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**Microwave Factory Company**

# 5G **POWER DENSITY Test System**

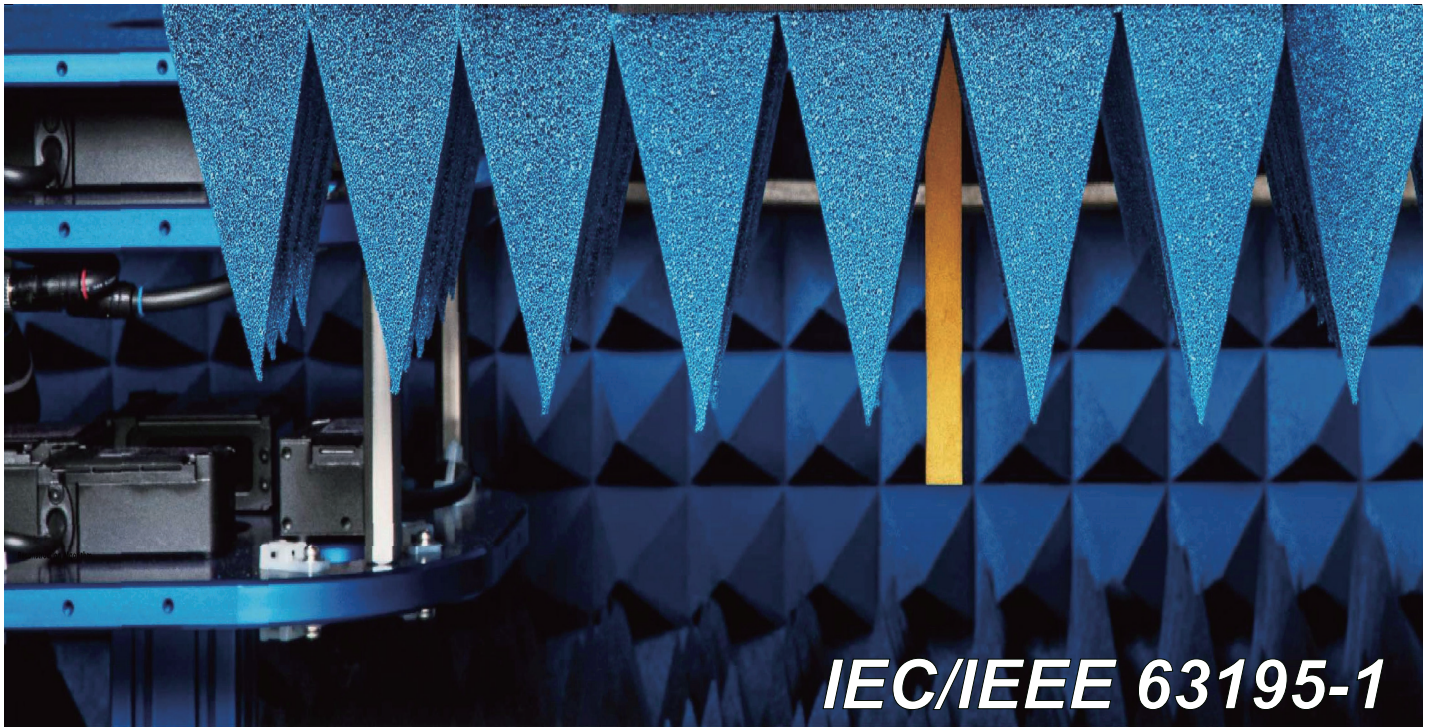


**IEC/IEEE 63195-1**

# plato

POWER DENSITY RECONSTRUCTION BY  
MEASUREMENTS OF ELECTRIC FIELD INTENSITY  
AND PHASE USING NEAR-FIELD SCANNING PROBE

- ✓ **Turnkey mmWave Power Density Test System**
- ✓ **Integrated Positioner, Chamber and Software**
- ✓ **Fastest Measurement Speed**
- ✓ **Economical Sensor Calibration**



## RECONSTRUCTION ALGORITHM

There are several methods to evaluate Power Density of wireless devices. Plato's approach is based upon the evaluation of Electric Field (E-field) and Magnetic Field (H-field). For incident Power Density based on E and H field, the near E- and H- are measured on a surface and their Poynting vector is evaluated. Fig.1 shows a schematic view of Power Density assessment in close proximity to a device using this technique.

- Measure  $E_x$  and  $E_y$  fields on measurement plane  $z_1$
- E-fields on the evaluation plane  $z_0$  are reconstructed
- H-fields on the evaluation plane  $z_0$  derived using reconstructed E-fields
- Power Density evaluated from E and H fields at evaluation plane  $z_0$
- Extended capability of phase-less measurements for power density evaluation

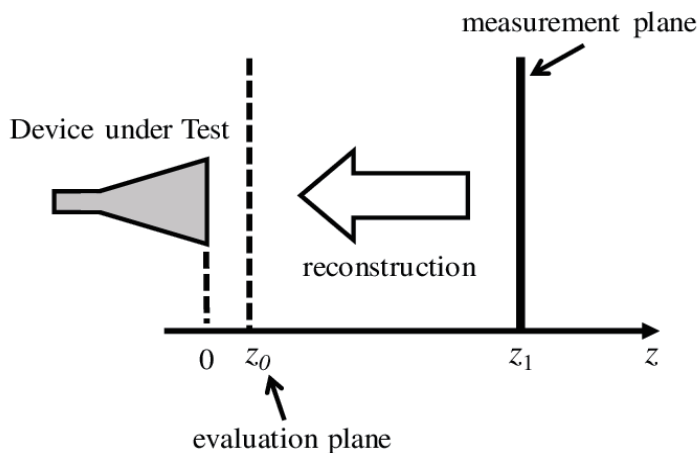


Fig.1 Schematic of power density reconstructed side view

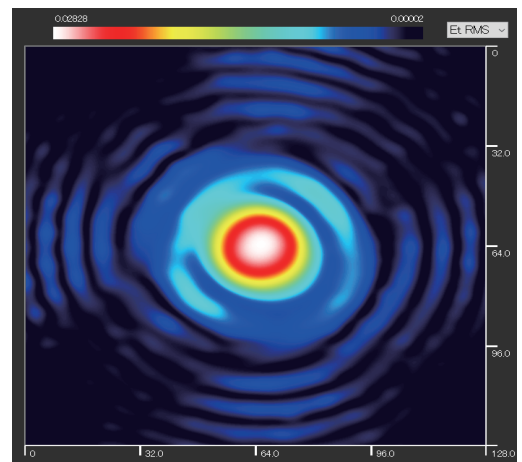
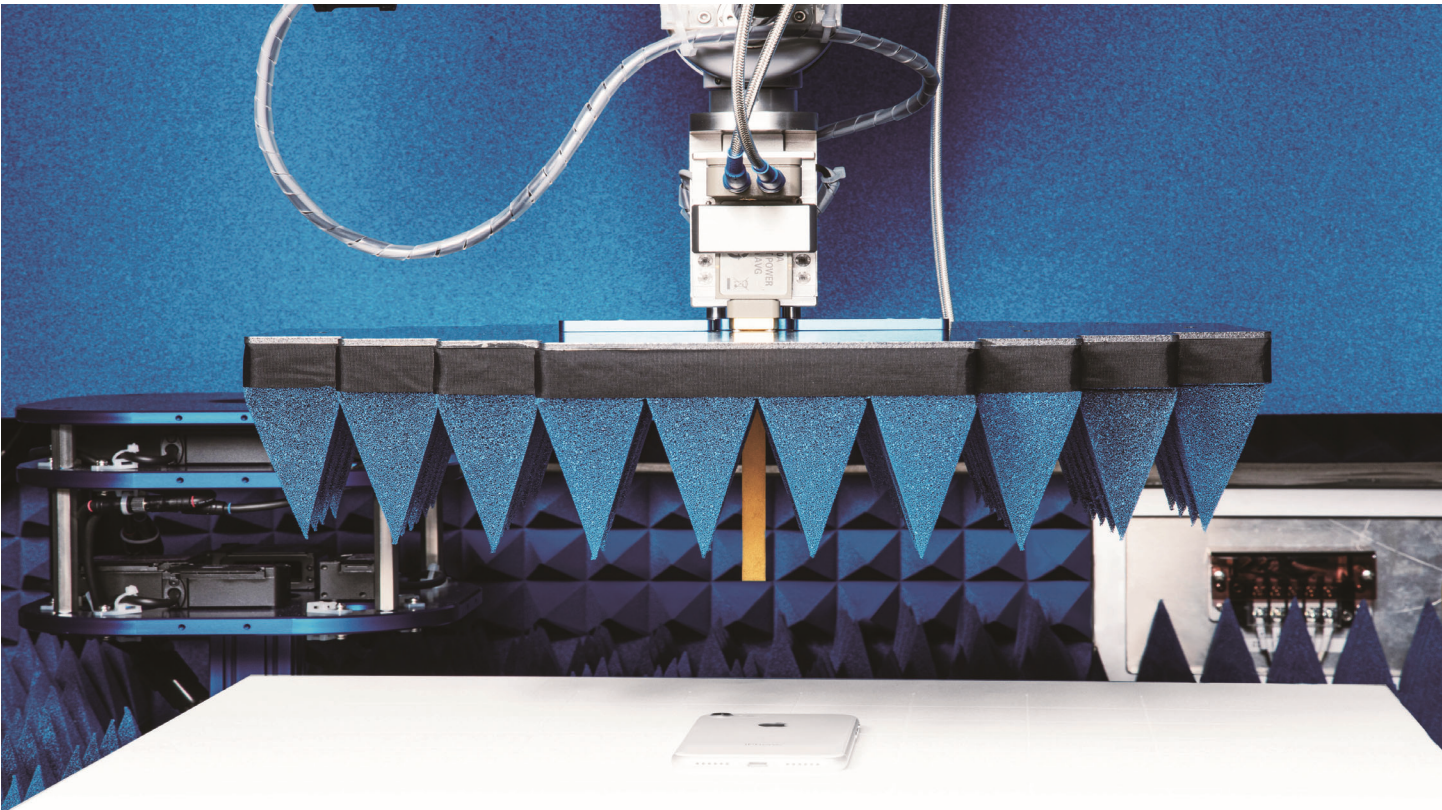


Fig.2 Reconstructed Power Density from Measured Near field for reference Horn antenna at 30GHz  $Z_0$  - 2mm





# SOFTWARE

Plato is a fully automated, turnkey Power Density measurement system for the evaluation of wireless devices at millimeter wave frequencies. Plato is able to confirm compliance to RF-EMC exposure standards for wireless devices, including IEC/IEEE 63195-1. The Plato software automatically calculates and displays power density values and graphs derived from the measured data using near-field to far-field reconstruction algorithms.



## SPECIFICATIONS IN BRIEF MAB02000A (Ka Band)

### SHIELDED CHAMBER

Frequency Range		18GHz to 110GHz
Shielding Effectiveness	18GHz to 110GHz	> 70 dB
Dimension (W x H x D)	outside dimensions and chamber mount	1.2m x 1.2m x 2m
Weight		< 450 kg

### SCANNER SYSTEMS

Angular Resolution	VH Switching	0.02°
Positioning Repeatability	Azimuth/Elevation	0.01 mm
Load Capability	Weight	3 kg
	Max Dimension of the DUT	20cm x 20cm x 10cm

### MEASUREMENT ANTENNA

Frequency Range	26.5GHz to 40GHz	Option > 40 GHz
Probe Antenna	Waveguide Port Antenna	
Dynamic Range	-60dBm to +26dBm	
Resolution	0.01 dBm	

### OPTION

Frequency Range	Extended to V Band	50GHz to 75GHz
	Extended to W Band	75GHz to 110GHz



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