

RESEARCH ENVIRONMENT

FACILITY

The facility of the EMIC group is composed of an extensive inventory of RF/ Microwave test and measurement equipment, which is located in three laboratories in rooms 540, 541 and 543 in Engineering Building I at National Chung Cheng University. The directors and research activities of each lab are summarized below:

Wireless Communication Lab (RM543)

Director: Prof. Shung-Fuh Chang, Prof. Chia-Chan Chang, Prof. Zuo-Ming Tsai

Research: RF/Microwave transceiver module, RF/Microwave/mm-Wave passive and active ICs, Filters in PCB/LTCC/CMOS, mm-wave CMOS-MEMS circuits, Smart antenna systems and beamforming techniques, Wireless sensor radar for biomedical applications, Wireless indoor positioning systems.

Microwave Multi-layer Circuit Lab (RM 540)

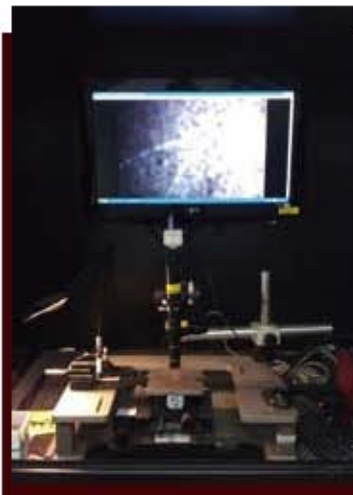
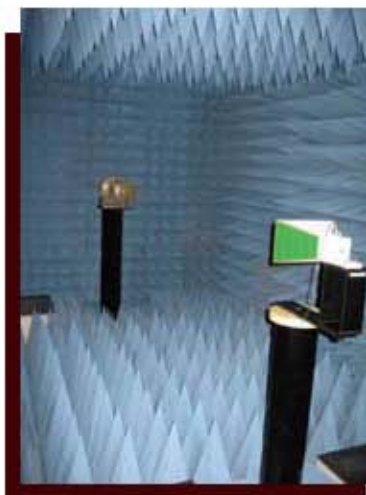
Director: Prof. Ching-Wen Tang

Research: RF/Microwave passive components (antenna, filter, diplexer, coupler, balun), RF/Microwave transceiver module

Microwave Integrated Circuit Lab (RM 541)

Director: Prof. Janne-Wha Wu

Research: CMOS/GaAs RFICs , Multi-Chip module technology , analog RF power control chip





| Name | Company | Model | Main Spec. | Location |
|------------------------------|-----------------|--------------------|---------------------|----------|
| Probe Station | Cascade | | | Lab 543 |
| Vector Network Analyzer | Agilent | E8361C | 10 MHz ~ 67 GHz | Lab 543 |
| | HP | 8722C | 50 MHz ~ 40 GHz | Lab 543 |
| | HP | 8720C | 50 MHz ~ 20 GHz | Lab 543 |
| | Agilent | N5230A | 50 MHz ~ 20 GHz | Lab 540 |
| | Agilent | E5071C | 9KHz-8.5GHz /4-port | Lab 541 |
| Spectrum Analyzer | Agilent | E4448A | 10 Hz ~ 50 GHz | Lab 543 |
| | Rohde & Schwarz | | 9KHz-18GHz | Lab 541 |
| Signal Generator | Agilent | VSG E4418C | 250 kHz ~ 6 GHz | Lab 543 |
| | HP | ESG E4433B | 250 kHz ~ 4 GHz | Lab 543 |
| | Agilent | N5182A-506+N5182AK | 100KHz ~ 6GHz | Lab 541 |
| Oscilloscope | Agilent | DSO7012A | 100 MHz | Lab 543 |
| | Agilent | MSO7034A | 350 MHz | Lab 543 |
| Arbitrary Waveform Generator | Agilent | 33220A | 20 MHz | Lab 543 |
| Power supply | GW | GPS-4303 | DC | Lab 543 |
| | Agilent | E3631A | DC | Lab 543 |
| Vector Signal Analysis | Agilent | VSA 89600S | DC ~ 6GHz | Lab 543 |
| Wedge Bonder | Super Power | SPB-U668 | | Lab 543 |
| Microwave Anechoic Chamber | WavePro | | 1 GHz ~18 GHz | Lab 543 |

SOFTWARE

The important equipments and software that have been acquired by EMIC group are listed below and available upon request.

| | Name | Company |
|--------------------------|------------------------|----------|
| Circuit Simulation Tools | Advanced Design System | Agilent |
| | Microwave Office | AWR |
| EM Simulation Tools | HFSS | Ansoft |
| | IE3D | Zeland |
| | Momentum | Agilent |
| MEMS Simulation Tools | CoventorWare | Coventor |