

## I60 Small-size Reverberation Chamber

### Bluetooth and WLAN MIMO OTA Testing

2.4, 5 GHz and 6 GHz frequency bands

#### Main Features

- Dimensions: 1700 mm (H) x 1050 mm (W) x 850 mm (L)
- Mains power: 100-240 VAC 50-60 Hz
- Largest DUT dimension: 30 cm
- Maximum DUT weight: 5 Kg
- Technologies:
  - WLAN (up to 802.11ax 6GHz band)
  - Bluetooth (BR, EDR, LE up to 5.1)
- Customized turntable interfaces: USB, Ethernet, AC/DC power
- RF isolation (shielding): > 80 dB
- Up to 8x8 MIMO testing
- MIMO Graphic User Interface (GUI) for Windows
- Fully automated measurements with control of VNA, Wireless Connectivity Test Set and AP/STA
- Signaling / Non-signaling OTA measurements
- Active and Time Domain MIMO OTA measurements
- Coexistence WLAN/Bluetooth/Cellular measurements
- Selected by leading chipset USA manufacturer among others
- Windows, Android, iOS, MacX, Linux, UWP and Tizen UE apps
- Access Point and STATION testing
- Beamforming and MU-MIMO testing

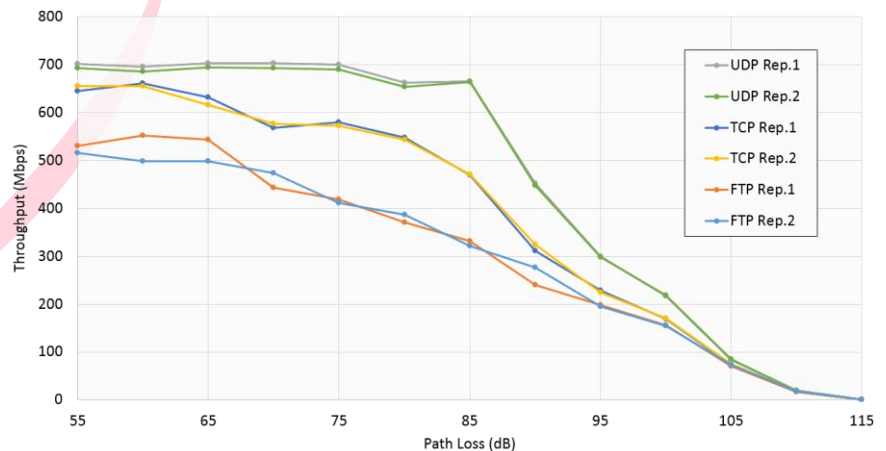


#### Measurement system

The I60 small-size Reverberation Chamber is a unique value-for-money Over-the-Air (OTA) test chambers. With smart-stirring, the I60 chamber has the smallest footprint in the market and is intended for OTA testing of Bluetooth and WLAN for small devices up to 30cm, 5kg and 8x8 MIMO. EMITE external modules are also compatible with the I60 such as EIS (EMITE Instrument Switch), EMIAP (EMITE controlled Access Point), EMIBT (EMITE Bluetooth module), EMITE Packet Capture, etc. making the system versatile and allowing an easy growing with the technology. The EMITE I60 test system is complemented with diverse Support and Maintenance packages intended to suit a tailored set of customer requirements

#### Unique Features – only with EMITE

- Capable of testing coexistence WLAN/BT
- Capable of testing Bluetooth IP TPUT vs Path loss
- Capable of testing WLAN 802.11ax up to 8x8 on 6GHz band
- Packet capture module up to 802.11ax 6GHz band
- Pre-calibrated from factory plan (VNA is not needed)
- EMITE UE app for automated WLAN & BT testing



IEEE 802.11 ac 3x3 MIMO using an Access Point as DUT. TCP/UDP/FTP Data Throughput exhibiting very good repeatability

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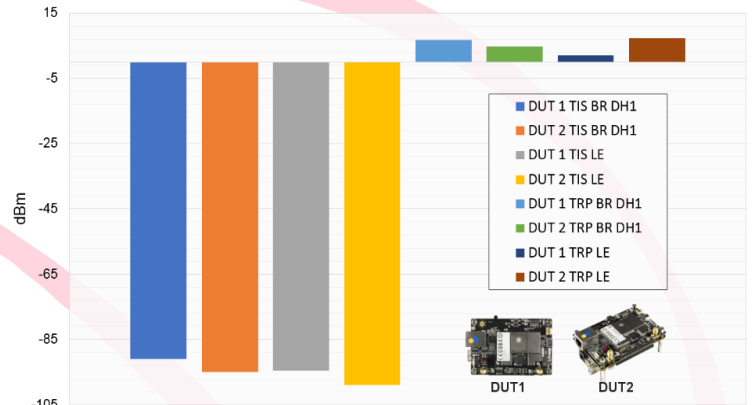
### Key Performance Indicators

Active measurements:

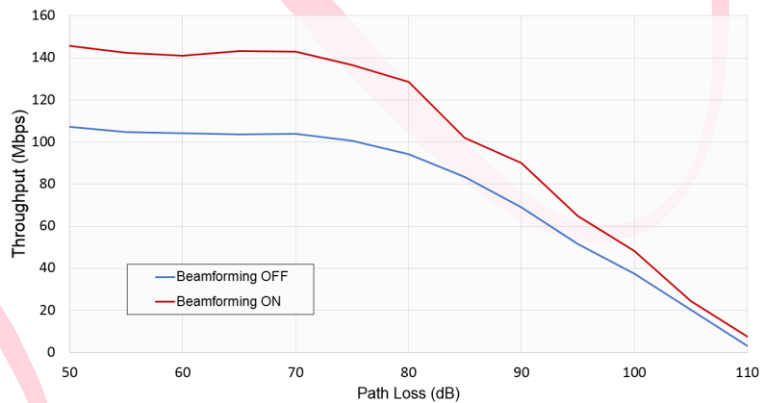
- Total Radiated Power (TRP)
- Total Isotropic Sensitivity (TIS)
- Coexistence WLAN with Bluetooth
- Coexistence WLAN with Cellular\* (LTE/NR)
- Coexistence Cellular\* (LTE/NR) with WLAN
- Coexistence Cellular\* (LTE/NR) with Bluetooth
- Packet Error Rate (PER) versus Time
- Modulation analysis (EVM, Freq. Error, Phase Error)

Time-Domain measurements:

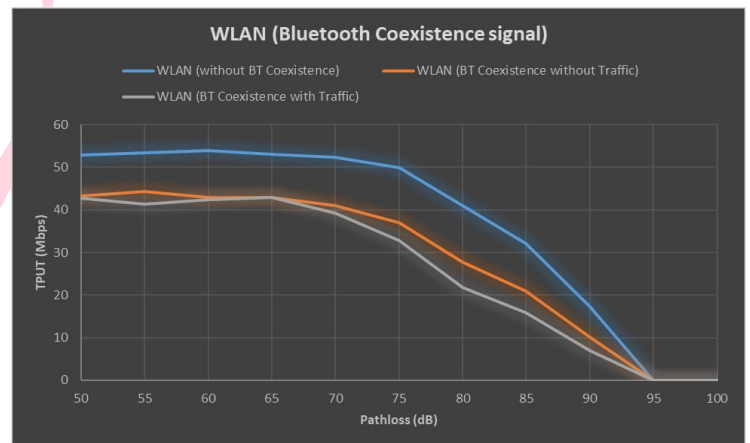
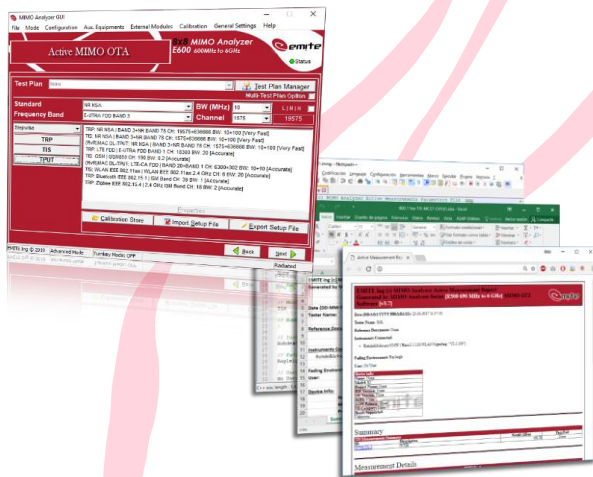
- WLAN IP (TCP/UDP/FTP) DL/UL Throughput vs Time
- WLAN IP (TCP/UDP/FTP) DL/UL Throughput vs Path Loss
- WLAN IP (TCP/UDP/FTP) DL/UL Throughput vs Average Received Power
- Bluetooth IP (TCP/UDP/FTP) DL/UL Throughput vs Time
- Bluetooth IP (TCP/UDP/FTP) DL/UL Throughput vs Path Loss
- WLAN DL HAS (HTTP Adaptive video Streaming)
- MIMO Throughput Sensitivity (MTS)
- DUT monitoring (battery level, temperature)
- Physical Throughput report
- Received Signal Strength Indicator (RSSI)
- Coexistence WLAN with Bluetooth
- Coexistence WLAN with Cellular (LTE/NR)
- Coexistence Bluetooth with WLAN
- 802.11ax packet capture



Bluetooth TRP and TIS testing for different Burst types (@BR DH1 & LE 1M PHY at the figure) provide a very good insight on Bluetooth



TCP Data Throughput measured with AP beamforming on and off at channel 44.



WLAN TCP Data Throughput measured with and Without a Bluetooth coexistence signal showing also the effect of include IP traffic on the coexistence technology.

\* Only available for the LTE/NR bands whole frequency operate on the I60 chamber frequency range. This data sheet was correct at the time of going to print. The right is reserved to change specifications at any time. Data Sheet EMITE I60 2022.07 ENG. Wise Waves is a registered trademark of EMITE Ing. Spain The products are patent protected