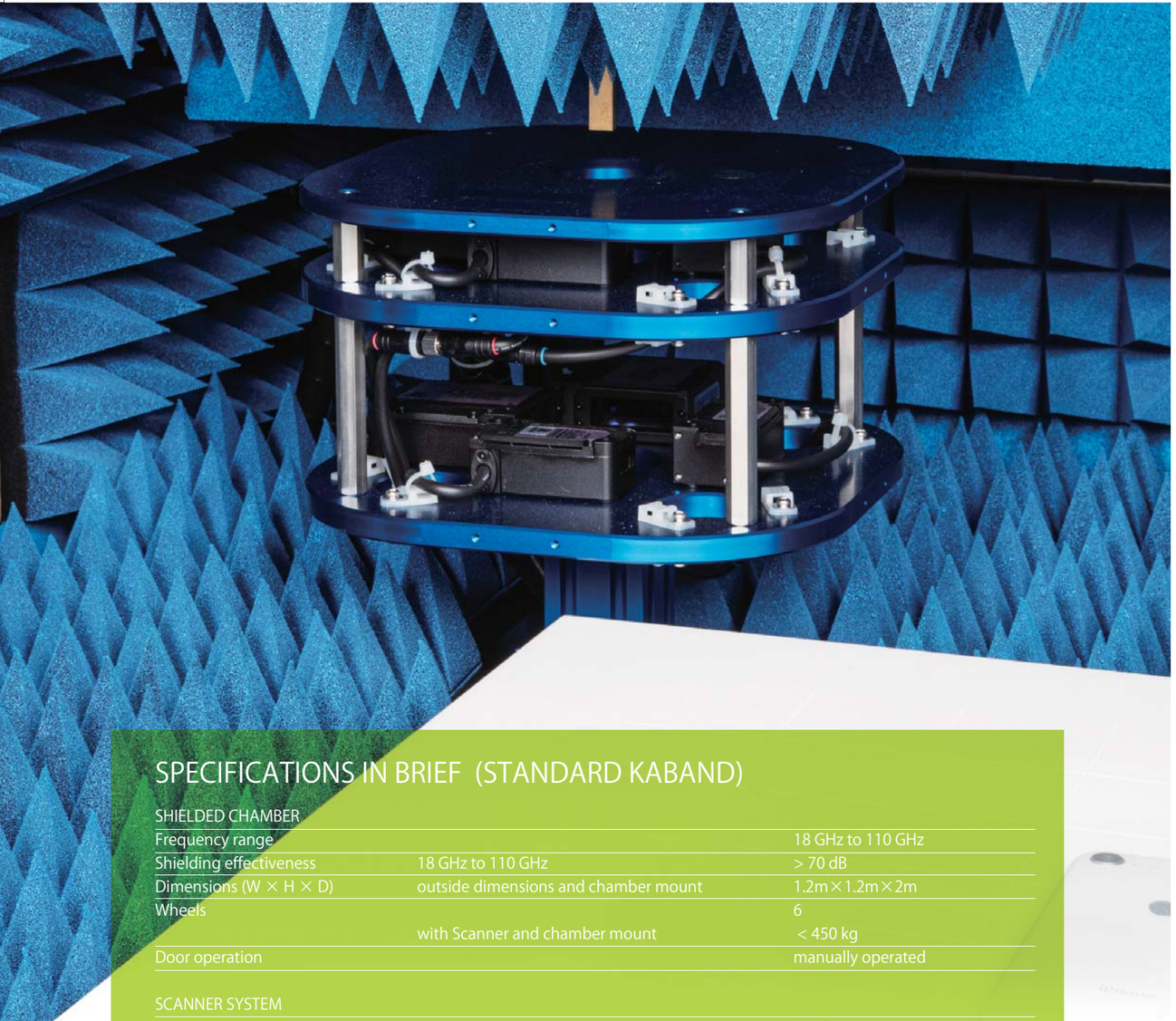

SPECIFICATIONS IN BRIEF (STANDARD KABAND)

SHIELDED CHAMBER		
Frequency range		18 GHz to 110 GHz
Shielding effectiveness	18 GHz to 110 GHz	> 70 dB
Dimensions (W × H × D)	outside dimensions and chamber mount	1.2m×1.2m×2m
Wheels		6
	with Scanner and chamber mount	< 450 kg
Door operation		manually operated
SCANNER SYSTEM		
Angular resolution	VH switching	0.02°
Positioning repeatability	azimuth/elevation	0.01mm
Load capability	weight	3 kg
	maximum dimensions of the DUT	20 cm × 20 cm
MEASUREMENT ANTENNA		
Frequency range	26.5 GHz to 40 GHz	Option > 40 GHz
OPTION		
Frequency range	Extended to V Band	50 GHz to 75 GHz
	Extended to E Band	60 GHz to 90 GHz
	Extended to W Band	75 GHz to 110 GHz
Probe antenna	Waveguide port antenna for each band	
Accessory		ATT, Amp, mixer, source module, RF cable
PC	software	include PC

Specitions are subject to change without notice.

We support your power!!

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201907

MICROWAVE FACTORY

THE 5TH GENERATION TEST SYSTEM

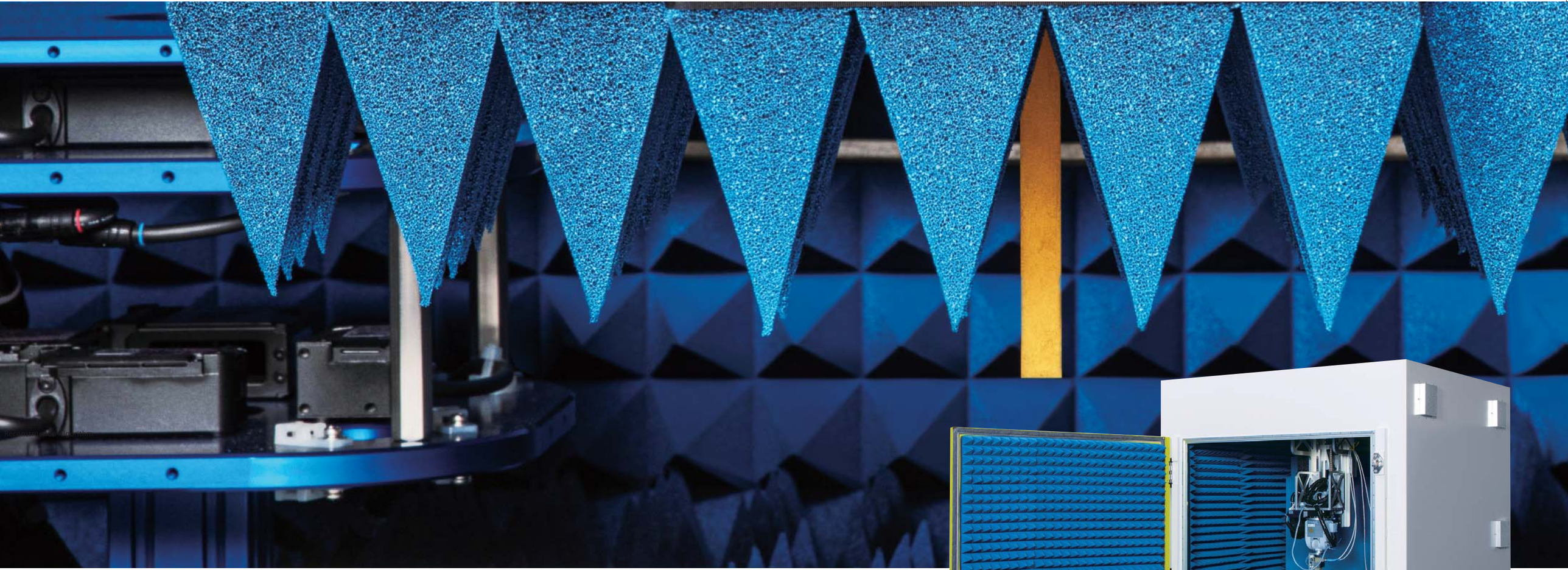
plato

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

INTRODUCTION

The 5th Generation also known as 5G is a wireless communication/network standard that soon become available to the public. Compared to 4G, 5G will improve on speed and consistency amongst other improvements.
In 5G system, one of the key enabling technique is the adoption of millimeter wave bands in conjunction with directional phased array antennas at wireless devices. As a consequence, there has been increasing interest in millimeter wave wireless devises.
Wireless devices emit electromagnetic fields (EMF) of radiation that can cause harmful effects. Specific absorption rate (SAR) assessment is used for Human EM exposure applicable from 300 MHz to 6 GHz. SAR assessment is not applicable to frequencies higher than 6 GHz because skin surface heating is dominant thus assessment procedures to ensure compliance to radio-frequency (RF) EMF exposure standard is required. With the rapid development of new wire less technologies for 5G, most of wire less devices will normally operate in frequency above 6GHz.
Power density is used to assess compliance with RF-EMF exposure guidelines for wireless communication devices operating above 6 GHz (6-300GHz).
A power density measurement system for EMF exposure in millimeter wave frequency band evaluation is designed. Plato is used to verify whether or not wireless devices operating in the millimeter wave bands conforms to EMF exposure limits.

* Product image for illustration purposes only. Actual product may vary.



RECONSTRUCTION ALGORITHM

There are several method to evaluate power density of wireless devices. One of the evaluation method is based on electric filed (E-field) and magnetic field (H-field). Another method is based on plane wave equivalent approximation. For power density based on E- and H- fields, the near E- and near H- fields are measured on a surface and the their Poyinting vector evaluated Fig. 1 shows schematic view of power density assessment in close proximity to a device using this technique.

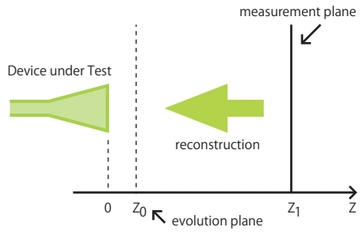


Fig.1 Schematic of power density reconstructed side view

- Measure Ex and Ey Fields on Measurement Plane z1
- E-fields on the evaluation plane z0 are reconstructed
- H-fields on the evaluation plane z0 derived using reconstructed E-fields
- Power density evaluated from E and H fields at evaluation plane z0
- Extended capability of Phaseless Measurements for power density evaluation

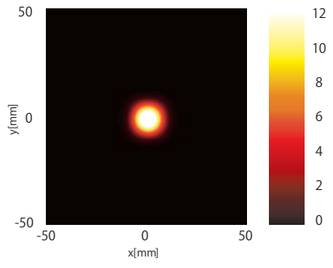


Fig.2 Reconstructed Power Density from Measured Near field for reference Horn antenna at 30 GHz z0 = 2mm

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SOFTWARE

Plato is designed and developed a power density measurement system . This system is used for evaluation of the power density at millimeter wave frequency for wireless devise. Thus, Plato is able to confirm compliance to RF-EMC exposure standards for wireless devices using this system.

Plato software automatically calculates and displays power density values according to a reconstruction algorithm based on data acquired from the instrument. The user determines the range of measurement and the Plato software automatically measures the maximum power density.

Product image for illustration purposes only. Actual product may vary.