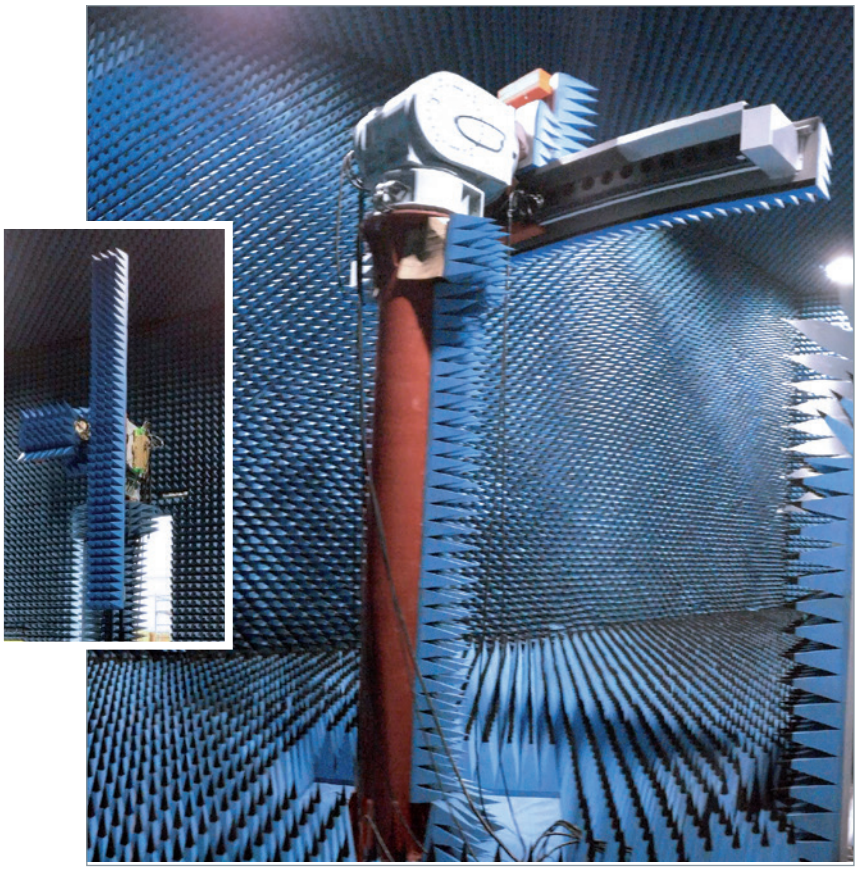
Field Probes

AL-4606 • AL-4607 • AL-4608

Field Probes are used to evaluate the extraneous signals in the area near a DUT (Device Under Test) due to reflections, other transmitting sources, etc. Field Probes are applied upon installation and set-up of Compact Ranges for optimal verification of the (size/space of the) quiet zone.

The Probe is set on a polarization rotary positioner which is installed on a linear positioner, in turn mounted on a second polarization positioner. Thus, a circular area can be observed at any location in any desired polarization.
The evaluation is conducted by placing the probe in one polarization position, on one end of the linear axis which is rotated in the opposite direction via the polarization positioner below it. For example, if the probe is in vertical polarization at a given position, and the Field Probe rotates 30°, then the probe itself rotates -30° to retain the same vertical polarization. The probe polarization positioner serves to sample the field at several polarizations at any given point.



Applications

- Evaluation of Quiet Zone

Product Highlights

- Custom lengths available
- Manual & motorized models
- Vertical loads from x to y kg
- Precision linear bearings
- Rigid, durable mechanical construction
- Low deflection

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Specifications - Field probes

PARAMETER	UNITS	LIGHT DUTY			MEDIUM DUTY			HEAVY DUTY				
		AL-4606-4-9	AL-4607-4-10	AL-4607-4-11	AL-4607-4-6	AL-4607-4-7	AL-4608-4-8	AL-4607-4-15	AL-4608-4-14	AL-4608-4-13	AL-4608-4-12	AL-4608-4-5
Dimensional Drawing Number	DCD	213-1037	213-1351	216-0570	212-0586-1	212-0586-2	212-0586-4	D1300479	217-1174	FPU01A100A00_ICD		29-9800
OPERATIONAL												
Travel	ft		+/-1 ft									
	m	+/-500	+/-304.8	-50/+190	+890 / -610	+/-750	+/-1500	+/-1000	+/-1500	+/-1700	+/-3800	R 10 M
Vertical Load	lbs											
	kg											
Fore-Aft Bending Moment	ft-lbs											
	kg-m											
Side Bending Moment	ft-lbs											
	kg-m											
Motor Drive Power	hp											
Nominal Speed	in/sec											
	mm/sec	50	100	15	100	100	-	250	250	100	100	100
Standard Angle Transducer Format												
Data Take-Off Accuracy (RMS)												
Repeatability												
PHYSICAL												
Weight (approx.)	lbs											
	kg	-	12?	-	-	-	-	-	200	400	830	4200
Width	in											
	mm											
Height	in											
	mm											
ENVIRONMENTAL												
Operating Temperature												
OPTIONS												
EN001	Incremental Encoder Accuracy (RMS)	in										
		mm										
EN004	Absolute Encoder Accuracy (RMS)	in										
		mm										

Quickguide - Which positioners for which field probe model

	LIGHT DUTY			MEDIUM DUTY			HEAVY DUTY				
POLARIZATION POSITIONERS	**AL-4606-4-9**	**AL-4607-4-10**	**AL-4607-4-11**	**AL-4607-4-6**	**AL-4607-4-7**	**AL-4608-4-8**	**AL-4607-4-15**	**AL-4608-4-14**	**AL-4608-4-13**	**AL-4608-4-12**	**AL-4608-4-5**
Light duty											
Medium duty											
Heavy duty											
AZ/EL positioner											
Heavy Duty											
AZ/EL/AZ Positioner											
Heavy Duty											

Supplied Accessories

Digital Documentation Set

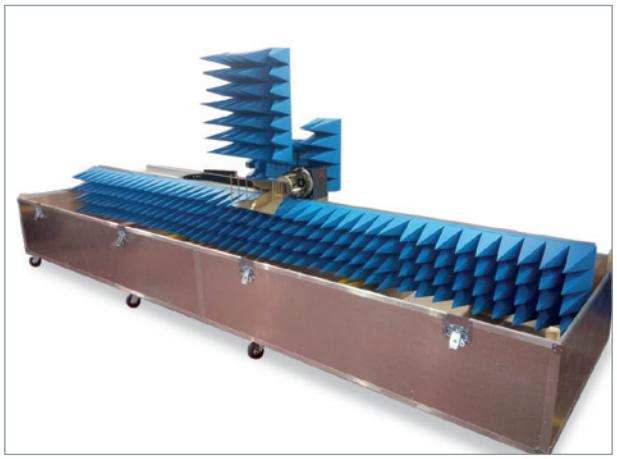
User Manual (Installation, Setup, Operation)

Options for both series include rotary joint for the probe positioner, RF cable installation, probe fixtures, replacement of the synchro transducer with Incremental rotary encoder (this option is required when using AL-060-1P or AL-160-1P positioners), and preparation and installation of absorbing material.

A custom case is an option for storage purposes.

Technical Notes

- Specific requirements can be met for special projects. Please consult MVG-Orbit/FR for more information.
- It is recommended that the probe be mounted on the smallest polarization positioner which complies with the probe's mechanical constraints (weight and bending moment).



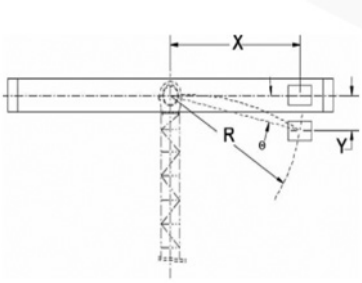
OBTAINING BEST RESULTS WHEN USING A FIELD PROBE

When scanning with a Field Probe, as the probe moves along the linear axis, angular movement may occur in the linear positioner's roll axis due to gear compliance. The torque applied on the gear increases as the load moves away from the center. This angular deviation can be observed and read by the synchro or incremental encoder of the positioner.

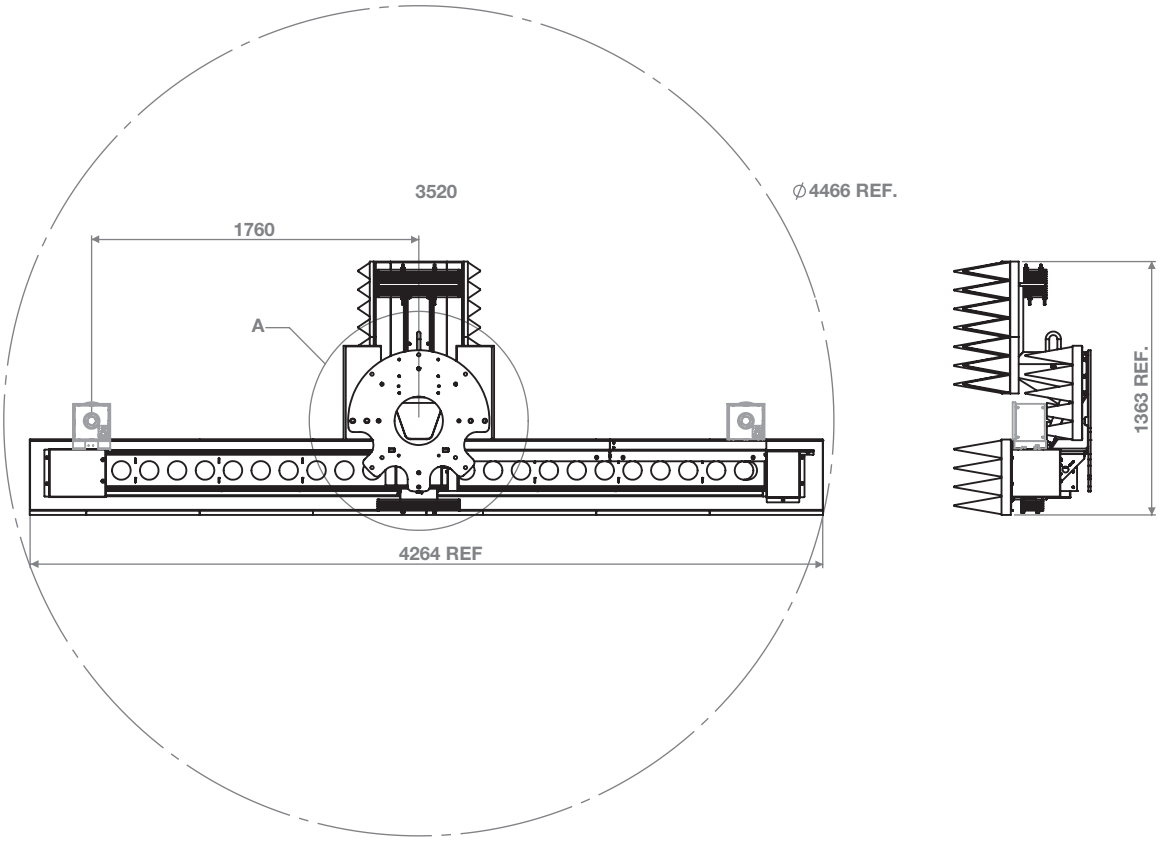
In order to obtain accurate positioning data, it is necessary to monitor the roll angle Q, because it may change as the probe moves away from the center (see drawing).

The probe position is given as (R,θ) in polar coordinates, where R is the probe distance from the center of rotation and θ is the roll angle. In Cartesian units the following transformation applies:

$X = R \cos\theta$
$Y = R \sin\theta$



Dimensional drawing



* Example drawing for general reference, please consult MVG-Orbit/FR for ICD.

Contact your local sales representative for more information
salesteam@mvg-world.com
www.mvg-world.com/positioners