

# E600 – Reverberation Chamber

## Passive, Active and Time-Domain MIMO OTA Testing

### 600 MHz to 6 GHz

### Main Features

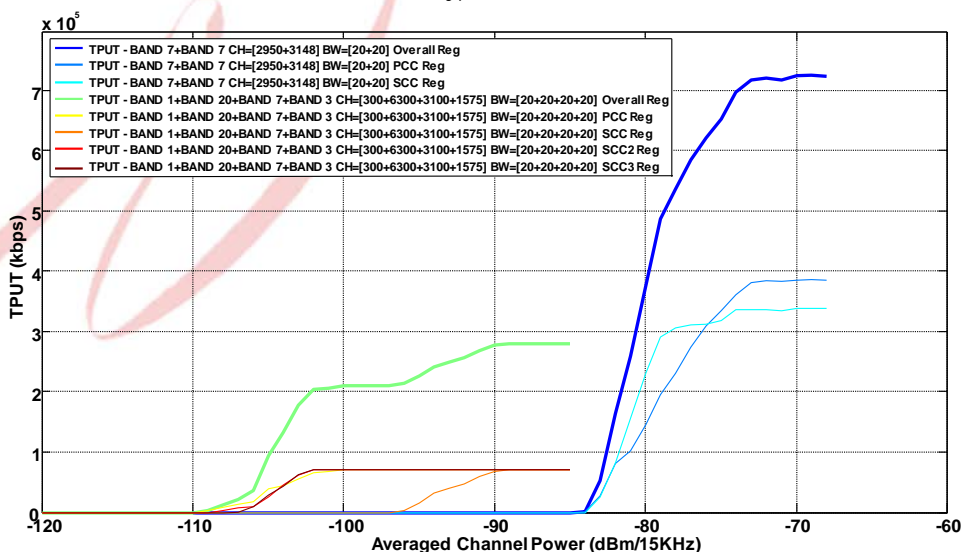
- Dimensions: 2750 mm (L) x 1555 mm (W) x 2000 mm (H)
  - With footprint reduction 2342 mm (L) x 1555 mm (W) x 2058 mm (H)
- Mains power: 100-240 VAC 50-60 Hz
- Authorized for AT&T 10776 R57 (19091) testing
- MIMO Graphic User Interface (GUI) for Windows
- Fully automated measurements with control of VNA, eNodeB, CE, AP and STA
- 2G/3G SISO/TxD/MIMO OTA
- WLAN, 4G, Bluetooth, M2M, W-IoT, wearables and LTE-A CA MIMO OTA
- Up to 256 QAM 8x8 MIMO OTA x 8DL CC Carrier Aggregation testing
- Up to 8x8 Antenna MIMO testing
- Time-domain measurements
  - Windows, Android, iOS, MacX, Linux, UWP and Tizen UE apps
- Data interface: USB/GPIB-TCP/IP
- RF isolation (shielding): ~ 100 dB
- Enhanced repeatability with autocalibration
- SMA, USB, RJ45 and AC/DC power supply connectors on turntable (optional)
- DB9/RJ45/FO/USB/Waveguide penetrations (optional)
- AC/DC filters for DUT power supply (optional)
- Can be served in pieces and re-assembled in-situ (optional)



### Measurement system

The E600 is a multicavity mode-stirred source-stirred reverberation chamber represents that state-of-the-art in reverberation chamber technology. E600 provides unique up to 8x8 MIMO measurement capabilities of antennas and passive RF front-ends [Efficiency, Correlation, Mutual Coupling, MIMO Capacity, Diversity Gain (ADG, EDG, IDG), loss effects (DGL, CL.MIMO), active MIMO Over-The-Air (OTA) 3GPP/CTIA Figures of Merit for 2G, 3G, 4G cellular including CA up to 8x8 MIMO x 8DL CC and any wireless LAN system (including 802.11ac) (Total Radiated Power (TRP), Total Isotropic Sensitivity (TIS), MIMO Throughput (TPUT), CQI, MIMO Throughput Sensitivity (MTS), MIMO to Transmit Diversity Threshold (M2TxD)], time-domain measurements [RMS Delay Spread (RMS DS), Power Delay Profile (PDP), Coherence Bandwidth (CBW), Path Loss (PL), Standard Deviation (STD), TCP/UDP Throughput versus time, path loss or averaged received power in both downlink and uplink (DL/UL) paths], VDT-OTA, Mute% sound acoustic and channel parameters (PDF, CDF, Scatterplot, k-factor, eigenvalues) for AuTs/DUTs of up to 50cm and 50kg, and a wide variety of Rayleigh, Rician, NIST Indoor-Urban, isotropic SCME Urban-Macro#, isotropic SCME Urban-Micro# and other fading environments, all united in one single and intuitive interface for an enhanced frequency range that now covers LTE Band 71 (600 MHz to 6 GHz). There is no RC in the market more advanced than the E600 from our E-Series.

Typical testing times are under 1 minute for TRP and 6 minutes for TIS\*. Typical accuracies are under 0.5 dB STD\*.



All Cellular standards to date

All Wireless standards to date

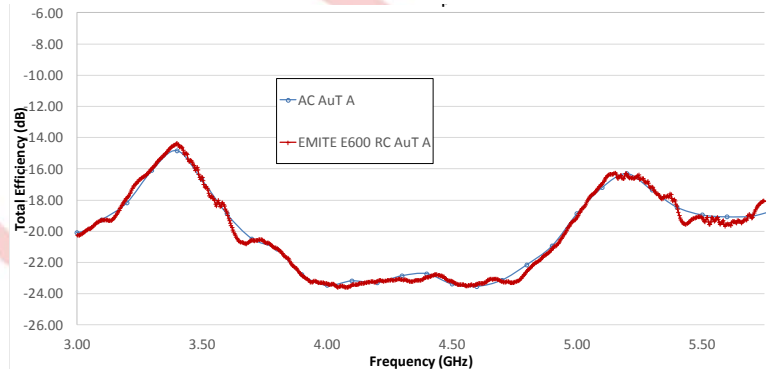
EMITE test systems are now used at major operators, OEMs, test labs and antenna manufacturers, with presence in America, Europe, Asia and Oceania.

LTE-A 4x4 x 2DL CC and LTE-A 2x2 x 4DLCC MIMO OTA TPUT tests using a smartphone and E600 RC, exhibiting 100% total Throughput, in excess of 700 Mbps absolute value for 4x4 x 2DL CC.

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600 MHz to 6 GHz

Total Radiation Efficiency of AuT A in an Anechoic Chamber and measured using EMITE E600 RC



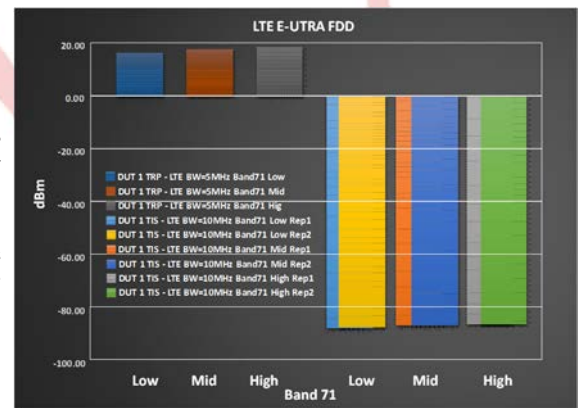
## Unique Features – only with EMITE

- Same unique features as E500 plus,
- Capable of testing LTE Band 71 (600 MHz)
- Capable of testing LTE-A up to 8x8 x 8DLCC and 2x2 x 2ULCC
- Capable of testing Mute (%) for sound acoustic evaluation of wireless headsets and devices
- Capable of testing MIMO to Transmit Diversity Threshold (M2TxDT) in dynamic VRC environment
- Can be served in 4 pieces of 1m (W) max and re-assembled on-site
- Can be served in 1 single piece for cost reduction

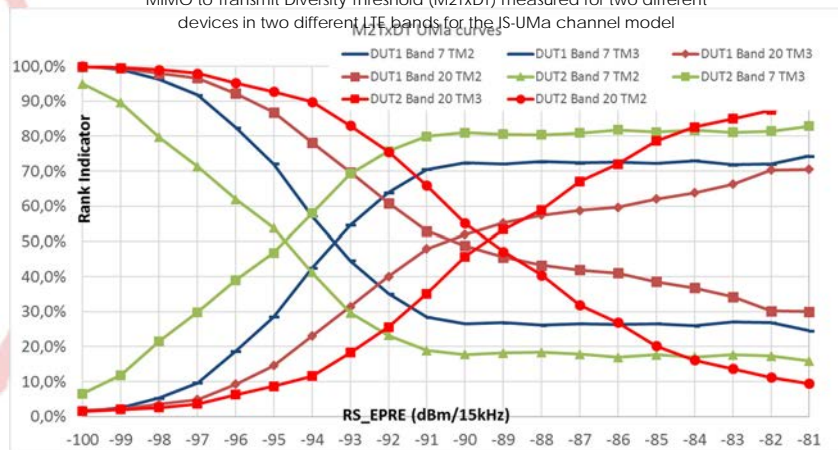
## Additional deliveries according to customer's specifications

- 17025-Accredited calibration
- Programming drivers of user-selected auxiliary test equipment and Access Points
- Chamber Turntable with integrated SMA, USB, RJ45 and AC/DC power supply connectors
- Installation of hardware and software
- Full day course to operating personnel
- Precision discone reference antennas
- SPEAG Phantom packages
- Absorbers for chamber loading
- Device Under Test Holders
- 3.5mm Calibration kit
- Wide variety of support and maintenance options.

LTE FDD TRP and TIS tests for Band71 using E600 RC showing repeatabilities within 1 dB



MIMO to Transmit Diversity Threshold (M2TxDT) measured for two different devices in two different LTE bands for the JS-UMa channel model



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\*Using novel source-stirring in LTE. 1dB for Band 71 #In combination with a channel emulator. Please note that ITU-R completed the assessment of true 4G technologies for LTE-Advanced and WirelessMAN-Advanced, which left 808.11n, WiMAX, HSPA+ and LTE as 3.99G, as reported by the ITU-R Study Group 5

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