



Product Range

January 2023

more than just chambers



CONFIDENTIALITY ADVERTISEMENT

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02 Solutions & Services

- Small Chambers
- Medium Chambers
- Large Chambers
- Services

01 About us

EMITE is a **Wireless Test System Integrator** with worldwide presence in all major continents and standardization bodies



About us

92-06

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10-14

15-19

20-24

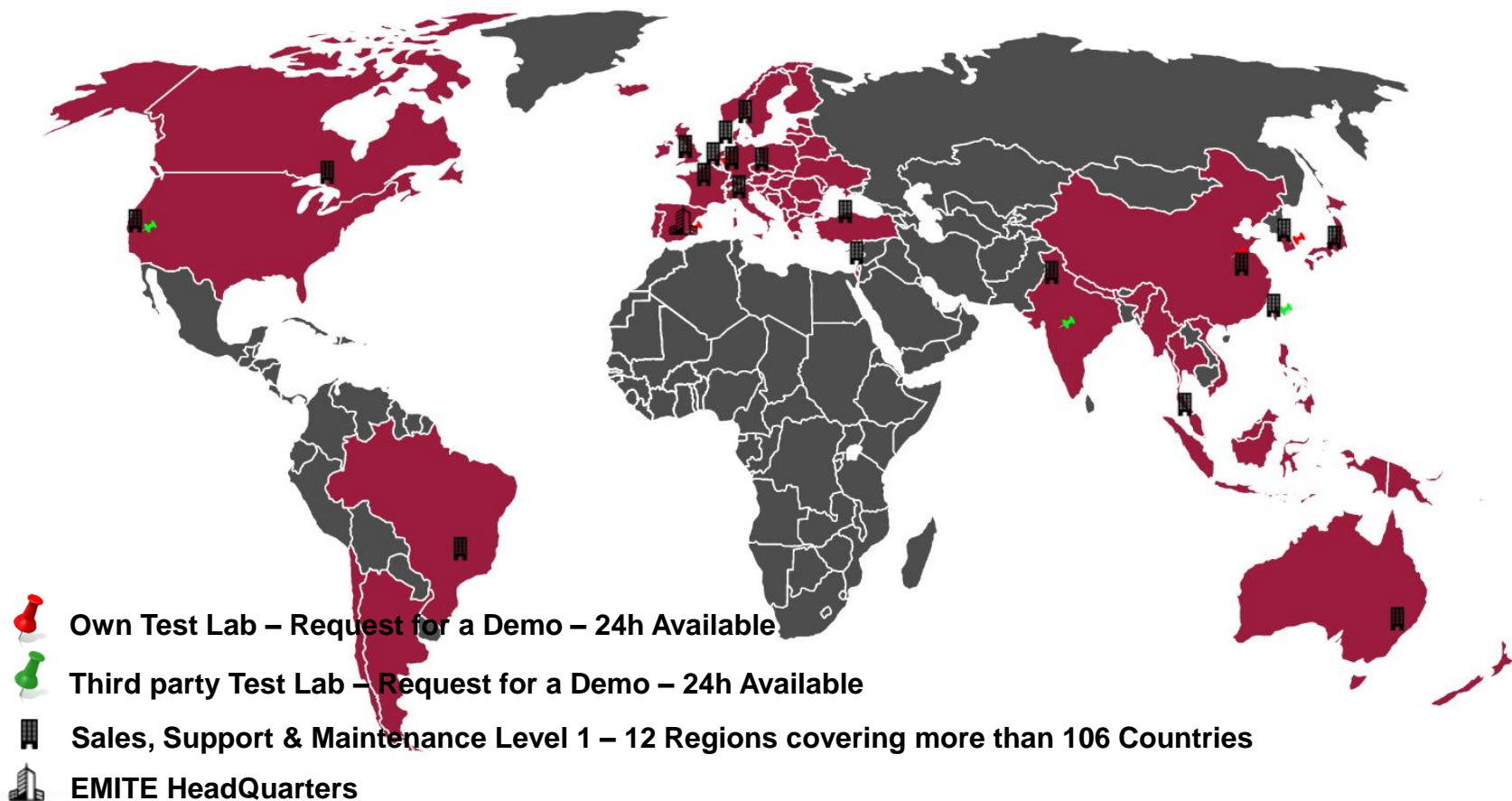
History

- **Know How & Origin.** Taken part in more than 150 projects and involved in more than 600 prototypes. Vodafone & Telefonica Awards.
- **Spin-out University.** > 6 Patents, >30 IEEE Publications, 3 Int. Books, 3GPP & CTIA member, MWC, MWE, CTIA and EUCAP Exhibitor.
- **Global Solution E-Series RC.** Integrated with Anite, Keysight, R&S, Anritsu, Spirent. Selected RC candidate Test Platform by 3GPP/CTIA.
- **5G Test System Integrator.-** Clients in >4 Continents, 35 Countries. Leading RC/AC OTA Test-System in LTE-A, 5G, Wi-Fi, W-IoT, SRC. 1 Solution – 2 Chambers.
- **Global OTA Test Solutions Leader.** Brand expansion to all 5G Markets, Automotive, Homes, Telecommunications, IoT in mmWave NR.

About us

Network & Facilities

EMITE worldwide





FRANKONIA



s p e a g



Our Achievements with Partners

2009 - First **LTE MIMO TPUT** measurements for 3GPP

2010 - **Smallest deviation** from all OTA test vendors

2012 - First Worldwide **Sample Selection** Tests for drive-test emulation

2014 - First Worldwide **LTE CA + MIMO OTA** lab tests

2015 - First Worldwide **LTE CA 2DL CC + MIMO + UMa OTA** lab tests

2015 – First Worldwide **LTE 4DL CC CA + MIMO + OTA + UMa OTA** lab tests

2016 - World's First signaling OTA Tests with **2xUXM, 2xMT8821C** and **CMWFlexx4**

2017 - World's First signaling OTA Test System to Support **IEEE802.11ac** Standard

2017 - World's First 4G **Virtual Drive Testing Over The Air** (VDT OTA) made in a Lab

2017 - Worldwide-first **4DL CC x 4x4 MIMO OTA** Test System for **Cat16** Gigabit LTE UEs

2018 - First **5G OTA** installation

2018 – Worldwide-first **5G SA mMIMO OTA** lab tests

2019 – Worldwide-first **5G NSA FR1+FR2 OTA** lab tests

2019 – Worldwide-first **802.11ax OTA** lab tests

2020 – Worldwide-first NR **FR1+FR2 OTA** lab tests in leading US carrier

2020 – Worldwide-first **WiFi6E OTA** lab tests

2021 – Worldwide-first NR **1-220 GHz gNB OTA** test system

2022 – Worldwide-first NR **FR2 8CC IP TPUT** higher than **3Gbps** testing

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01 About us

02 Solutions & Services

- Small Chambers
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- ✓ Active device UE/eNB/gNB Testing
- ✓ Time-Domain IP-level testing
- ✓ Antenna testing
- ✓ Low-PIM testing
- ✓ Spurious Emissions testing
- ✓ RCS testing

EMITE OTA Test Systems



PT Series
DUT 15cm



I Series
DUT 30cm



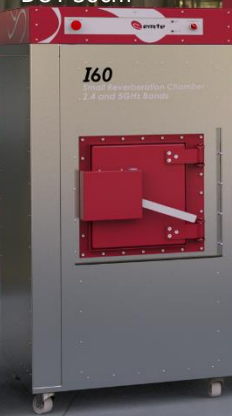
E Series
DUT 60cm



H Series
DUT 60cm



F Series
DUT 200cm



- ✓ RC - Reverberation Chamber
- ✓ 600 MHz – 6/40 GHz
- ✓ SISO OTA
- ✓ Up to 8 DUTs in parallel
- ✓ DUT Max: 15cm – 5kg
- ✓ UE as DUT
- ✓ Non-Signaling Production OTA
- ✓ Simple mmWave OTA test
- ✓ TxPow, RSSI, Modulation tests

- ✓ RC - Reverberation Chamber
- ✓ 0.9 to 6 GHz Band
- ✓ Up to 8x8 MIMO
- ✓ DUT Max: 30cm – 5kg
- ✓ UE/AP as DUT
- ✓ Signaling/Non-signaling OTA
- ✓ Time-Domain IP-TPUT OTA
- ✓ TRP / TIS
- ✓ Roaming and Interoperability

- ✓ RC - Reverberation Chamber
- ✓ 400 MHz – 6/40/60 GHz
- ✓ 16x16 MIMO
- ✓ DUT Max: 60cm – 50kg
- ✓ UE/AP as DUT/AuT
- ✓ Signaling/Non-Signaling OTA
- ✓ Up to 4x4 x 10DL CC
- ✓ Time-domain OTA
- ✓ External RRU + BBU OTA
- ✓ TRP / TIS / TPUT / MTS / CQI
- ✓ M2TxDT

- ✓ AC [DFF, IFF, NFTF]
- ✓ Anechoic Chamber
- ✓ 0.4/3 – 30/40/67/110/220 GHz
- ✓ DUT Max: 60cm – 20kg
- ✓ UE as DUT/AuT
- ✓ Signaling/Non-Signaling OTA
- ✓ 3GPP TR 37.842 / 38.810
- ✓ 2D/3D Radiation patterns
- ✓ Beamforming, TRP, EIRP, EIS, TIS and more
- ✓ Upgradable for using IFF+DFF+NTFT
- ✓ 5G FR1+FR2

- ✓ RC/AC [DFF, IFF, NFTF]
- ✓ Hybrid Chamber AC/RC
- ✓ 200/600 MHz – 6/60/110/220 GHz
- ✓ DUT Max: 200cm – 500kg
- ✓ UE/BS as DUT/AuT
- ✓ Signaling/Non-Signaling OTA
- ✓ 3GPP TR 38.521 / 37.842 / 38.810 / 38.104 / 38.141
- ✓ Up to 16x16 MIMO x 10DL CC
- ✓ Time-domain OTA
- ✓ 5G FR1+FR2
- ✓ CTIA Large Form Factor Test Plan
- ✓ 2D/3D Radiation Patterns
- ✓ Beamforming, Latency, TPUT

OTA Solutions

Passive MIMO testing

- ✓ **MIMO:** Up to 16 x 16 MIMO Antenna measurements
- ✓ **FoMs:** Correlation, Efficiency, Diversity Gain, MIMO Capacity, Coupling, Beamforming Capacity
- ✓ **Patterns:** 2D and 3D Radiation Pattern Full Sphere (FF, SNF)
- ✓ **Systems:** RC, DFF, SNF2FF, IFF(CATR)
- ✓ **Standard Test Cases:** 3GPP 5G

Time-Domain MIMO testing

- ✓ **Systems:** RC, AC FF
- ✓ **FoMs:** FTP/TCP/UDP DL/UL TPUT, RMS-DS, PDP, CBW, STD, PL
- ✓ VDT-OTA
- ✓ RRU + BBU OTA
- ✓ NR Thermal testing
- ✓ **QDART** Integration

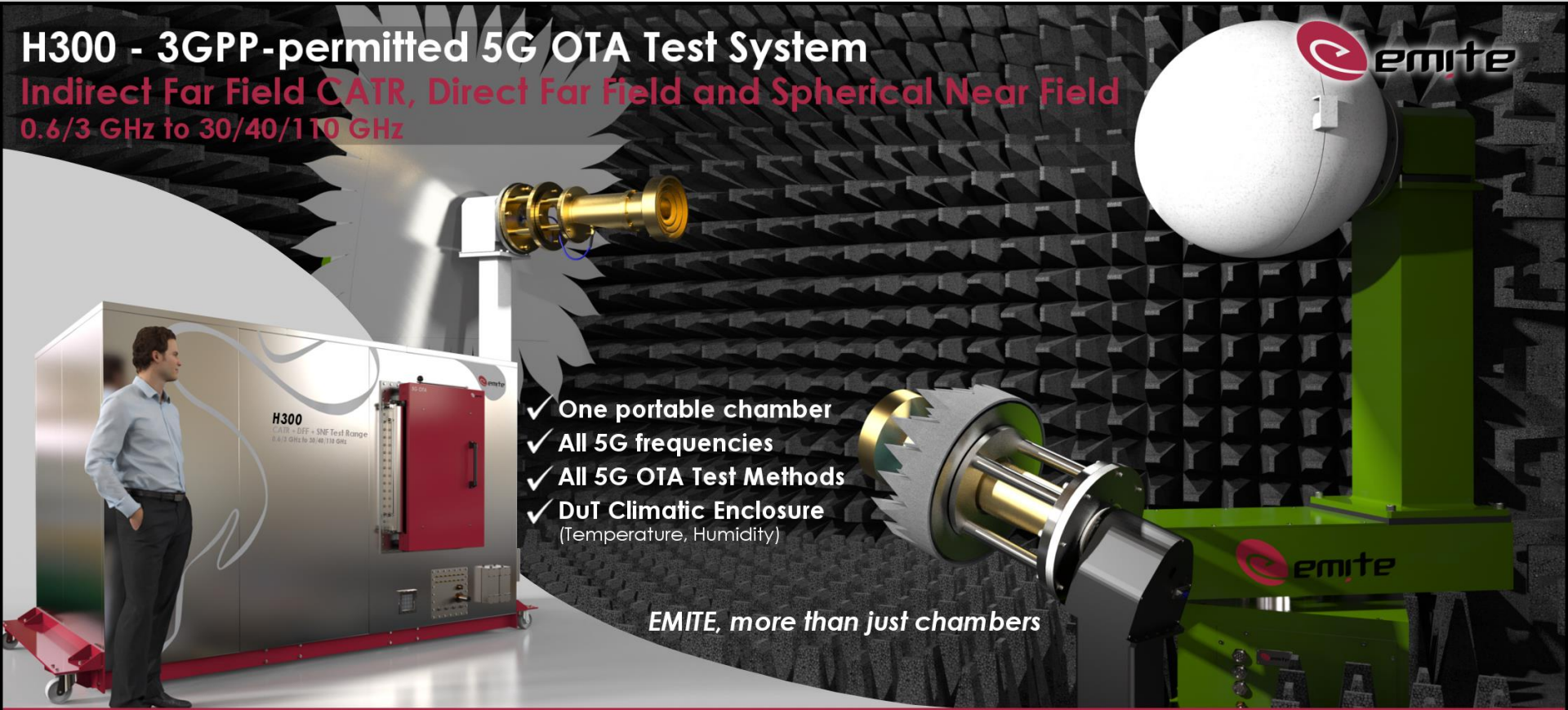
Active MIMO OTA testing

- ✓ **Cellular:** 2G, 3G, 4G, 4G+ (LTE-A), 5G NSA, 5G SA
- ✓ Up to 16x16 MIMO
- ✓ Up to 10DLCC
- ✓ **WLAN:** Wi-Fi 802.11a/b/g/n/ac/ax/6E/ay/ad, Packet Capture, HTTP Adaptive Video Streaming (HAS).
- ✓ **EMC:** IEC 61000-4-21, RTCA DO-160
- ✓ **Short-Range:** BT, BLE, Z-Wave, ZigBee
- ✓ **W-IoT:** Cat-M1, NB-IoT
- ✓ **MTC:** LoRA, Sigfox
- ✓ **FoMs:** TRP, TIS, TPUT (DL, UL), MTS, M2TxDT, Mute(%), RI, CQI, RSRP, MIMO TRP/TIS, UE Temperature, Battery level
- ✓ **Signalling/Non-Signalling OTA Operation Modes**

EMITE H300 OTA Test System

H300 - 3GPP-permitted 5G OTA Test System

Indirect Far Field CATR, Direct Far Field and Spherical Near Field
0.6/3 GHz to 30/40/110 GHz



- ✓ One portable chamber
- ✓ All 5G frequencies
- ✓ All 5G OTA Test Methods
- ✓ DuT Climatic Enclosure
(Temperature, Humidity)

EMITE, more than just chambers

www.emite-ing.com

sales@emite-ing.com

EMITE F200 OTA Test System

The Best of Both Worlds - 5G OTA Testing

F-Series Hybrid AC/RC 200MHz to 110GHz

Anechoic

- ✓ 3GPP-standardized
- ✓ Sub6GHz & mmWave
- ✓ Directional KPIs
- ✓ Climatic enclosure
- ✓ Simultaneous
CATR + SNF + DFF

Reverberation

- ✓ Fast & Repetitive
- ✓ End-to-End
- ✓ Isotropic KPIs
- ✓ 16x16 MIMO x 10DLCC
- ✓ RC unsupervised
parallel overnight

One chamber. Two worlds. Let's rock.
EMITE, more than just chambers

www.emite-ing.com

sales@emite-ing.com

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- Medium Chambers
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- Services

Small Chambers

I-Series



- ✓ **DUT Max 30cm – 5Kg**
- ✓ ~ 1.6m H x 0.81m W x 1,1m L
- ✓ Reverberation Chamber
- ✓ Bluetooth (802.15) and WLAN (802.11 abgnacax6E)
- ✓ 2.4GHz – 7.25 GHz
- ✓ Signaling – OTA
- ✓ Up to 8x8 MIMO TCP/UDP/FTP
- ✓ 1 DUT
- ✓ Low cost

PT-Series



- ✓ **DUT Max 15cm – 5Kg**
- ✓ ~ 1.6m H x 0.8m W x 1.5m L
- ✓ Reverberation Chamber
- ✓ Wi-Fi, 2G - 5G SC
- ✓ 690 MHz – 60 GHz
- ✓ Non-Signaling – Production OTA
- ✓ Up to 8 x SISO SC
- ✓ Up to 8 DUTs in parallel
- ✓ Low cost

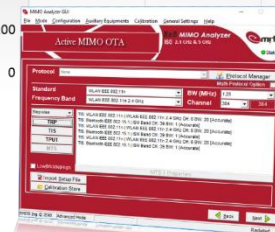
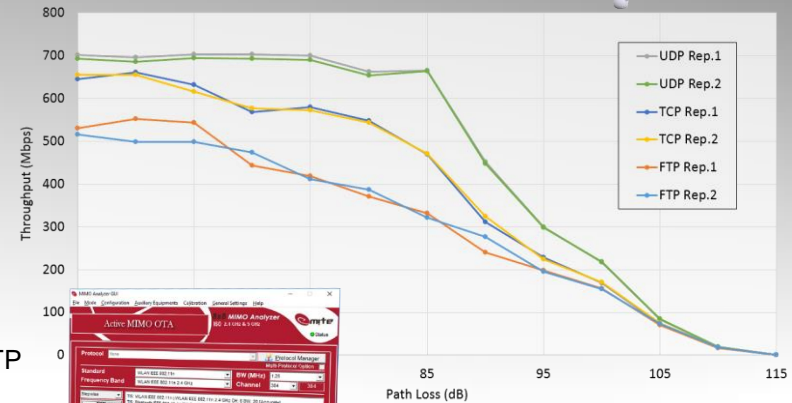


I60 - Small-size Reverberation Chamber OTA Testing



Features

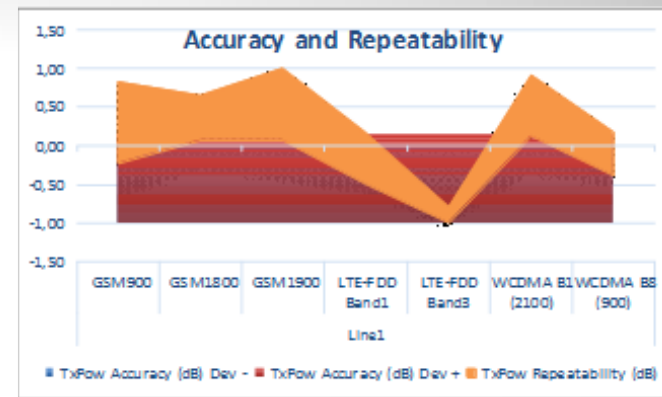
- ✓ DUT Max 30cm – 5Kg
- ✓ ~ 1.6m H x 0.81m W x 1,1m L
- ✓ Reverberation Chamber
- ✓ Bluetooth (802.15) and WLAN (802.11abgnacax6E)
- ✓ 2.4GHz – 7.25 GHz
- ✓ Signaling – OTA
- ✓ Up to 8x8 MIMO TCP/UDP/FTP
- ✓ 1 DUT
- ✓ Low cost



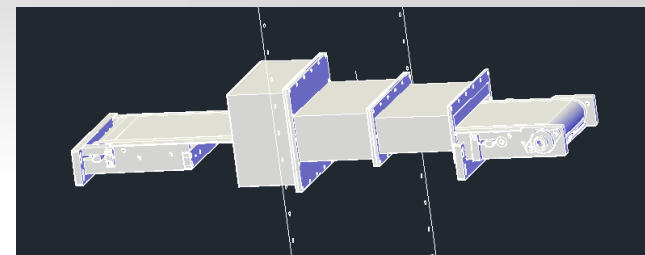
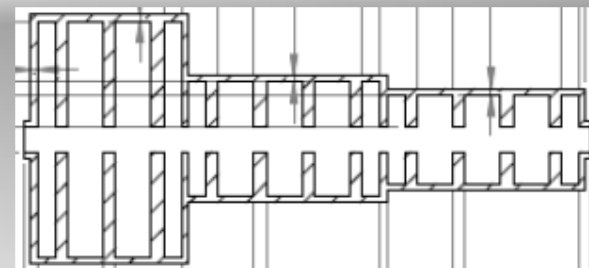
PT100 - Small-size Reverberation Chamber Production Testing

Features

- ✓ DUT Max 15cm – 5Kg
- ✓ ~ 1.6m H x 0.8m W x 1.5m L
- ✓ Reverberation Chamber
- ✓ Wi-Fi, 2G-5G SC
- ✓ 690 MHz – 60 GHz
- ✓ Up to 4 DUTs in parallel
- ✓ [20 Test – TxPower, RSSI, 4 DUTS, 210 seconds, Intense Testing (24/7)]
- ✓ Non-Signaling – Production OTA: Cellular - Non-signaling – SISO/MIMO for WLAN, 2G, 3G, 4G, 5G Technologies
- ✓ I/O Filters
- ✓ Up to 8 x SISO SC
- ✓ **Conveyor belt for Production Line integration**
- ✓ Low cost
- ✓ Integrated with R&S (CMW100, CMW500), NI (WTS) and Anritsu (MT8870)



I/O Filters



DUT Max.: 15cm – 5kg

PT50 - Small-size Reverberation Chamber Production Testing

PT50_1072016-11-11-2017_111218.txt

```

13 Chipset Profile: XXXX
14 DUT ID: 84:DB:AC:25:74:76
15 DUT IMEI: XXXX
16 Elapsed Time (s): 31
17 Test File: C:\Users\
18
19 No. TestItem
20 -----
21 1 LTE Band1 Ch=300
22 2 LTE Band1 Ch=300
23 3 Modem1 GSM GSM90
24 4 GSM GSM900 Ch=38
25 5 WCDMA Band8 Ch=2
26 6 LTE Band3 Ch=1575
27 7 LTE Band41 Ch=40620
28 8 LTE Band41 Ch=40620
29 9 GSM GSM1800 Ch=8
30 10 Modem1 GSM GSM18
31 11 LTE Band1 Ch=1800
32 -----
33
34
35 LINE PRODUCTION No.2
36
37 Tester: 6EB04C27EB44
38 Chipset Profile: XXX
39 DUT ID: F4:9F:F3:AA:
40 DUT IMEI: XXX
41 Elapsed Time (s): 31
42 Test File: C:\Users\
43
44 No. TestItem
45 -----
46 1 Modem1 GSM GSM90
47 2 GSM GSM900 Ch=38
48 3 WCDMA Band8 Ch=2
49 4 GSM GSM1800 Ch=8
50 5 LTE Band1 Ch=300

```

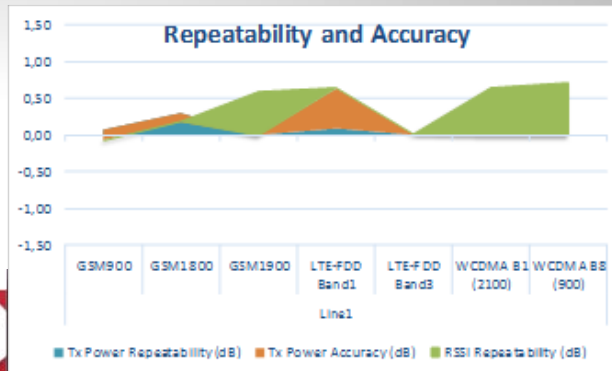
PT50

STOP

Tests in progress

LINE No.	Tester Instance	Device Profile	DUT ID
LINE No.1	6EB04C27EB44A4D(0)	6EB04C27EB44A4D(0)	84:DB:AC:25:74:76
LINE No.2	6EB04C27EB44A4D(1)	6EB04C27EB44A4D(1)	F4:9F:F3:AA:9E:19
LINE No.3	6EB04C27EB44A4D(2)	6EB04C27EB44A4D(2)	84:30:52:7F:E5:EC
LINE No.4	6EB04C27EB44A4D(3)	6EB04C27EB44A4D(3)	84:30:52:01:A1:E8
LINE No.5	6EB04C27EB44A4D(4)	6EB04C27EB44A4D(4)	84:DB:AC:3F:D8:E8
LINE No.6	6EB04C27EB44A4D(5)	6EB04C27EB44A4D(5)	84:30:52:01:A1:E8
LINE No.7	6EB04C27EB44A4D(6)	6EB04C27EB44A4D(6)	24:02:BA:27:1D:9A
LINE No.8	6EB04C27EB44A4D(7)	6EB04C27EB44A4D(7)	24:02:BA:27:1D:96

Engineering Mode Running



DUT Max.: 15cm – 5kg ✓ 20 Test – TxPower, RSSI, up to 8 DUTS, 300 seconds

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01 About us

02 Solutions & Services

- Small Chambers
- **Medium Chambers**
- Large Chambers
- Services



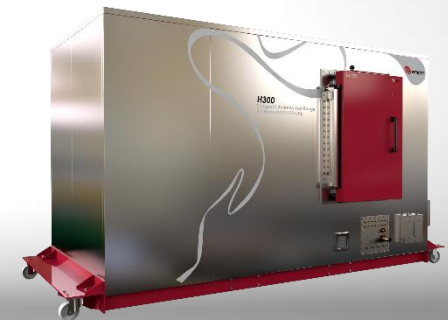
Medium Chambers

E-Series



- ✓ **DUT Max. 60cm – 50kg**
- ✓ Reverberation Chamber
- ✓ Wi-Fi, 2G/4G/5G, W-IoT, MTC, SR
- ✓ 400 MHz – 60 GHz
- ✓ Signaling - OTA
- ✓ Authorized for Samsung/Microsoft/DoCoMo/Telstra testing
- ✓ Up to 8x8 MIMO x 10DL CC
- ✓ 4x4 MIMO TPUT TCP/UDP
- ✓ WLAN (up to 802.11ax 6GHz band)
- ✓ 5G OTA NSA/SA FR1+FR2

H-Series



- ✓ **DUT Max. 36/60cm – 8/25kg**
- ✓ IFF (CATR)/DFF/SNF
- ✓ 5G NSA, 5G SA (FR1+FR2)
- ✓ 400 MHz – 220 GHz
- ✓ Signaling – OTA – 3GPP/CTIA/PTCRB
- ✓ 3GPP 5G OTA Permitted
- ✓ EIRP/TRP and EIS measurements
- ✓ RF measurements
- ✓ 5G OTA FR1+FR2
- ✓ 5G Thermal

E600 - Medium-size Reverberation Chamber up to 8x8 x 10DLCC

- ✓ Dimensions: 2750 mm (L) x 1555 mm (W) x 2000 mm (H)
- ✓ 400 MHz – 60 GHz
- ✓ DUT/AuT 60cm / 50kg max
- ✓ Passive MIMO antenna testing
- ✓ BS/UE/CPE/AP/STA as DUT
- ✓ eNB/gNB emulator + VNA + RC + CE
- ✓ UE emulator + VNA + RC + CE
- ✓ AP/STA + VNA + RC + CE
- ✓ RRU + BBU + VNA + RC
- ✓ Signaling/Time Domain/VDT OTA
- ✓ 8x8 MIMO x 10DL CC
- ✓ FDD / TDD / U / LAA / 5G NSA
- ✓ 802.11abgnacax6Eayad
- ✓ W-IoT / MTC / SR
- ✓ TRP, TIS, AI/FTP/TCP/UDP TPUT, MTS, RI, M2TxDT, MCL, RI, CQI, RSRP, MIMO TRP, MIMO TIS, UE Temperature, Battery level,
- ✓ iOS, Android, Windows, Linux, Mac, Tizen, AWP UE Apps
- ✓ Upgrade path from E400/E500



Unique Features

E600 - Medium-size Reverberation Chamber up to 8x8 x 10DLCC

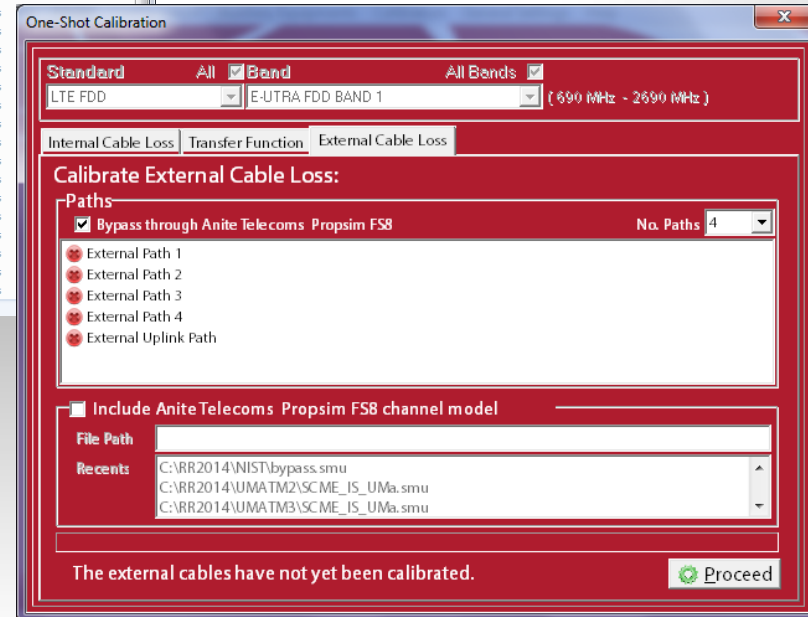
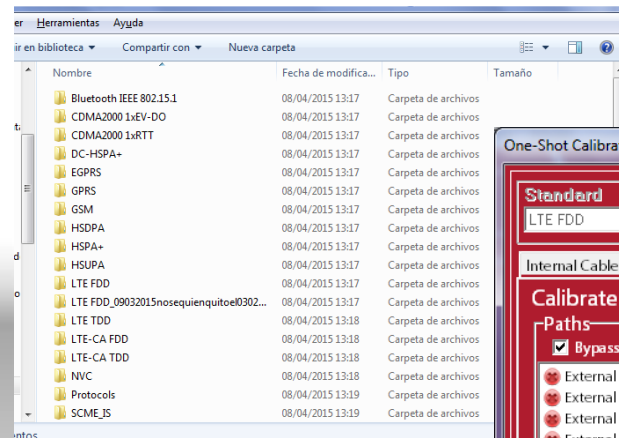
1. Completely modular, disassemblable and upgradable - **UNIQUE!**
2. RF Turnkey Solution - Once installed, does not need any RF reconnection - **UNIQUE!**
3. Best stability, accuracy and repeatability - **UNIQUE!**
4. One-shot calibration - all technologies, all bands, all channels (including CE) - **UNIQUE!**
5. One-button automated unsupervised overnight campaign testing - **UNIQUE!**
6. New figures of merit - **UNIQUE!**
7. Shortest test times (30 s TRP / 1.5 min TIS) - **UNIQUE!**
8. Dynamic VRC OTA testing - VDT-OTA / RRU+BBU OTA (2G/3G/4G/5G NSA) - **UNIQUE!**
11. B71 covered - **UNIQUE!**
12. UE apps in iOS, Android, Windows, Mac, Linux, Tizen, AWP - **UNIQUE!**
13. Easy to use GUI and automated reporting from own SW dept - **UNIQUE!**
14. Any device type - **UNIQUE!**
15. Fully-Automated 802.11abgnacax6E WLAN OTA Testing - **UNIQUE!**
16. 5G OTA automation FR1 + FR2 - **UNIQUE!**

E600 RC



One-shot calibration

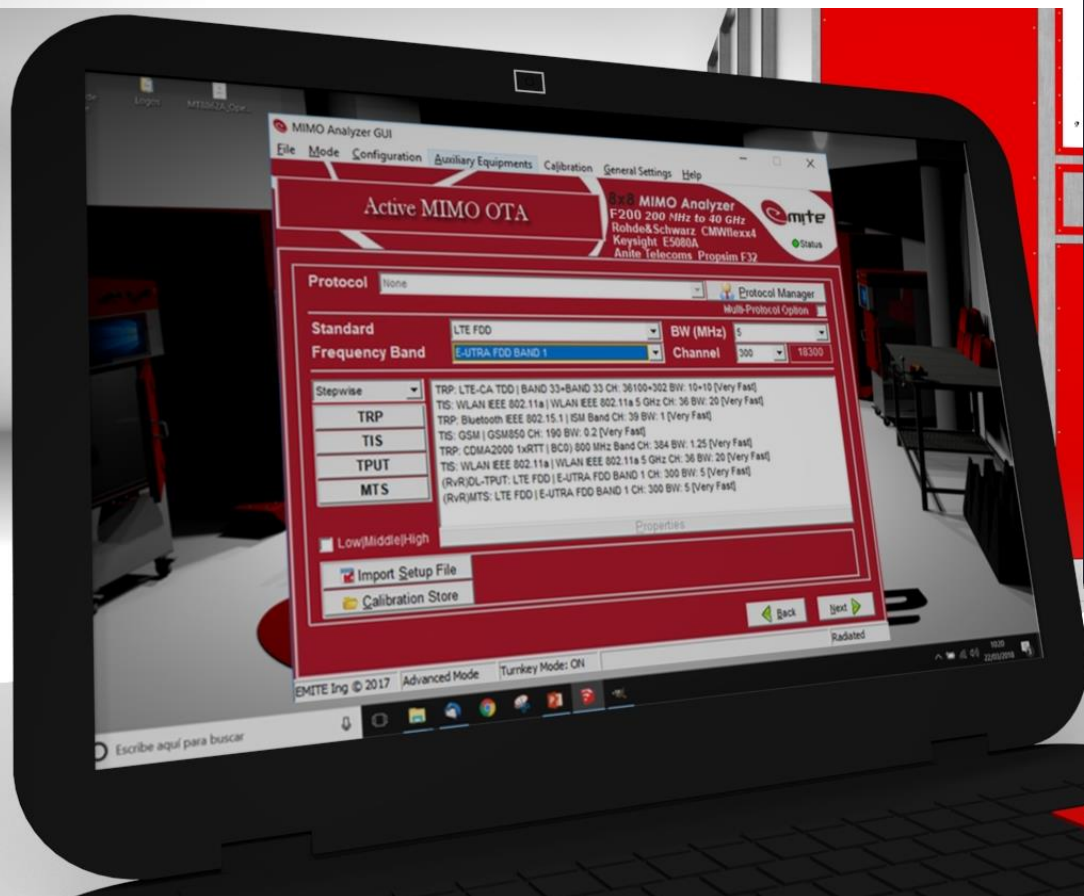
All licensed bands and technologies with one button



DUT Max.: 60cm – 50kg

E600 RC

Unsupervised overnight testing 365/24 operation, unheard-off intense testing



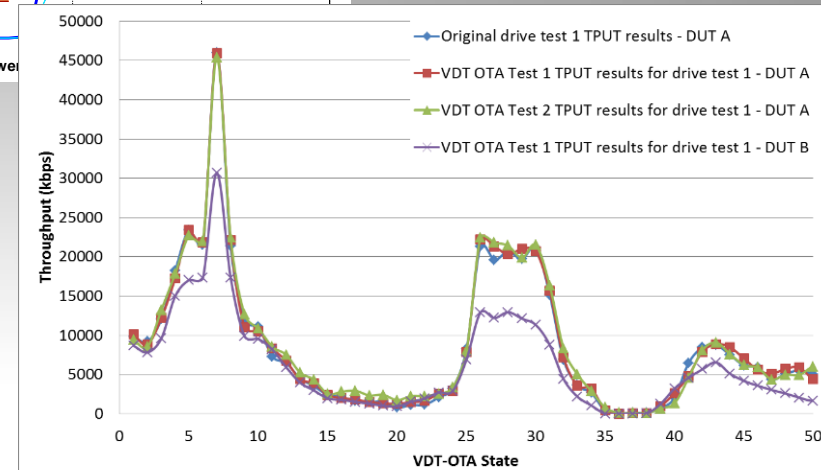
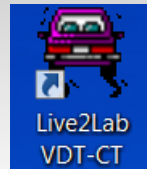
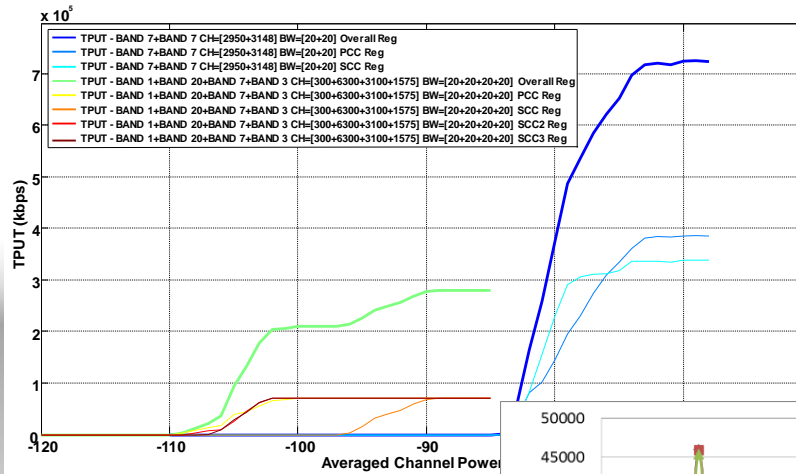
E600 RC



Dynamic VRC OTA testing VDT-OTA, Real eNodeB/gNodeB with UE/UE emulator



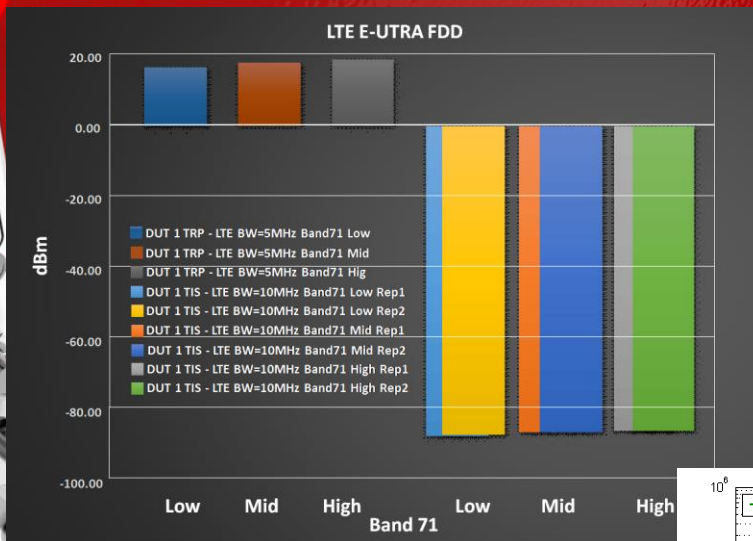
Analyzed by Others



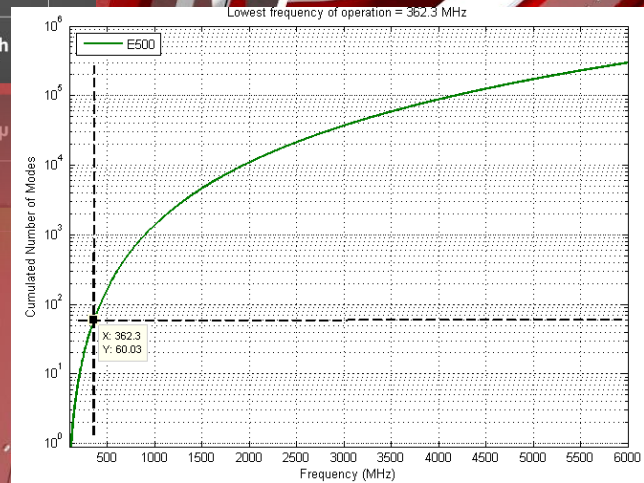
DUT Max.: 60cm – 50kg

E600 RC

Band 71 covered
New spectrum testing ensured (LUF=365MHz)



Analyzed by T-Mobile



E600 RC



Own SW Department provides intuitive GUI
Easy-to-use one button operation with automated reporting



MIMO Analyzer GUI v3.0

File Setup File Mode Configuration Auxiliary Equipments No-VNA Calibration Help

8x8 MIMO Analyzer
E400a 690 MHz to 6 GHz
Rhode&Schwarz CMW
Agilent E5071C
Spirent SR5500

1. Throughput measurement 1 done. 0.00 % completed.
1. Throughput measurement 2 done. 16.67 % completed.
1. Throughput measurement 3 done. 33.33 % completed.
1. Throughput measurement 4 done. 50.00 % completed.
1. Throughput measurement 5 done. 66.67 % completed.
1. Throughput measurement 6 done. 83.33 % completed.
1. Throughput measurement 7 done. 100.00 % completed.
1. Throughput measurement 8 done. 100.00 % completed.
1. Throughput measurement 9 done. 100.00 % completed.
1. Throughput measurement 10 done. 100.00 % completed.
1. Throughput measurement 11 done. 100.00 % completed.
1. Throughput measurement 12 done. 100.00 % completed.
1. Throughput measurement 13 done. 100.00 % completed.
1. Throughput measurement 14 done. 100.00 % completed.
1. Throughput measurement 15 done. 93.75 % completed.
1. Throughput measurement 16 done. 100.00 % completed.
Measurement Done

Information
Measurements have finished
OK

Back Cancel

Radiated

EMITE Ing (t) MIMO Analyzer Active Measurement Report
Generated by MIMO Analyzer Series [E500 690 MHz to 6 GHz] MIMO GUI Software: [v3.4b]

Date (DD-MM-YYYY HH:MM:SS): 08-11-2014 11:55:15

Reference Document: AT&T Document 10776 Version 11.1

Instrument Connected:

- ANRITSU MTH20C (Base 22.00 #004.5 LTE Signal: 22.54 #009)
- Anite Telecom Proprietary FSH (3.2.1)

Fading Environment: Rayleigh
Isotropy: Isotropic omnidirectional
User: No User
Standard: LTE FDD

Device Info	
Serial Number	
Model	G52
IMEI	35179054229740
SCPP Release	None
UE Category	C-144
Bandwidth	5MHz
Channel	2525

Throughput (Channel 2525)

Y-axis: kbps (0 to 3500)
X-axis: Averaged Channel Power (dBm/15kHz) (-133 to -113)

Legend: TRUT avg DLPriv (green line), MTS (red dashed line)

Summary

Protocol Name: Final Pass/Fail
Fail

AT&T 10001 v5.0



to be installed.

performed and click on Next to continue.

3

Next > Cancel

DUT Max.: 60cm – 50kg

E600 RC



DUT Max.: 60cm – 50kg

UE apps

Android, iOS, Mac, Linux, Windows, Tizen, WP

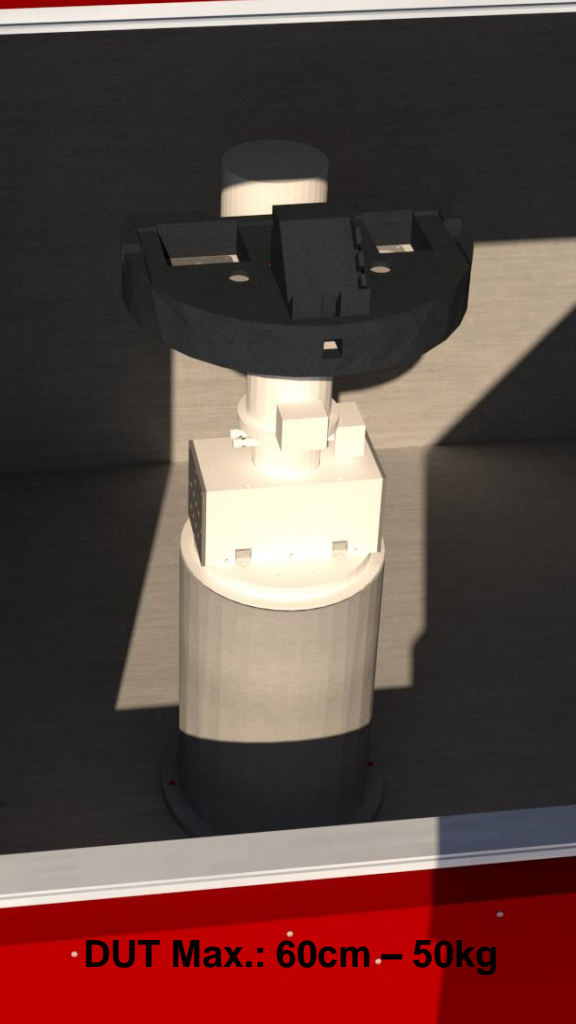


Analyzed by Others



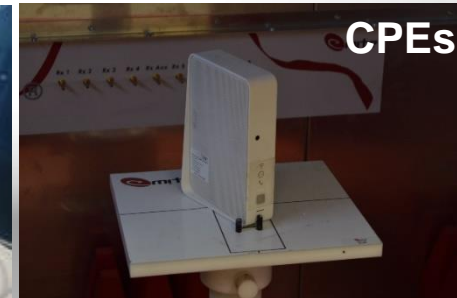
DL/UL FTP/TCP/UDP TPUT – Application/Transport OSI Layer

E600 RC



Any device type

Smartphones, tablets, dongles, CPEs, wearables, W-IoT devices, headsets, w/wo phantoms



Wearables

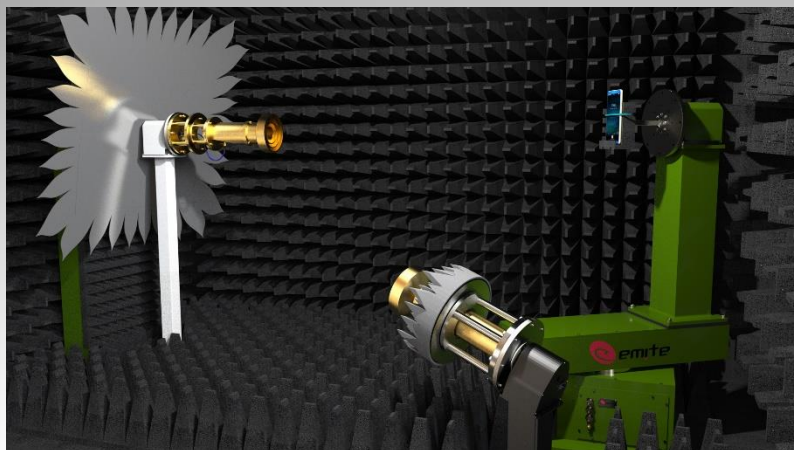


W-IoT devices



• DUT Max.: 60cm. – 50kg

H-Series CATR

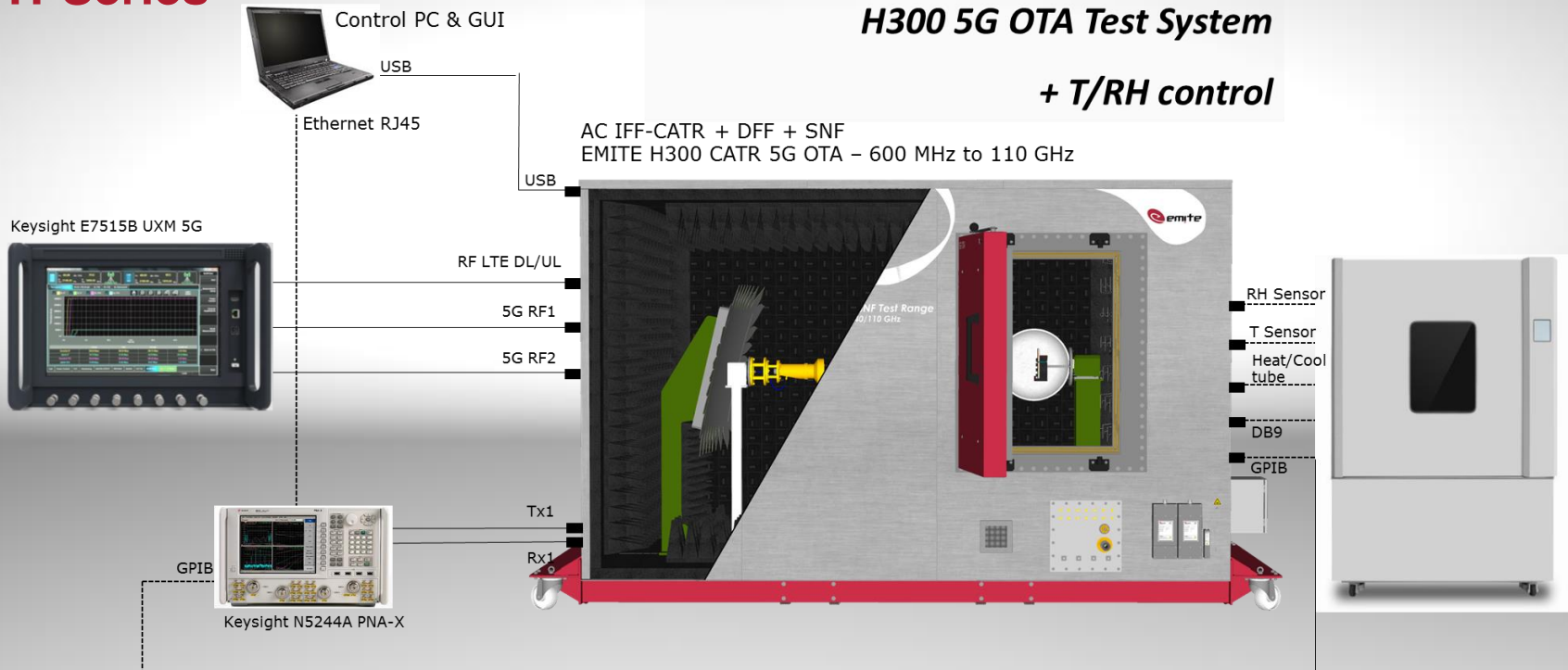


- ✓ Precision IFF(CATR)/DFF/SNF
- ✓ 0.4 to 220 GHz OTA System
- ✓ 3.45m (L) x 1.7m (W) x 1.99m (H)
- ✓ Serrated/rolled reflector, diagonal feed
- ✓ 36/60cm quiet zone
- ✓ Carbon loaded polystyrene absorbers
- ✓ Roll over AZ & elevation over AZ
max load 8/25kg
- ✓ Rotary joint up to 60 GHz
- ✓ Precision controller
- ✓ Dual-pol circular corrugated probes
- ✓ 600mm x 900mm door
- ✓ Beam pattern measurements
- ✓ Signaling OTA – 3GPP/CTIA
- ✓ TP302 in PTCRB
- ✓ EIRP/TRP and EIS measurements
- ✓ RF measurements, Spurious Testing
- ✓ 5G Thermal testing
- ✓ Selected by leading carriers

03 H-Series

H300 5G OTA Test System

+ T/RH control



- ✓ Precision Anechoic Chamber
- ✓ [DFF, IFF-CATR, NFTF-SNF]
- ✓ 0.4 to 220 GHz System
- ✓ 3.45m (L) x 1.70m (W) x 1.99m (H)
- ✓ Serrated/rolled reflector, lateral feed
- ✓ 36/60cm quiet zone
- ✓ Carbon loaded polystyrene absorbers
- ✓ Roll over AZ & elevation over AZ [max load 8/25kg]
- ✓ Rotary joint up to 60 GHz
- ✓ Simultaneous FR1+FR2
- ✓ Climatic enclosure [-8 to 70°C with $\pm 0.5^\circ\text{C}$ & 10% to 95% RH with $\pm 0.5\%$ to $\pm 3\%$ at climatic output]
- ✓ 600mm x 900mm door
- ✓ Antenna FoMs and 5G OTA KPIs

Unique Features

H300 5G OTA Test System

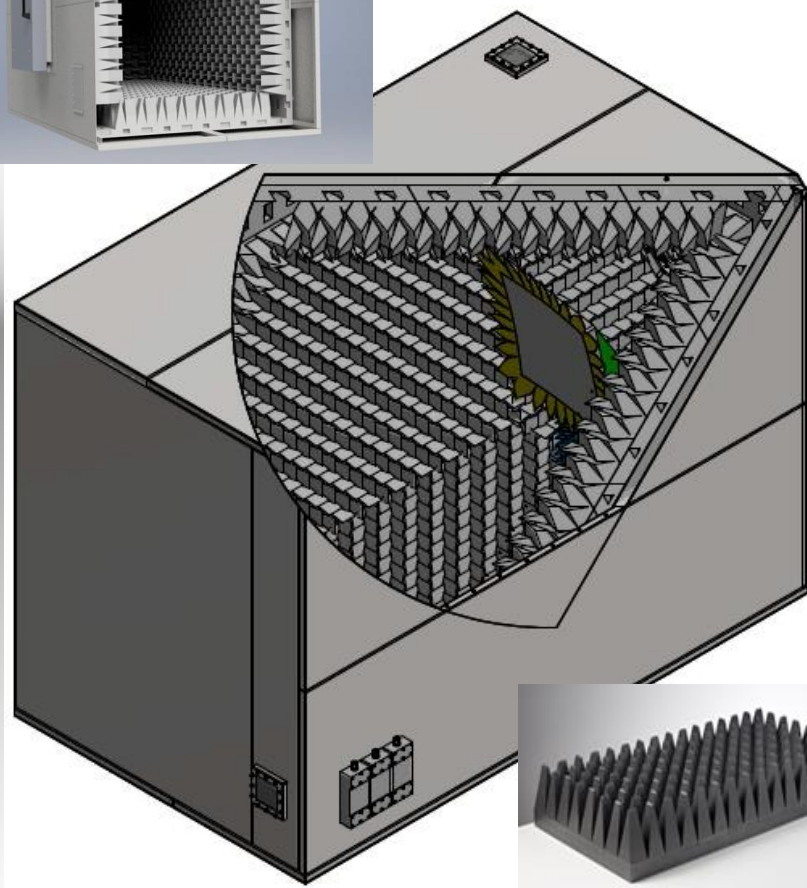
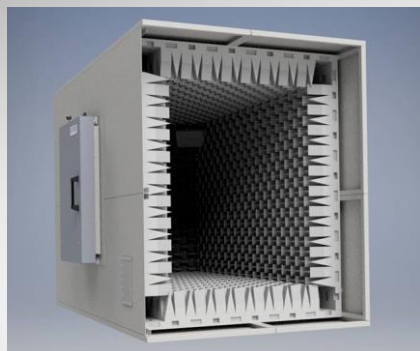
Indirect Far Field CATR, Direct Far Field and Spherical Near Field – 3GPP-permitted
0.4 GHz to 220 GHz

1. Modular and upgradable chamber – **UNIQUE!**
2. Outstanding chamber framework – **UNIQUE!**
3. Completely reconfigurable system – **UNIQUE!**
4. State of the art motors and positioners – **UNIQUE!**
5. Best probes and antennas – **UNIQUE!**
6. Outstanding reflectors – **UNIQUE!**
7. CATR quiet zone probing on-site – **UNIQUE!**
8. Intuitive GUI and automated reporting from own SW dept – **UNIQUE!**
9. State of the art control equipment - **UNIQUE!**
10. Integrated with Anritsu/R&S/Keysight 5G equipment – **UNIQUE!**
11. Automated UE-Flipping module - **UNIQUE!**
12. Thermal enclosure for temperature and humidity – **UNIQUE!**

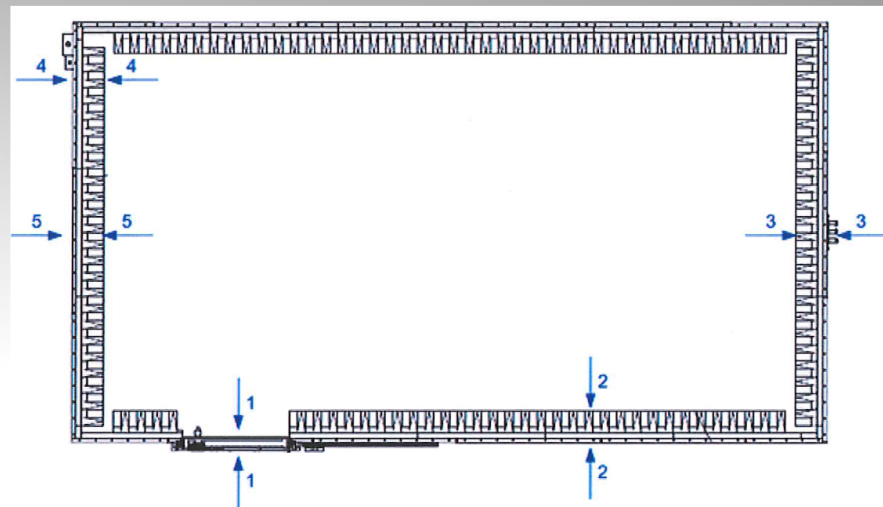
Modularity and upgradeability

A modular chamber that can be enlarged

H300 5G OTA



Shielding effectiveness according to EN 50147-1		
	Frequency:	Guaranteed value
Magnetic field	10 kHz	≥70dB
	156 kHz	≥85dB
	1 MHz	≥100dB
	10 MHz	≥100dB
Electrical field	10 kHz ≤ f < 30 MHz	≥110dB
Plane wave	30 MHz ≤ f ≤ 1 GHz	≥110dB
Micro wave	1 GHz < f ≤ 10 GHz	≥100dB
	18GHz	≥90dB
	40 GHz	≥80dB

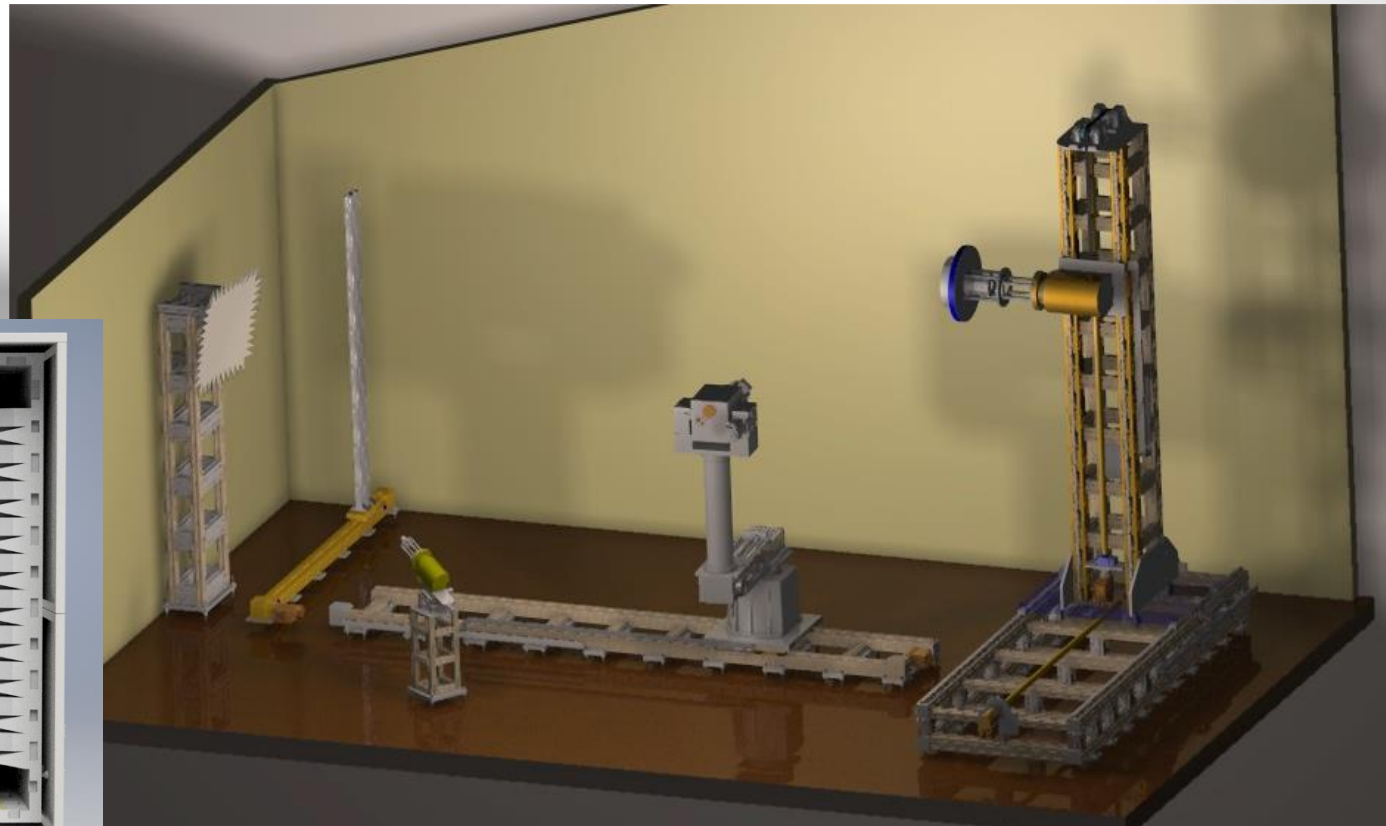
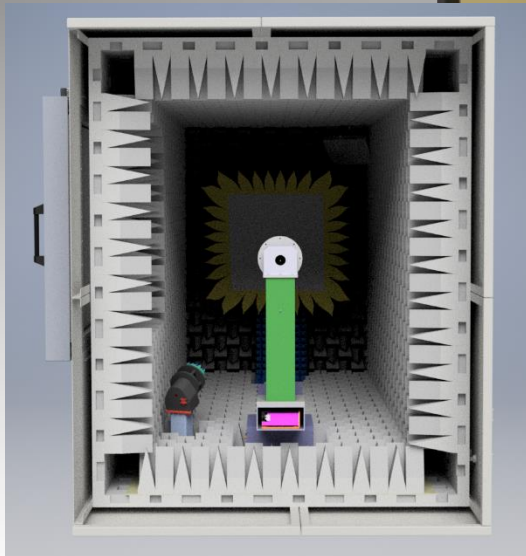


H300 5G OTA

- ✓ Upgradable up to 220 GHz
- ✓ Upgradable down to 400 MHz
- ✓ Upgradable and Modular

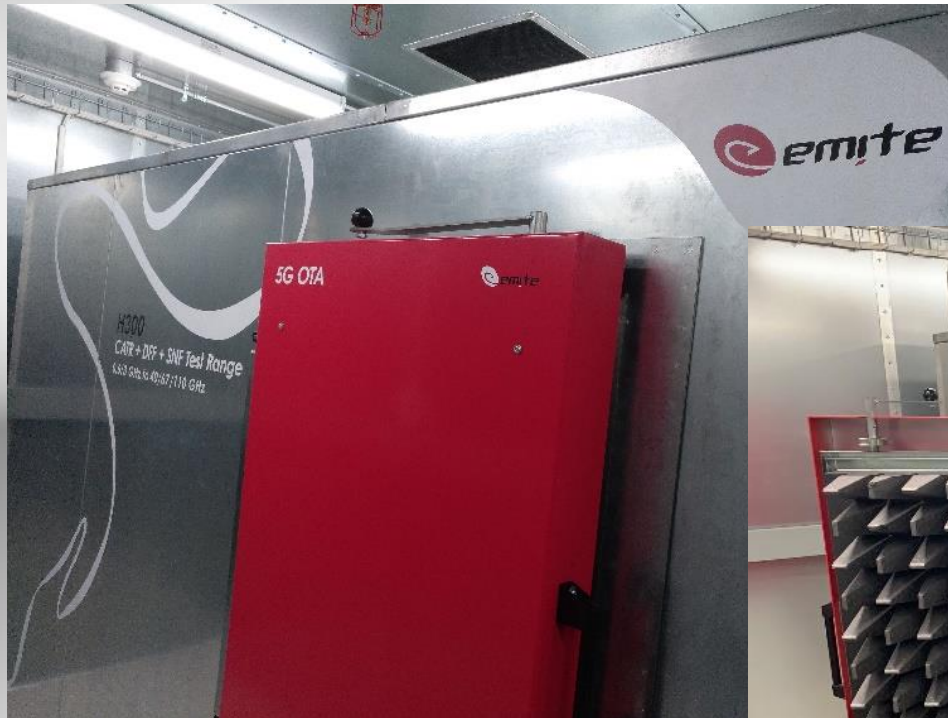
Flexibility

**A completely reconfigurable system
Compact/Planar/Cylindrical/Spherical**



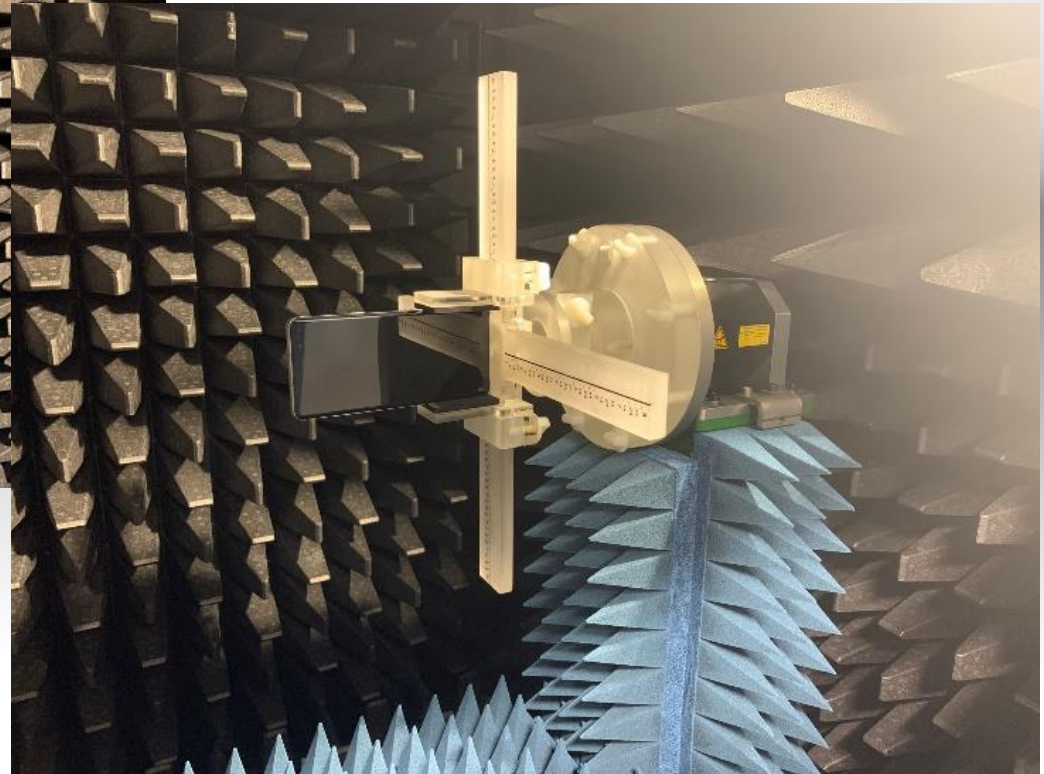
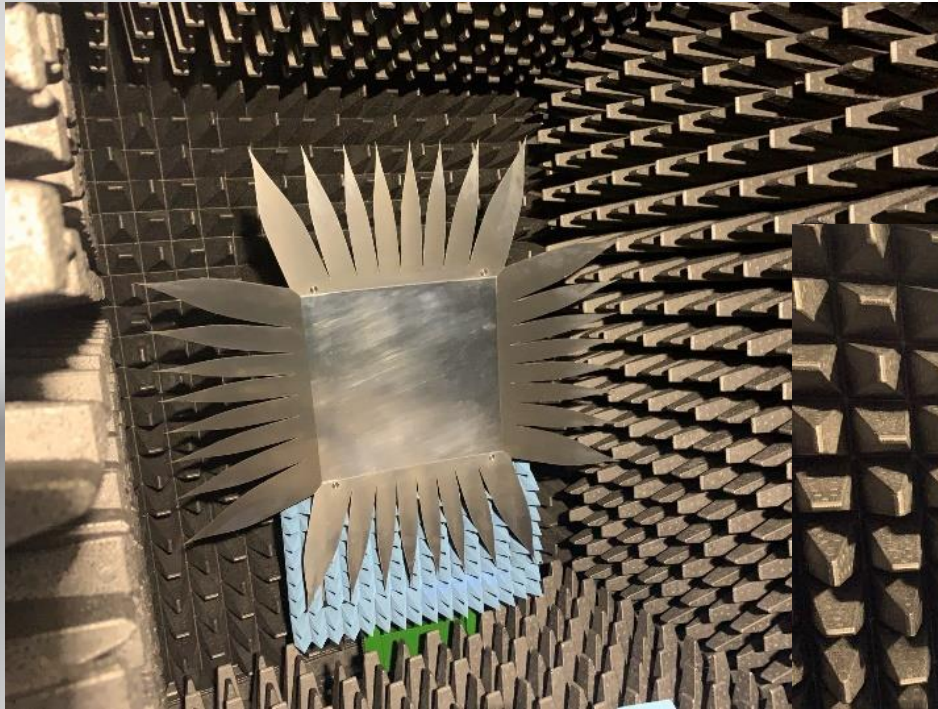
EMITE H300 OTA Test System

Customer Installation



EMITE H300 OTA Test System

Customer Installation



EMITE H300 OTA Test System

Test results

EMITE Ing (c) MIMO Analyzer Active Measurement Report
Generated by MIMO Analyzer Series [H300 3000 MHz to 40 GHz] MIMO GUI Software [v3.12]



Date (DD-MM-YYYY HH:MM:SS): 05-07-2019 14:41:50

Tester Name: EMITE Tester

Reference Documents: 3GPP 38.521, 3GPP 38.810

Instruments Connected:

- Keysight E7515B (Base:2.2.020190510.1140;+ LTE+NR

Device info:
Name: 5G NR NSA FR2 device
Model: EMITE device
Project Name: None
HW Version: None
SW Version: None
IMEI: None
3GPP Release: None
UE Category: None
Bands Supported: Unknown

Summary

EIRP Measurements Summary

ID
[EIRP - BAND 66+NR BAND 261 CH=\[132422+2077891\] BW](#)

EVM Measurements Summary

ID
[EVM - BAND 66+NR BAND 261 CH=\[132422+2077891\] BW](#)

EMITE Ing (c) MIMO Analyzer Active Measurement Report
Generated by MIMO Analyzer Series [H300 3000 MHz to 40 GHz] MIMO GUI Software [v3.12]



Date (DD-MM-YYYY HH:MM:SS): 04-07-2019 09:51:28

Tester Name: EMITE Tester

Reference Documents: 3GPP 38.521, 3GPP 38.810

Instruments Connected:

- Keysight E7515B (Base:2.2.020190510.1140;+ LTE+NR

Device info:
Name: 5G NR NSA FR2 device
Model: EMITE device
Project Name: None
HW Version: None
SW Version: None
IMEI: None
3GPP Release: None
UE Category: None
Bands Supported: Unknown

Summary

EIS Measurements Summary

ID
[EIS - BAND 66+NR BAND 261 CH=\[66886+2077891\] BW](#)

Measurement Details

Elapsed Time: 3m 13s
Description: EIS - BAND 66+NR BAND 261 CH=[66886+2077891] BW=[20+100]
Standard: LTE + 5G NR
Frequency Band: E-UTRA FDD BAND 66
Channel: 66886

Summary

EIS Measurements Summary

ID	Description
EIS - BAND 66+NR BAND 261 CH=[66886+2077891] BW=[20+100]	EIS - BAND 66+NR BAND 261 CH=[66886+2077891] BW=[20+100]

Measurement Details

Elapsed Time: 3m 13s
Description: EIS - BAND 66+NR BAND 261 CH=[66886+2077891] BW=[20+100]
Standard: LTE + 5G NR
Frequency Band: E-UTRA FDD BAND 66
Channel: 66886
Channel Bandwidth (MHz): 20

Coexistence: NO

Measurement Mode: N/A
Number of Theta Measurement Points: 1
Number of Phi Measurement Points: 1
Sweep Power Source: Base Station Emulator
Channel Model: N/A
Automated Rewind: N/A

Standard Parameters Settings:

External Attenuation D11: 30
External Attenuation D12: 30
External Attenuation D13: 30
External Attenuation D14: 30
External Attenuation U1: 30
Output Power Level: -35.00
Input Power Level: 20
TPC: Close_Loop
P-Max: 33
RB-DL: 100
RB Start-DL: 0
RB-UL: 100
RB Start-UL: 0
MCS Index-DL1: 5
MCS Index-DL2: N/A
MCS Index-DL3: 5
PDCCH Symbols(CFI): 2
MCS Index-UL: 6
256QAM: OFF
Transmission Mode-DL: Single-antenn

Index

01 About us

02 Solutions & Services

- Small Chambers
- Medium Chambers
- **Large Chambers**
- Services

F200 - Large Reverberation / Anechoic chamber – 5G OTA

Cellular, WLAN, IoT, MTC, SR, EMC, 5G NSA, 5G SA

The Best of Both Worlds - 5G OTA Testing

F-Series Hybrid AC/RC 200MHz to 110GHz

Anechoic

- ✓ 3GPP-standardized
- ✓ Sub6GHz & mmWave
- ✓ Directional KPIs
- ✓ Climatic enclosure
- ✓ Simultaneous
CATR + SNF + DFF

Reverberation

- ✓ Fast & Repetitive
- ✓ End-to-End
- ✓ Isotropic KPIs
- ✓ 16x16 MIMO x 10DLCC
- ✓ RC unsupervised
parallel overnight

One chamber. Two worlds. Let's rock.
EMITE, more than just chambers

www.emite-ing.com

sales@emite-ing.com

www.emite-ing.com



F200 - Large Reverberation / Anechoic chamber – 5G OTA

Cellular, WLAN, IoT, MTC, SR, EMC, 5G NSA, 5G SA

- ✓ All E600 RC features + H300 AC Series
- ✓ 200 MHz – 220 GHz
- ✓ DUT 200cm / 500kg max
- ✓ Up to 8x8 MIMO x 10DL CC
- ✓ Up to 16x16 MIMO x 5DL CC
- ✓ EMC testing
- ✓ AC FF / SNF
- ✓ AC CATR/DFF/SNF
- ✓ MIMO OTA
- ✓ 5G NSA/SA OTA
- ✓ Climatic Testing
- ✓ RCS Testing



Unique Features

F200 RC Mode

1. Completely modular, disassemblable and upgradable – **UNIQUE!**
2. RF Turnkey Solution – Once installed, does not need any RF reconnection – **UNIQUE!**
3. Best stability, accuracy and repeatability – **UNIQUE!**
4. One-shot calibration - all technologies, all bands, all channels (including CE) – **UNIQUE!**
5. One-button automated unsupervised overnight campaign testing – **UNIQUE!**
6. New figures of merit – **UNIQUE!**
7. Shortest test times (30 s TRP / 1.5 min TIS) – **UNIQUE!**
8. Dynamic VRC OTA testing – VDT-OTA / RRU+BBU OTA (2G/3G/4G/5G NSA) - **UNIQUE!**
11. B71 covered – **UNIQUE!**
12. UE apps in iOS, Android, Windows, Mac, Linux, Tizen, UWP – **UNIQUE!**
13. Easy to use GUI and automated reporting from own SW dept – **UNIQUE!**
14. Any device type, including Large Form Factor – **UNIQUE!**
15. 5G OTA automation – **UNIQUE!**
16. FR2 Spurious Emissions up to 220 GHz – **UNIQUE!**
17. Automated 1.7 to 220 GHz antenna carousel – **UNIQUE!**

F200 RC Mode

✓ RRU + BBU + VNA + RC

LTE-A+NSA 4x4 x 5DLCC (FDD/TDD/U/LAA/5G NSA)

One Button Automated

- ✓ Unheard-of automation: any technology, any band, any test, any protocol, any campaign
- ✓ Overnight measurements

F200 RC Mode



F-Series RC/AC

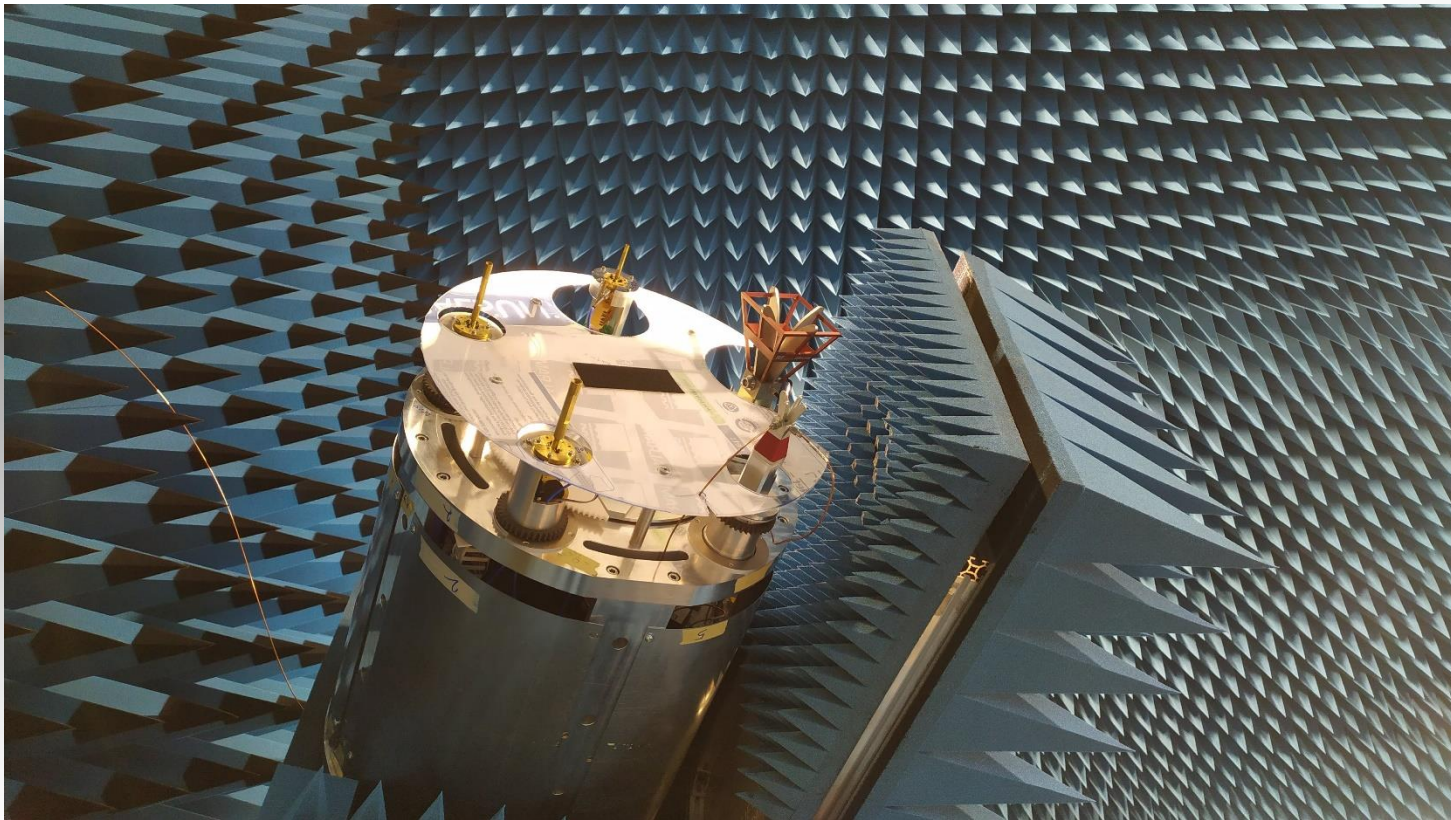


Flexibility
Ad-hoc design to adapt to room space



F-Series RC/AC

Advanced Positioners
Automated Multi-Antenna Carrousel – up to 220 GHz



Unique Features

F200 AC Mode

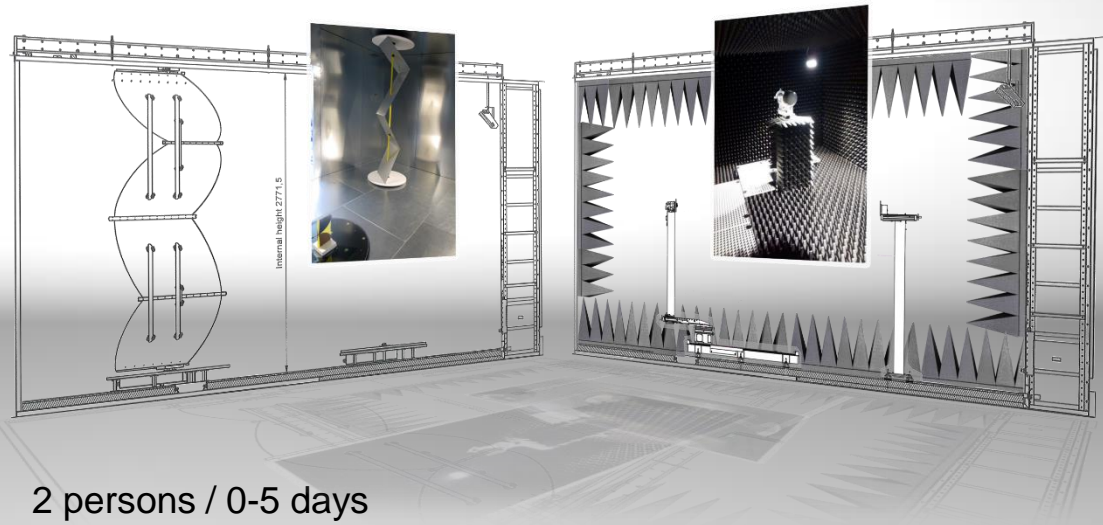
1. Extremely fast AC<>RC conversion – **UNIQUE!**
2. MIMO OTA tests – **UNIQUE!**
3. 5G Center of Beam OTA tests
4. 5G Center and off-center of Beam OTA tests
5. 5G KPIs – 3GPP and Non-Standardized.
6. State of the art motors and positioners – **UNIQUE!**
7. Best probes and antennas – **UNIQUE!**
8. Outstanding reflectors – **UNIQUE!**
9. CATR quiet zone probing on-site – **UNIQUE!**
10. Intuitive GUI and automated reporting from own SW dept – **UNIQUE!**
11. State of the art control equipment - **UNIQUE!**
12. FR2 Spurious Emissions up to 220 GHz – **UNIQUE!**
13. Automated 1.7 to 220 GHz antenna carousel – **UNIQUE!**

F200 AC Mode



F200 – AC \leftrightarrow RC Conversion

2G-5G, WLAN, W-IoT, MTC, SRC, EMC, 5G NSA, 5G SA



- ✓ 2 persons / 0-5 days
- ✓ Automated re-alignment
- ✓ Passive MIMO – Full 3D Radiation Pattern SNF and FF
- ✓ 5G (sub-6GHz and mm-Wave))
- ✓ Upgradable up to 60 GHz
- ✓ gNodeB OTA Testing
- ✓ UE OTA Testing

DUT Max.: 200cm – 50kg

04 EMITE F200 OTA Test System

Installed Setup Design: F200 RC OTA TEST SYSTEM FOR LTE-A, 5G, & 802.11ax



04 EMITE F200 OTA Test System

Installed Setup Design: F200 RC OTA TEST SYSTEM + Climatic Testing



Index

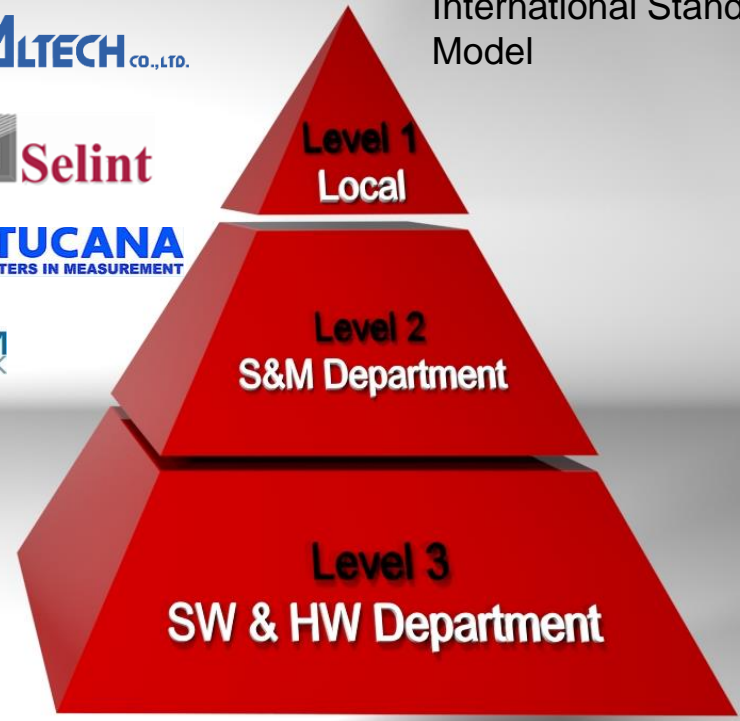
01 About us

02 Solutions & Services

- Small Chambers
- Medium Chambers
- Large Chambers
- **Services**



International Standard Model



CONSULTANCY
 Integration Services Testing Services
 Tailored Suit Solutions RF PM

SUPPORT & MAINTENANCE
 Preventive Corrective Remote Diagnosis Follow the Sun

Services

- ✓ Web-based Information & Help Desk
- ✓ Local Support – Level 1
- ✓ Hotline Support (8h response)
- ✓ Live remote connections
- ✓ Trainings

Support & Maintenance



**“Thanks for taking care
in that special way”** R&D
Senior Manager, 1st Leading SW
Manufacture Company.



Services

- ✓ Preventive Maintenance Programme.
- ✓ One-button software upgrades every 6 months.
- ✓ Remote diagnosis every 6 months.
- ✓ In-situ hardware diagnosis and re-calibration every 12 months.

**“With the same compromise
than the first day”** R&D Senior
Manager, 2nd Leading Mobile Manufacture.

Support & Maintenance



Services

Joint Development & Reverse Engineering

- ✓ Customer-Test Vendor joint development
- ✓ New FoM proposals
- ✓ Intense Testing (pre-commercial)
- ✓ Identification of Marketing key elements
- ✓ Reverse Engineering

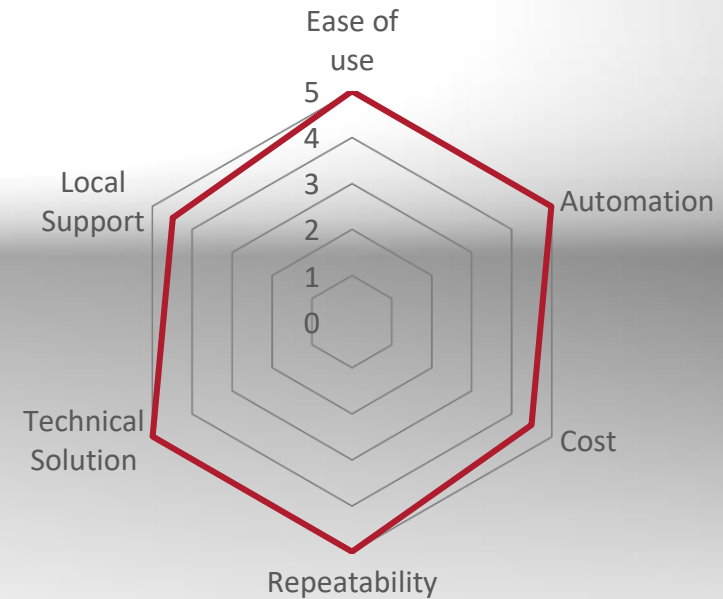
“The effort by EMITE has prevented several million phones going wrong into market. We really appreciate it”

SVP, 2nd Leading Mobile Manufacturer



Services

Parameter	Rating (5 best, 1 worst)	Comments
Ease of use	5	Intuitive single UI to calibrate, control, run all connected instruments, and collect data from all devices, plot and report results.
Automation	5	Fully automated solution with capability to choose and run multiple batch tests in batch mode. Provides a consolidated report at the end.
Cost	4.5	Comparable to other solutions. Provides the highest value between cost vs. capability.
Repeatability	5	Highest repeatability among competing solutions.
Technical Solution	5	Fully featured, superior technical solution with capability to scale to future needs.
Local Support	4.5	Good local support, with local distributors.





Thank you for your attention.