Welcome

Electrical Characterization Facilities @ UCLouvain/ICTEAM

2019/03/19
WELCOME

Wallonia Electronics and Communications Measurements

Localisation: 1348 Louvain-la-Neuve

Site web:
https://sites.uclouvain.be/icteam/welcome

UCLouvain – Université catholique de Louvain

SST – Sector of Science and Technology

ICTEAM – Institute of Information and Communication Technologies, Electronics and Applied Mathematics

WELCOME (for Research/Education/Industry)

⇒ 350 m² state-of-the art facilities for the electrical and electro-magnetic measurements on materials, devices, sensors, circuits and systems levels

⇒ 3 M€ invested over past 10 years

⇒ Built on the expertise of >10 promoters/research groups

⇒ About 135 users / year

Staff: 5 persons: Platform Manager, Research Logistician, Engineer and 2 Technicians
Platform Overview
• **Services proposal**

  - **Test / analysis**
    - **Materials, electron devices and sensors**, from DC to 110 GHz, in the temperature range 4-600K
      - Tri- and Co-axial setups, on-wafer probe stations and VNAs, 1/f noise and RTN
      - Multi-port (up to 4 accesses) and multi-parametric characterization of passive and active devices (IV, CV, temperature-microwave, electro-mechanical, and magneto-electrical sweeps, ...), in small-signal and nonlinear regime
    - **Analog/digital circuits and systems-in-package** (μcontrollers, smart cards, RFIDs, FPGAs)
      - Using ultra low current probes, mixed-signal and real-time oscilloscopes, analog waveform and digital pattern generators, vector signal generators with I/Q or digital modulation ...
    - **RF hardware, protocols and channels for wireless and ultra-wideband communications**
      - Using Vector Network Analyzers, broadband antennas, channel sounders, in a free-space, multi-path or anechoic environment.

  - **Collaborative Research**
    - **Support to the research projects** (EC, NoE, H2020, Ecsel, ESA, RW, Innoviris, FNRS, EoS, ...)
    - **Support to Spin-offs, SMEs, Valorization**
    - **Links with other UCLouvain platforms** (Cyclotron, Winfab, Bio-Chemical, Robotic, ...)

  - **Support to Education** (Master Thesis, Courses/Demos, PhD students, ....)

• **Remarkable equipment**

  - **Various Probe stations:**
    - Semi-automatic MPI : 300mm, 20-300°C
    - Lakeshore: 51mm, 4-500 K, gases
    - ...
  - **ALFNA Noise Analyzer from Keysight**
    - FET, BJT, Diode, Resistor, Circuit
    - Noise Floor: 2e-27 A^2/Hz
    - f: 3 mHz – 40 MHz,
    - RTN: dt_min=2.5 nsec, ...
  - **Vector Network Analyzer (s)**
    - Large-band VNA: 900 Hz-125 GHz, 2 ports
    - PNA-X: 26.5 GHz, 4-ports,
    - ...
  - **Anechoic chamber** (400 MHz-40 GHz)
  - **PolyTec Vibrometer**
  - **Semiconductor Analyzers**
  - **... and much more (visit our website for details)**
Industry applications

• **What we propose to industry**
  - Equipment rent
  - Equipment rent accompanied by training
  - Consultancy
  - Measurement campaign realized by UCLouvain staff/members
  - Customized
  - Training for R&D engineers from industry

• **How it works**
  - Signed Conventions (long-term)
  - One-shot service
  - Joint Projects

• **Examples / Business Clients**
  - **Solvay (B):** large-band measurements for materials characterization
  - **Total (B):** materials tests
  - **SOITEC (Fr):** SOI substrates
  - **ST-M (Fr), LETI (Fr):** characterization in a large frequency and T ranges
  - **IMEC (B):** tests at cryogenic temperatures
  - **Incize (B):** RF characterization, transmission lines, crosstalk, …
  - **Thales (B):** radiation effects on devices and circuits
  - **CommuniThings (B):** EMC pre-compliance
  - **Alvalux (B):** opto-electrical measurements
  - **AGC (B):** automotive smart-glasses characterization
  - **E-peas (B):** test of µControllers, Circuitry for IoT, PCB assembly, …
  - **Icoms (B):** spectral analysis at 24 GHz
  - …
Process & Contact

Processing:

- Application processing time: we are very reactive, typically from day(s) to week, depending on specificity of the demand
- Processing capabilities: On request

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