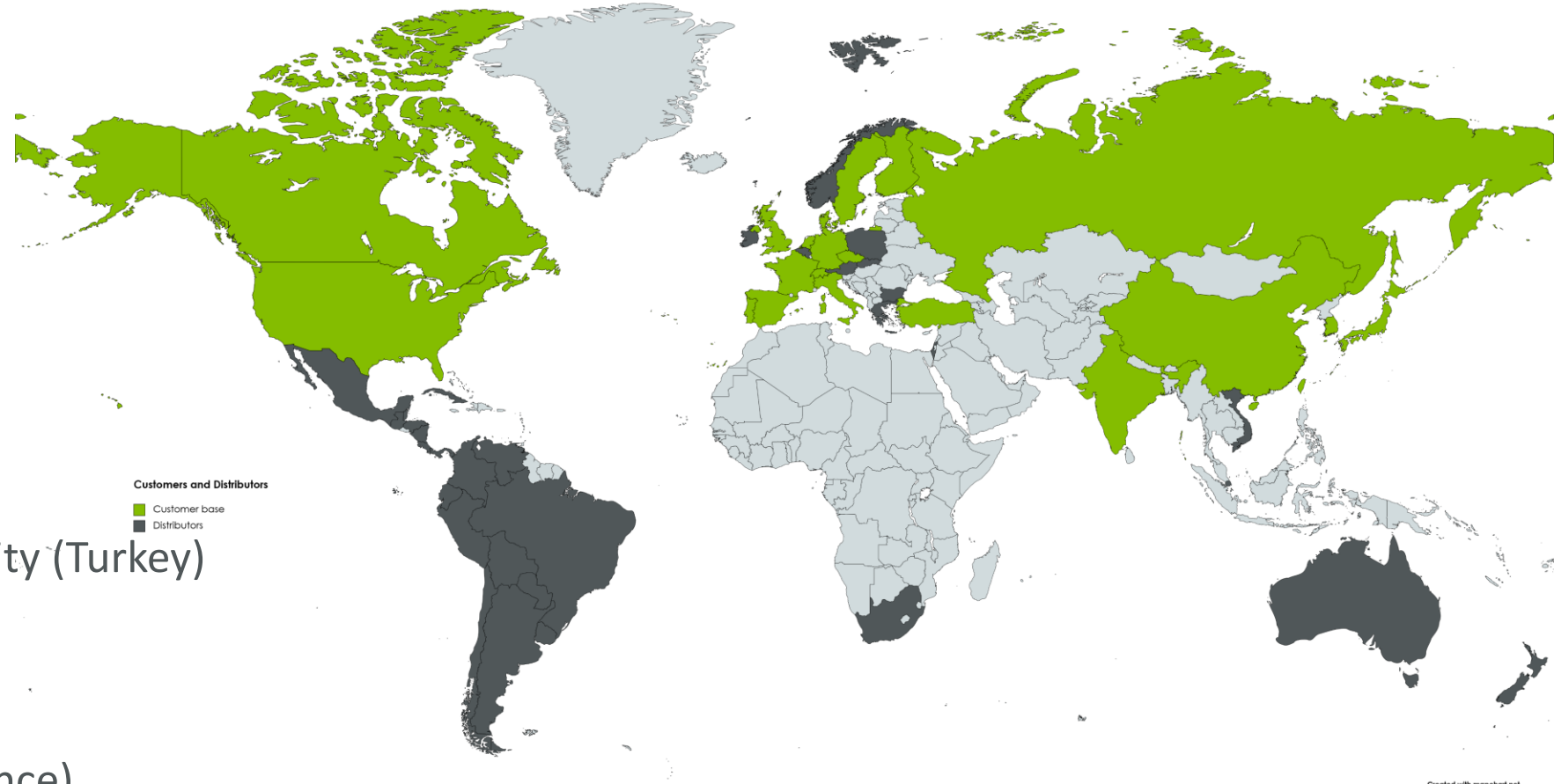
Middle East Technical University (Turkey)

Tubitak (Turkey)

Roketsan (Turkey)

University of Montpellier (France)

University Marne La Vallee (France)



Antenna Systems Solutions Customer Base

Worldwide turnkey solution provider



FCC (USA)

Cisco (USA)

Boeing (USA)

Lockheed Martin (USA)

Qualcomm (USA)

Amazon (USA)

Epirus (USA)

Bluflux (USA)

Huawei (Canada)

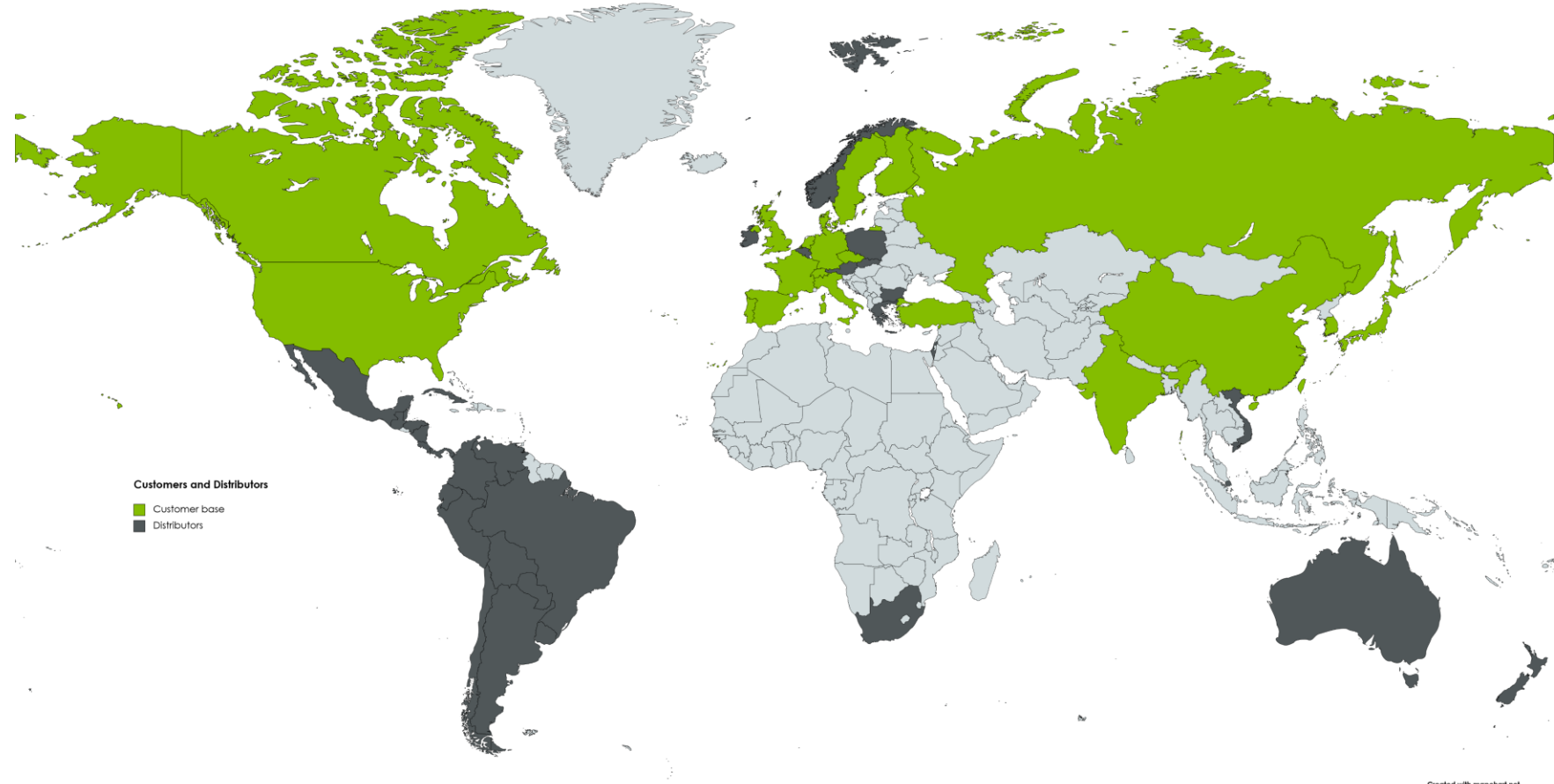
Arcadyan (Taiwan)

CAICT (China)

Panasonic (Japan)

RRA (Korea)

Bahrat Dynamics Ltd (India)



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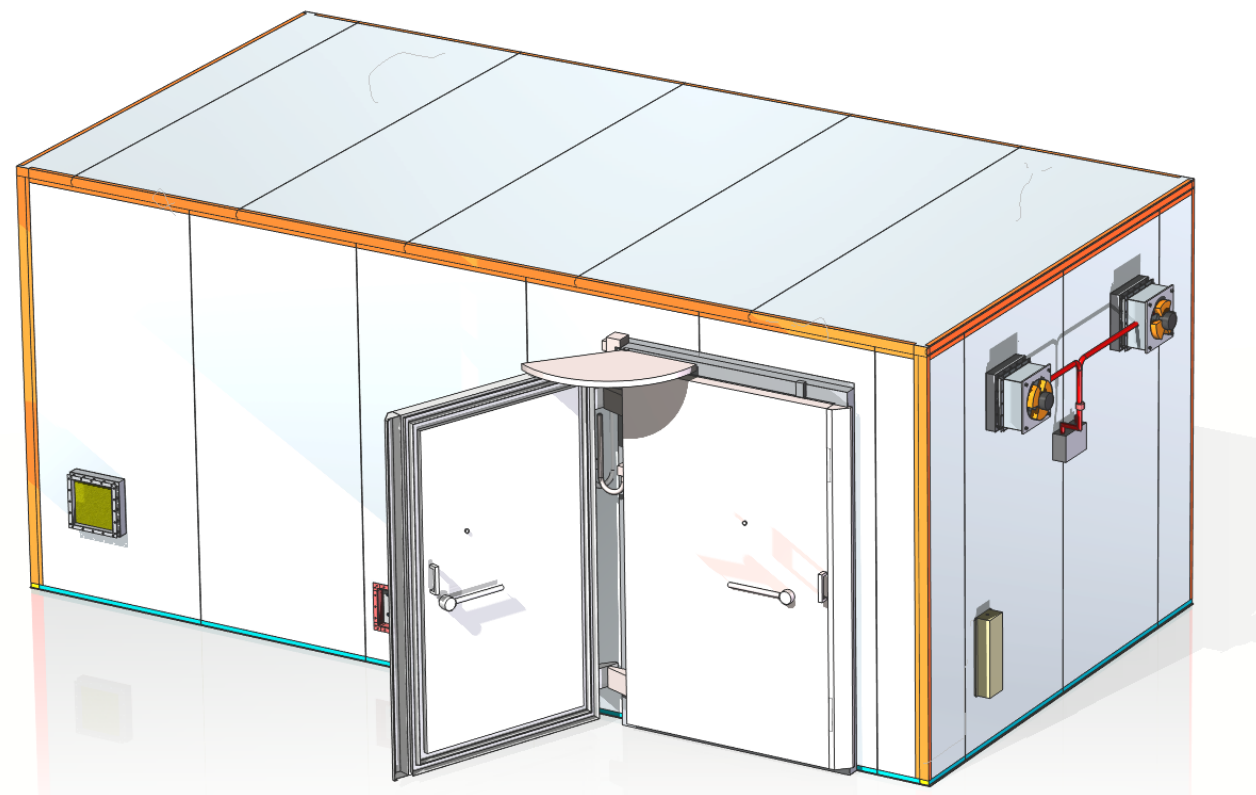
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Worldwide turnkey solution provider

Full turnkey solution provider, including shielding & absorbers design and layout

ASYSQL works with all worldwide leading suppli

- Albatross (sh.)
- Emerson & Cuming (abs.)
- JV Micronics (sh. & abs.)
- ETS Lindgren (sh. & abs.)
- Comtest (sh. & abs.)
- Siepel (sh. & abs.)
- Frankonia (sh. & abs.)
- TDK (abs.)
- NTD, GR, Dymstec (sh.)



ASYSQL ensures seamless interfacing with shielding and absorbers

ASYSOL Technology Capabilities

- Planar Near-Field Ranges
- Cylindrical Near-Field Ranges
- Far-Field/Spherical Near-Field Ranges (Roll/Azimuth and Gantry)
- Compact Antenna Test Ranges (FF, CF and LF)
- Reconfigurable Test Ranges (CATR+NF)
- RADOME Test Systems (CATR based)
- 5G Test Systems
- RCS Test Systems (Gated CW and Short Pulse based)
- Customised Solutions
- Probes and Standard Gain Antennas
- Motion and Control Components
- Full RF Configuration Analysis
- Acquisition and Analysis Software
- Training and Teaching
- In-house Testing Capabilities

Industry Standard Motor and Control Technology



- Industry standard components
- Distributed control, fastest available bus technology for highest measurement speed and highest measurement accuracy
- Compact servo brushless motors
- Direct absolute encoders
- Remote access to system status for service assessments
- Maintenance free In-house Testing Capabilities

Control Equipment ASYCONT Series



State of the art controller (ASYCONT-300 / 600)

- Driving stepper and servo motors
- Supporting incremental and absolute encoders
- Real-Time communications: Powerlink & CANbus
- Control of up to 16 axes, both sequentially and/or simultaneously



Local Control Unit (LCU-1000)

- Wireless tablet based
- Remote position mode for motion control
- Remote manual mode for motion control
- Main controller screen replica

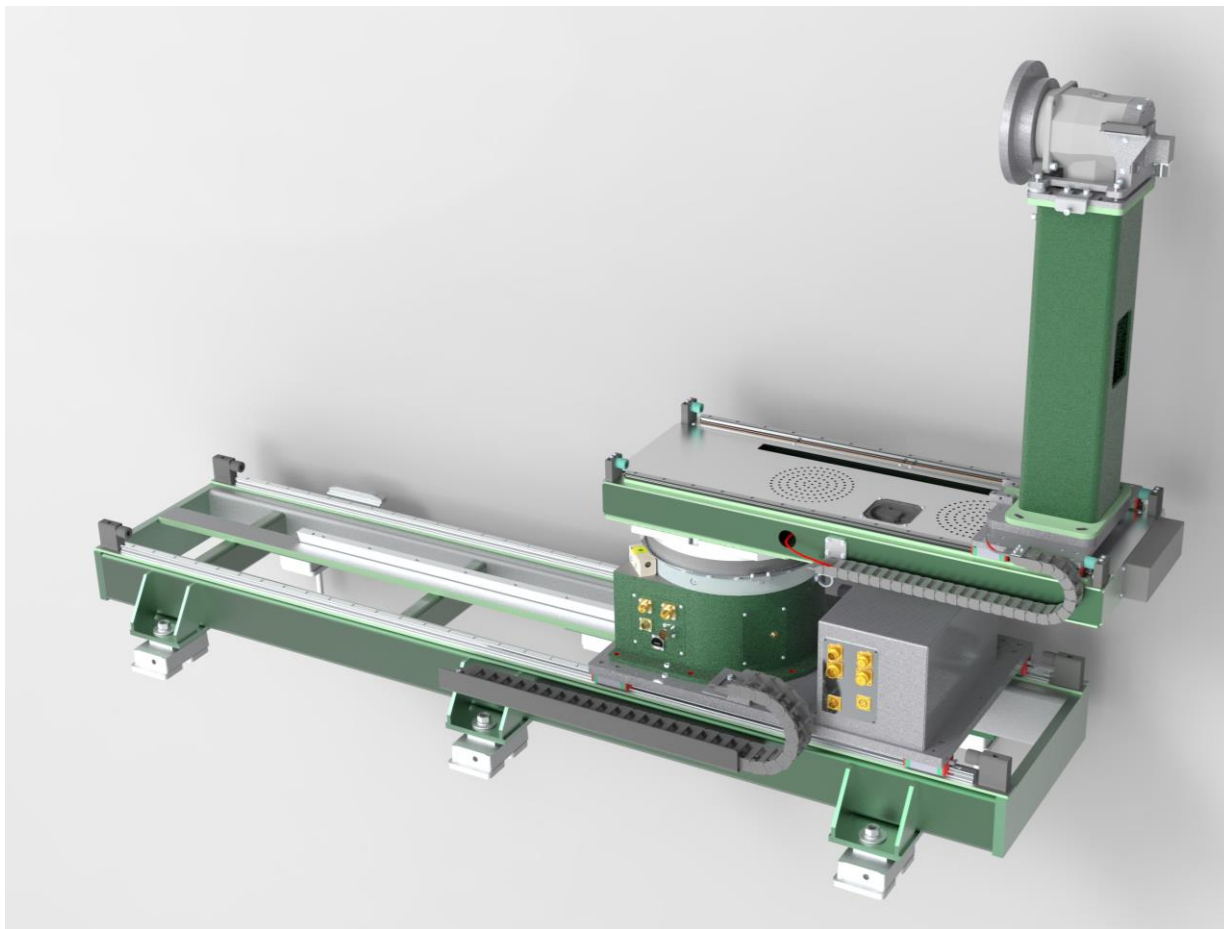


Azimuth Positioners

- High speed and torque
- Absolute direct encoders
- Integrated slip rings (12 channels, high-power, ethernet option) and rotary joints (up to 67GHz, dual channel)
- Loads up to 10Tn
- Rotation speed up to 10rpm
- Standard position accuracy 0.02° , high-accuracy options better than 0.005°



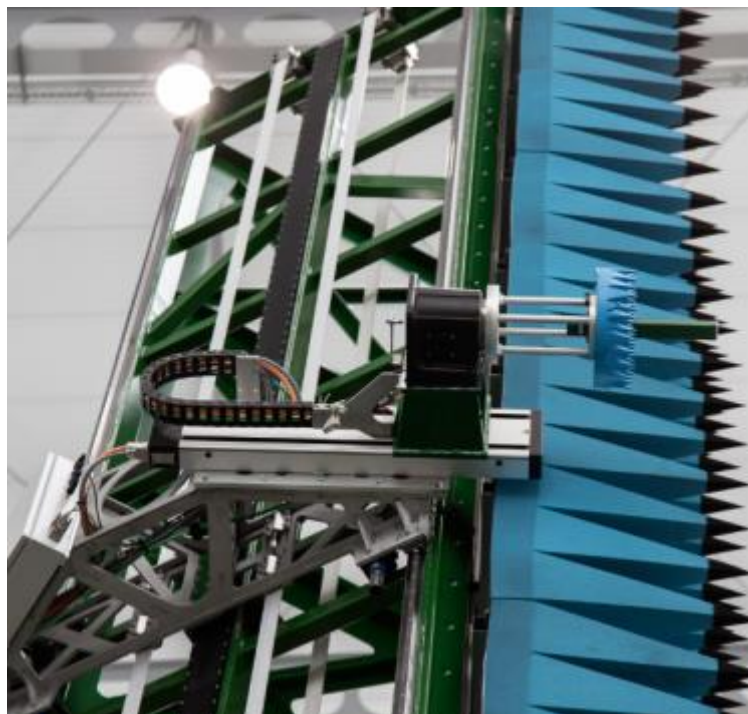
Positioner Stack-ups



- Guaranteed orthogonality 0.02°
- Axes intersection 0.05mm or less
- Tilted mast for AUT pick-up
- Low cross-section roll head
- Global positioning accuracy guaranteed
- Customized sizing
- Counterweight options available

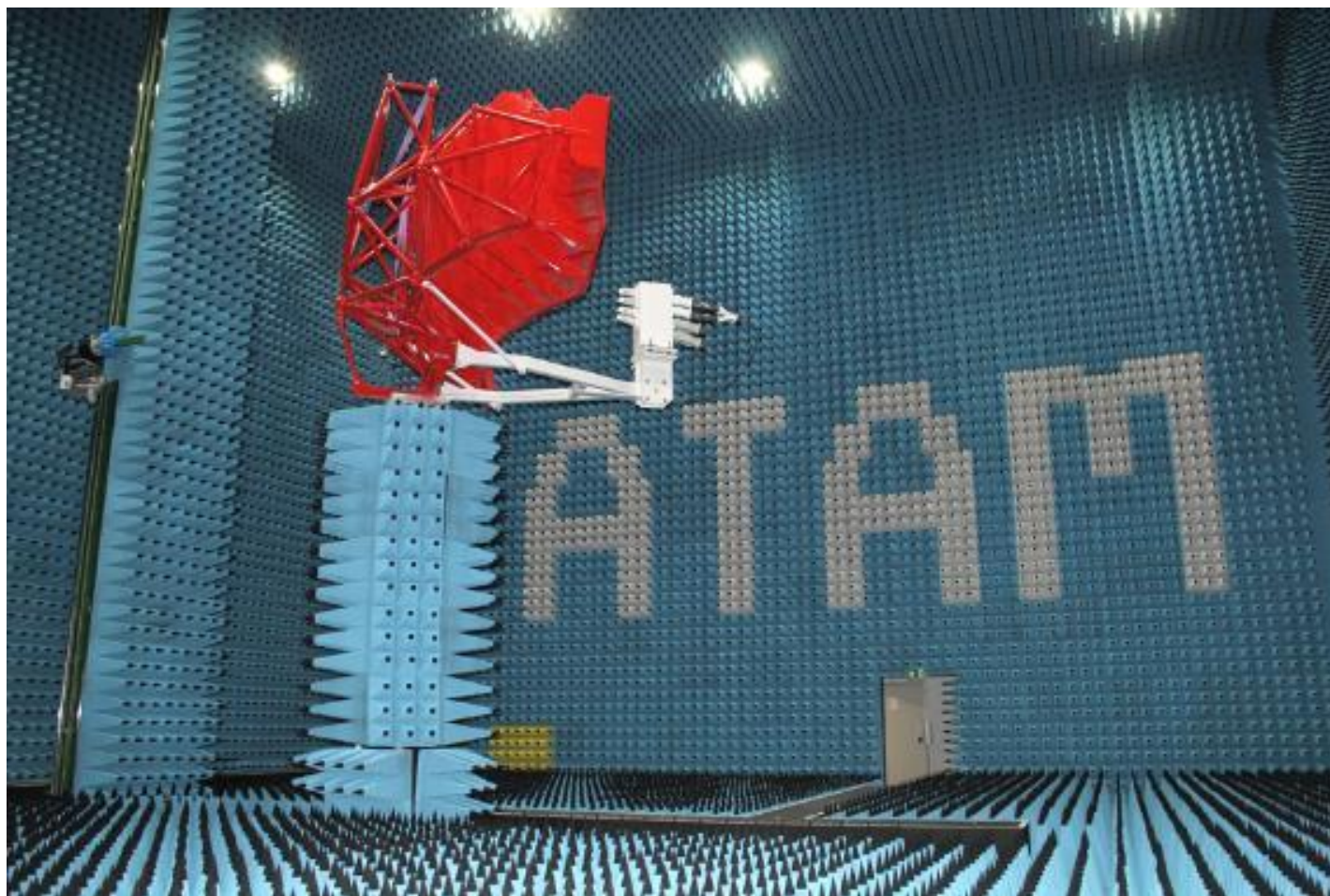
Planar Near-Field Test Ranges

- High accuracy planarity
 - uncorrected | 0.15mm
 - corrected | < 0.06mm
- Scan area up to 40.0m x 17.2m
- Inverted “T” frame design
- X axis speed: 400mm/sec
- Y axis speed: 700mm/sec
- Absolute encoders as standard
- Improved tower design to minimize scattering
- Simultaneous dual polarized acquisitions



Cylindrical Near-Field Test Range

- High accuracy
 - uncorrected | 0.15mm
 - corrected | < 0.06mm
- Scan Length: up to 17.2m
- Y axis speed: 700mm/sec
- Absolute encoders as standard
- Simultaneous dual polarized acquisitions



Spherical Near-Field Test Ranges: Phi over Theta

- Antenna load: up to 1500Kg
- Rotation speed:

Azimuth	up to 3rpm
Roll	up to 5rpm
- Position repeatability: 0.02°
- Simultaneous dual polarized acquisitions



Vertical Spherical Near-Field Automotive Test Range



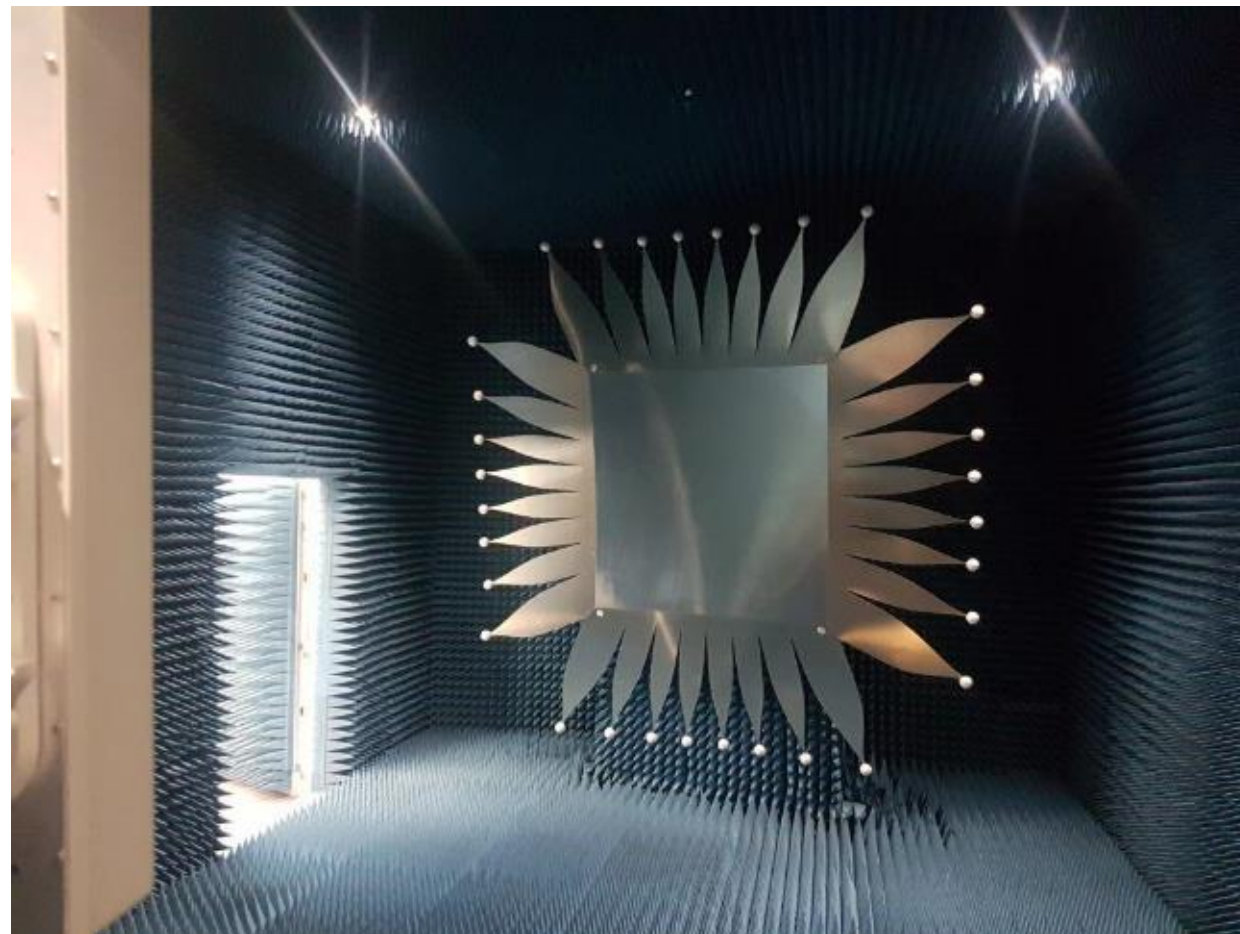
- Gantry Arm
- Simultaneous dual polarized acquisitions



Axis	Speed	Accuracy
Azimuth	up to 2rpm	0.02° RMS
Elevation	up to 2rpm	0.02° RMS without correction 0.005° RMS with correction
Roll	up to 5rpm	0.07° RMS

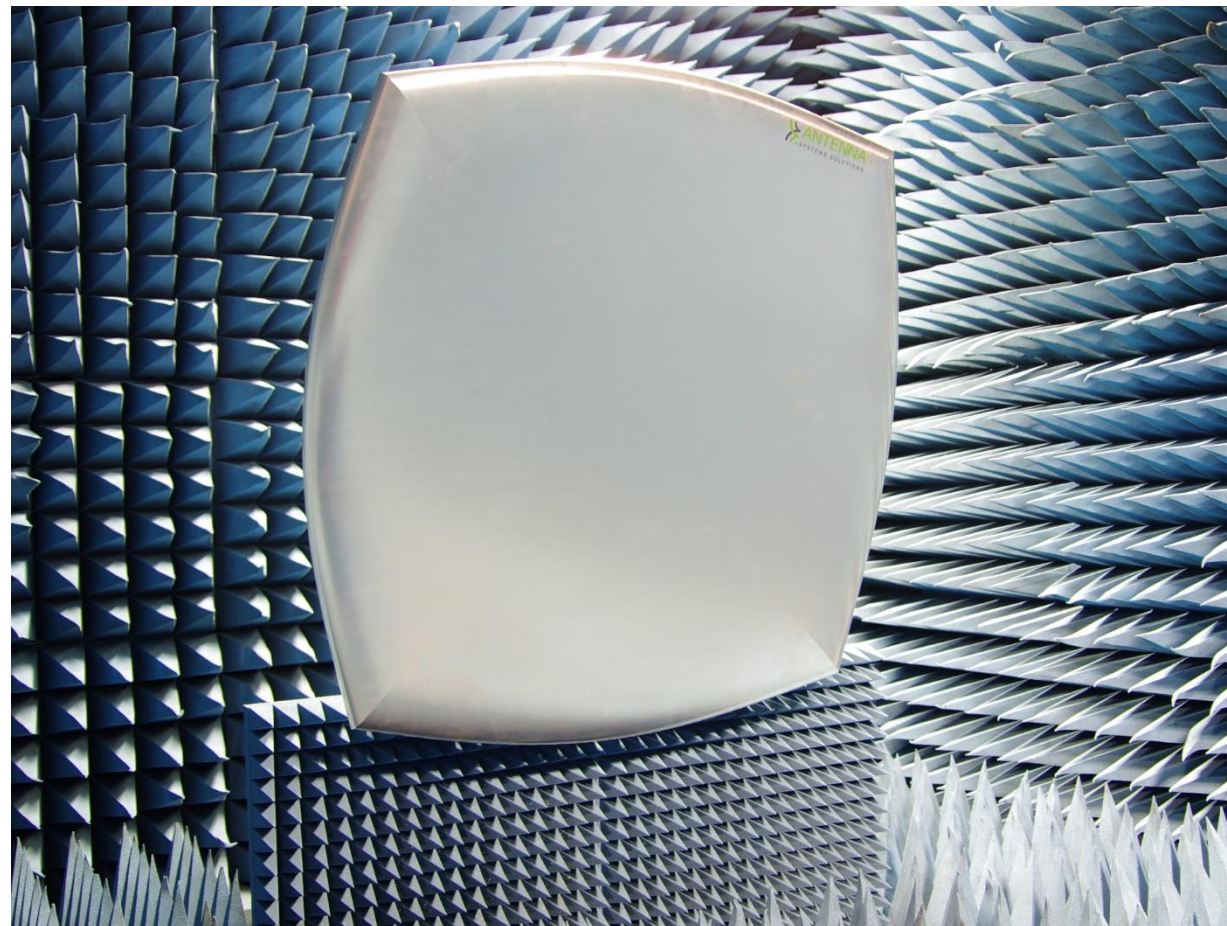
Compact Antenna Test Ranges

- Serrated and rolled edge single reflector series (500MHz to 200GHz+)
- Maximum quiet zone size of 6m
- Larger or custom size and shape upon request
- Reflectors machined from solid aluminum
- Provision for single or dual liner polarized feeds
- Cost-effective solutions



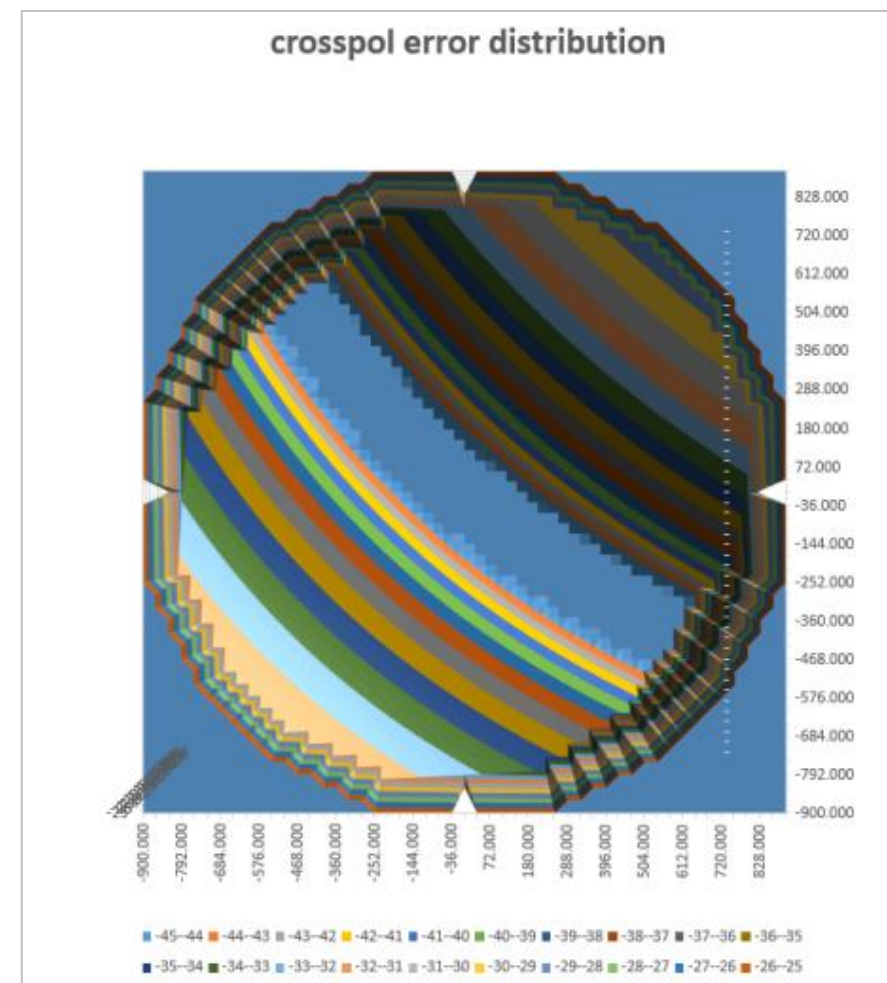
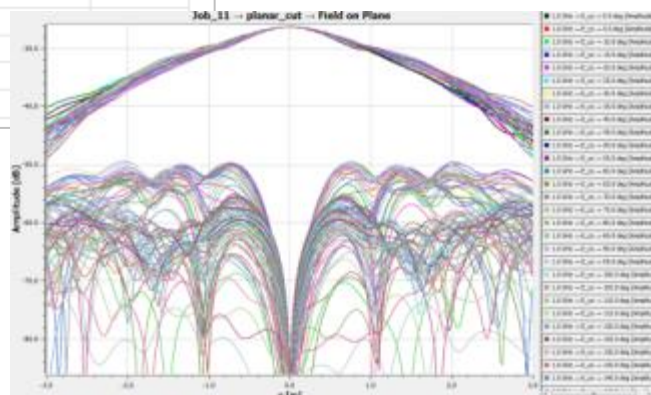
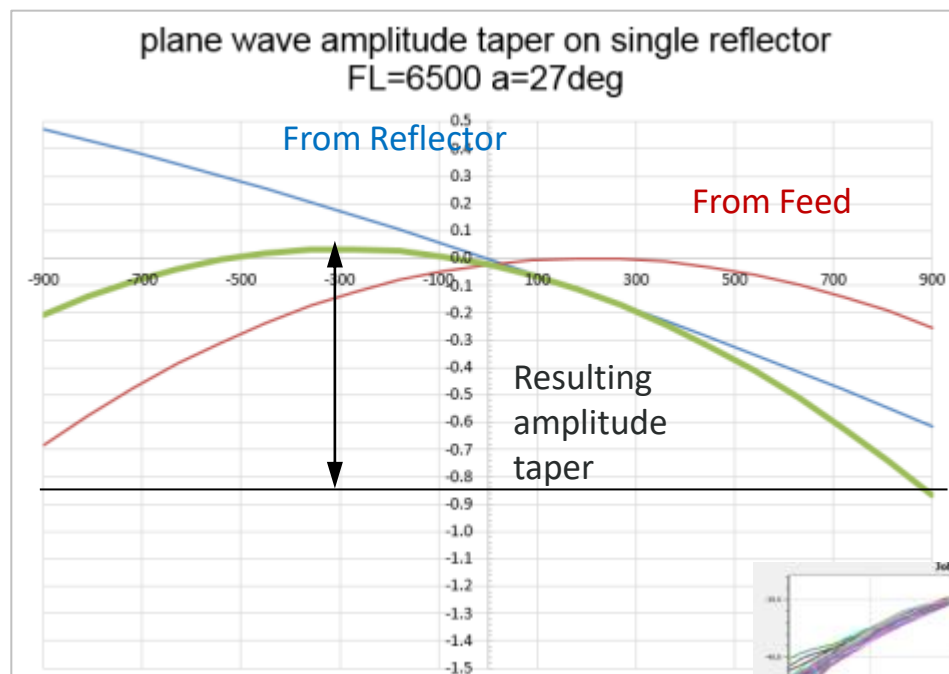
Compact Antenna Test Ranges

- Serrated and rolled edge single reflector series (500MHz to 200GHz+)
- Maximum quiet zone size of 6m
- Larger or custom size and shape, upon request
- Reflectors machined from solid aluminum
- Positioner stack-up with electromagnetic low profile
- Provision for single or dual liner polarized feeds
- Cost-effective solutions



Compact Antenna Test Ranges

Performance prediction by simulation

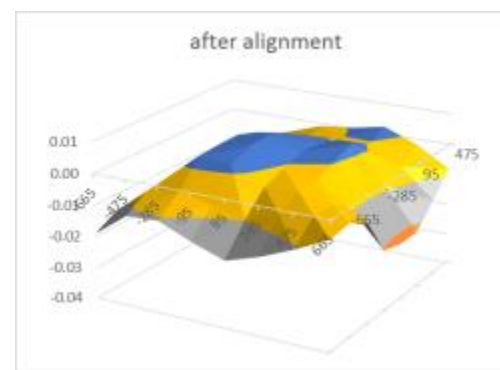


Reflector Manufacturing & Verification

Outstanding surface accuracy

Verified Surface Accuracies 15 μ m pk to pk delivering a maximum frequency of operation of 300GHz within a 1m Quiet Zone!

		deviation after alignment in mm	positions in X							
			1	2	3	4	5	6	7	8
			-665	-475	-285	-95	95	285	475	665
positions in Y	1	-665	-0.019	-0.011	-0.011	-0.015	-0.019	-0.015	-0.011	-0.006
	2	-475	-0.015	-0.007	-0.005	-0.007	-0.010	-0.006	-0.004	-0.005
	3	-285	-0.020	-0.006	0.003	0.002	-0.003	-0.002	-0.005	-0.008
	4	-95	-0.024	-0.005	0.003	0.005	-0.001	-0.002	-0.009	-0.021
	5	95	-0.027	-0.007	0.004	0.005	0.002	0.000	-0.010	-0.022
	6	285	-0.025	-0.011	0.001	0.003	0.001	0.003	-0.009	-0.022
	7	475	-0.022	-0.013	-0.006	-0.002	0.000	0.000	-0.006	-0.015
	8	665	-0.013	-0.008	-0.004	-0.001	0.000	0.002	-0.002	-0.008



complete Reflector

Min: -0.027 mm

Max: 0.005 mm

p-t-p: 0.032 mm

RMS: 0.008 mm

quiet zone only

Min: -0.010 mm

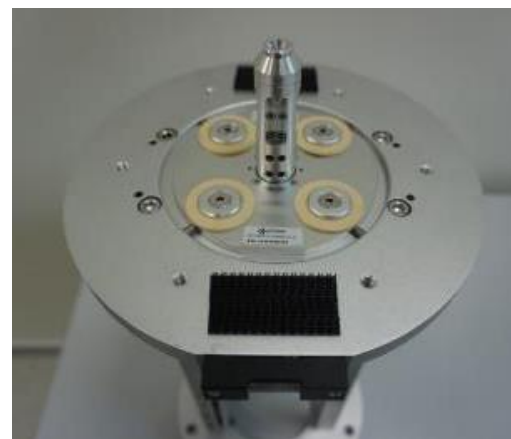
Max: 0.005 mm

p-t-p: 0.015 mm

RMS: 0.005 mm

Cylindrical Probes/Feeds ASY-CWG-(S/D) Series

- Application: **spherical near-field and CATR**
- Rotational symmetric pattern
- Very low cross-polar radiation
- ASYSOL standard interface for optimal alignment
- Optional dual polarized
- Corrugated aperture (choke)
- From 500MHz up to 170GHz
- More than 500 units sold worldwide!!



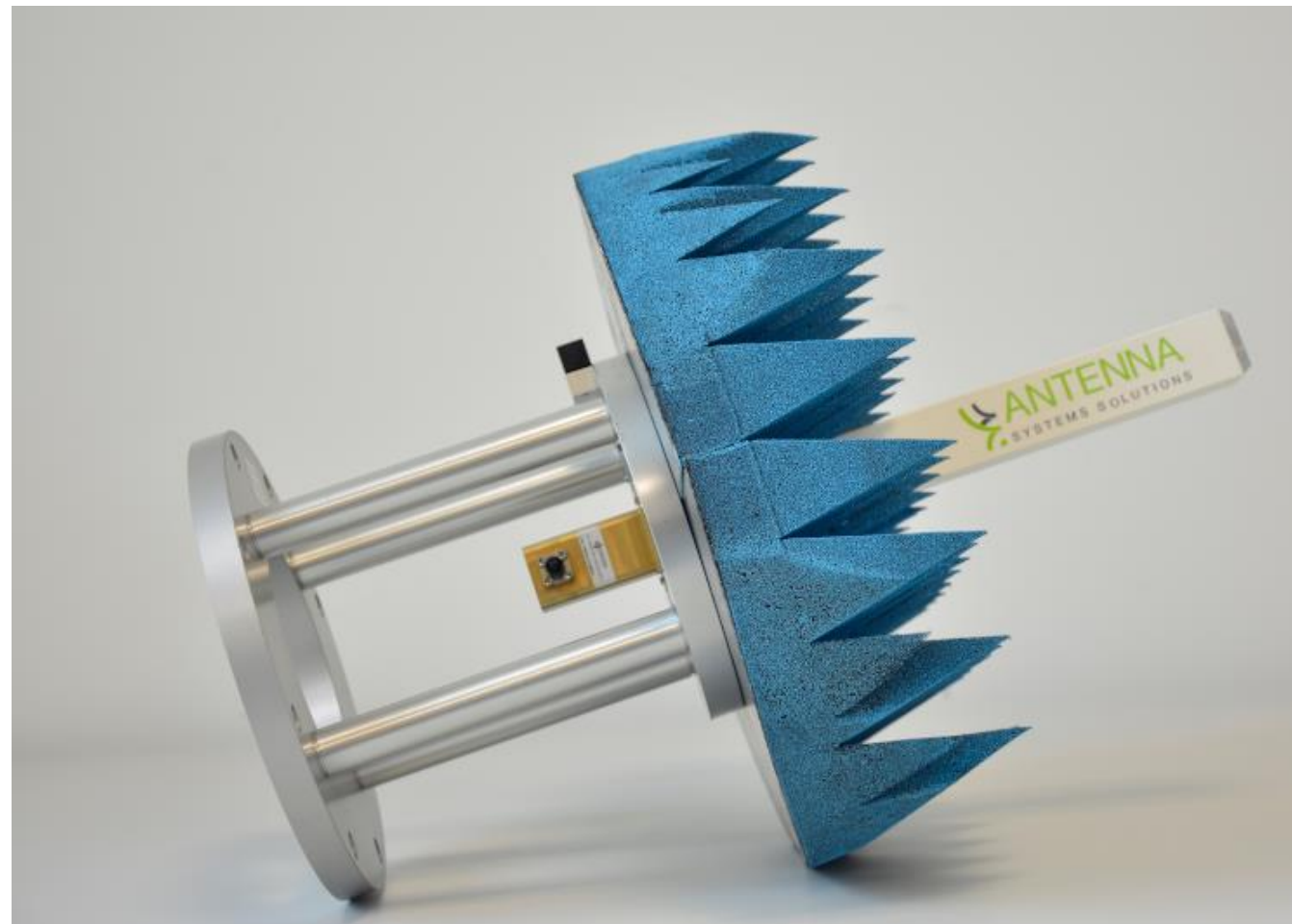
Standard Gain Horns ASY-SGH Series

- Very low on axis cross-polar radiation
- Standard ASYSOL circular interface
- Lightweight for ease of handling
- Standard spirit level
- Low error aperture phase
- More than 300 units sold worldwide!!



Rectangular Probes ASY-RWG Series

- Application: planar and cylindrical near-field measurements
- Low diffraction effect
- Low loss and high efficiency
- Standard ASYSOL circular interface
- Waveguide input for standard waveguide bands
- Lightweight for ease of handling



ASYSQL Customer Support

ASYSQL provides Warranty, Maintenance, Support and Training services

Warranty:

- Standard COTS products, long life cycle (> 10 years)
- Spares kept at ASYSOL or even at local distributors for fast response
- Typical spares: Rotary Joints, motors, drives, sliprings

Maintenance:

- Alignment and calibration services, provided either by ASYSOL or qualified and trained staff from local distributors
- Remote alignment & validation successfully completed due to Covid 19 restrictions!!

ASYSQL Customer Support

ASYSQL provides Warranty, Maintenance, Support, and Training services

Support:

- Fast response e-mail and phone support for system & software operation
- Regular software and firmware upgrades.

Training:

- Full training on Antenna Measurement Theory as well as ASYSOL Systems Operation during installation and validation
- ASYSOL regularly takes part in workshops and conferences worldwide. EuCAP, AMTA and many more
- we can arrange on-site support and training anytime!

ASYSOL Excellence

- Outstanding technical know-how and RF capabilities
- Agile and innovative organization
- Dynamic and customer-focused team, multicultural, worldwide located (Spain, Germany, Denmark, Holland...)
- Superior mechanical design and accuracy for positioners, scanners and reflector systems
- Excellent customer satisfaction
- Experts in customization and adapting to existing facilities

Your partner of choice

Flexible, Reliable & Accurate

Corporate Office

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