

POWER DENSITY -**Test System**



IEC/IEEE 63195-1

DIQtO

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

MAB02000A



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 feild, the near E- and H- are measured on a surface and their Poyinting vector is evaluated. Fig.1 shows a schematic view of Power Density assessment in close proximity to a device using this technique.

- 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 phase-less measurements for power density evaluation



Fig.1 Schematic of power density reconstructed side view



Fig.2 Reconstructioned Power Density from Measured Near field for reference Horn antenna at 30GHz Z0 - 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.

🦉 Measurement Software	1.0.0.1 [2020/12/3] (Full function)	- 🗆 X
DIQTO	A Arm unit Controler	Information Panel
	175275 117465 0 32079 -252 0 Machine Position × 0 position Set	Measuring x=0 Y=100 202/404
Initialize	X 350.55 Y 234.93 Z 0.00 φ 53.0 θ 0.0	50 %
Measure Setting	Control	
		Distribution Map Start to End view OataFile
DUT Height		
Calibration Pod	H V Step Imm · 10	
Ctort	Position setting	
Start	Center X 365.55 mm Y 249.93 mm Z 274.54 mm Φ 2.5 deg MoveTo Set Position	
Pause	Size deltaX 30 mm deltaY 30 mm deltaZ 50 mm 350.55 234, 224.5 2.5	
	CW STEP 3 X 300.53 204. 224.5 0	
Configuration	CW Exec. X(swp) 5000 ms 6.0 mm/sec Y 0.3 mm/step 101 times WholeRepeat 0 times	
comgulation	Z 10 mm/step 2 times	
	Save foldername OutputDataFolder	
	♥ Debug	
	 Analyzer Controler Waveform 	
	CW STEP	Constant and the second s
	Freq 30 GFt ° Sweep 5 Sec °	✓ Save Log 15:49:57323.Rcv0.POS 175275, 117465, 0, 32079 15:49:57323.send0.CMD_0POS ∧
	Division 101 points [H] Run	15:49:57.233:Rcv0:S10008.0008.0008.0048 15:49:57.173:SendlOCMD_051 15:49:57:16:39:anvD0C 15:727 11:7245 0 35573
	[V] Run	15:49:56:993:Send0:CMD_0P05 15:49:56:95:Rev05:0008:0008:0008:0048 15:49:56:95:Send0:CMD_0F05



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 Anttena	Waveguide Port Antenna	
Dynamic Range	-60dBm to +26dBm	
Resolution	0.01 dBm	
Resolution	0.01 dBm	
Resolution OPTION Frequency Range	0.01 dBm Extended to V Band	50GHz to 75 <u>GHz</u>

CORNES Technologies USA

www.cornestech.com info@cornestech.com 780 Montague Expy. St 506 San Jose, CA 95131 408(520)-4550

