

RF Design Services Capability

WiWo Tech Systems Pvt Ltd

Company Profile

- WiWoTech Systems Private Ltd is an Engineering design services company located in Bangalore
- WiWoTech supports Engineering design services in the areas of RF design, Antenna design, IC and SIP Package design, PCB design, RF and Antenna testing, EM CAD tool based simulations that include SI analysis, PI analysis, EMI/EMC analysis
- Servicing industries include Consumer Electronics, Defence, Medical, Avionics, Tele-Communication, Industrial
- Our esteemed clients list include PayPal, Marvell, Ineda, Rangson, Kaynes
- Our vision is to be your first choice partner in RF/Electronic design ,Antenna design, IC Package/SIP design and prototyping services

Servicing Industries



Consumer Electronics



Telecommunication



Defense



Industrial



Medical



Avionics

RF Design Capability

Wireless Module Design

RF Circuit Design

RF/Wireless system Design

RF Simulations

Post silicon board design

Evaluation board design

- WiWoTech Systems Private Ltd can be your one stop destination for all your RF design requirements
- WiWo Tech can design and develop RF/Wireless modules, circuits and systems up to 12 GHz frequency range
- WiWo Tech has the necessary expertise in Architecture development, Specification development, Component selection, Schematic design, Layout design, RF simulations, Cascade budget analysis required for carrying out RF designs

RF Design Capability

Wireless Module Design



- Bluetooth
- Bluetooth low energy
- 802.15.4 / ZigBee
- RFID
- NFC
- Wi-Fi (802.11 a/b/g/n)
- WiMAX
- 3G/4G
- GPS

RF Circuit Design



- Amplifiers
- Low noise amplifiers
- Power divider/combiner
- Coupler
- Filter
- Balun
- T/R Switch
- Mixer
- Frequency synthesizer
- Diplexer /Duplexer

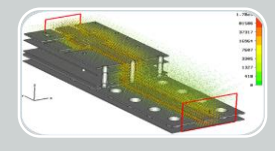
RF Design Capability

RF/Wireless System Design



- 3G/4G Repeaters
- BLE based Medical devices
- GPS based tracking devices
- Wi-Fi based phone system
- Wi-Fi based Asset tracking system
- Active/Passive RFID Tag and Reader
- WiMAX CPE
- Bluetooth based HID devices
- Wireless dongles
- RF Up/Down Converters
- Transmit/Receive modules

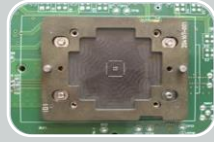
RF Simulations



- Impedance matching
- 50 ohm RF trace check
- Link budget analysis
- Cascaded RF front end analysis
- Noise figure analysis
- Circuit/Component design
- System analysis
- Gain/Loss analysis
- EMI/EMC analysis
- Parasitic extraction

RF Design Capability

Post Silicon Validation Board Design



- Socket board design for post silicon system validation of RF chipset across PVT corners
- Capability to design post silicon system validation board design for low power chipsets like Bluetooth low energy
- Capability to design the post silicon validation board which will comply with EMI/EMC and FCC/ETSI regulations
- Capability to design impedance controlled Post silicon validation boards
- Capability to provide the necessary signal conditioning circuits to characterize the silicon completely without errors creeping in measurement
- Capability to provide the necessary test points to completely characterize each of the sub systems of the RF chipset
- Capability to interact with cross functional teams and provide the necessary interfaces on the validation board to support programming and debug
- Architecture definition, Component selection, Schematic design, Layout design, RF simulations towards post silicon validation board design

Evaluation Board Design

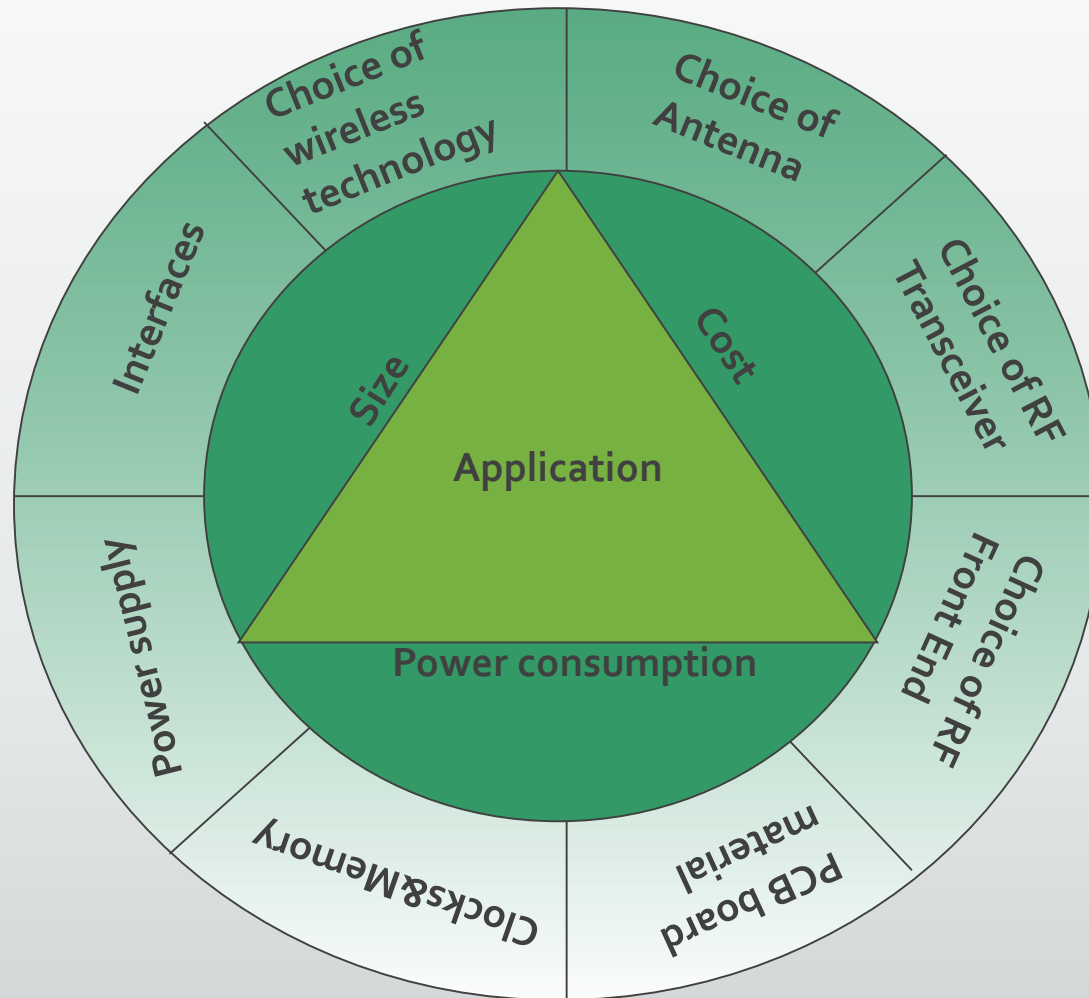


- Capability to design evaluation board which can be used to characterize multiple radio modules
- Capability to carry out 2 layer or more evaluation board designs depending on component density, routing complexity
- Capability to design evaluation board with high density of analog, high speed, RF components and interfaces
- Capability to design the evaluation boards which will comply with EMI/EMC and FCC/ETSI regulations
- Capability to design impedance controlled evaluation boards
- Capability to design evaluation board with user peripherals like LCD display
- Capability to provide the necessary test points to completely characterize each of the sub systems of the design
- Architecture definition, Component selection, Schematic design, Layout design, RF simulations towards evaluation board design

Typical Elements Of Wireless Module

- Power supply
 - LDO, DC-DC, Battery
- Clock
 - Crystal, TCXO
- Memory
 - Flash/EEPROM
- RF Transceivers / Microcontroller
 - Integrated RF Circuits/BB circuits as an SOC
 - RF Transceiver and Microcontroller as separate chipsets
- RF Front End
 - LNA, PA, Baluns, Diplexers/ Duplexers, T/R Switch, Matching network
- Antenna
 - Chip, PCB antenna, Connectorized antenna

Design Factors in Wireless Module Design



Wireless Module Design Flow

Planning and Evaluation phase



- Define the application/Choose the suitable wireless technology
- Competitive analysis of wireless modules in market
- Define the Architecture of the module(Software/Hardware)
- Arriving at the specifications (Range/cost/size/coverage/Interfaces/Current consumption..)
- Choose the RF transceiver,RF front end components, other components of the design to meet the specification

Development phase



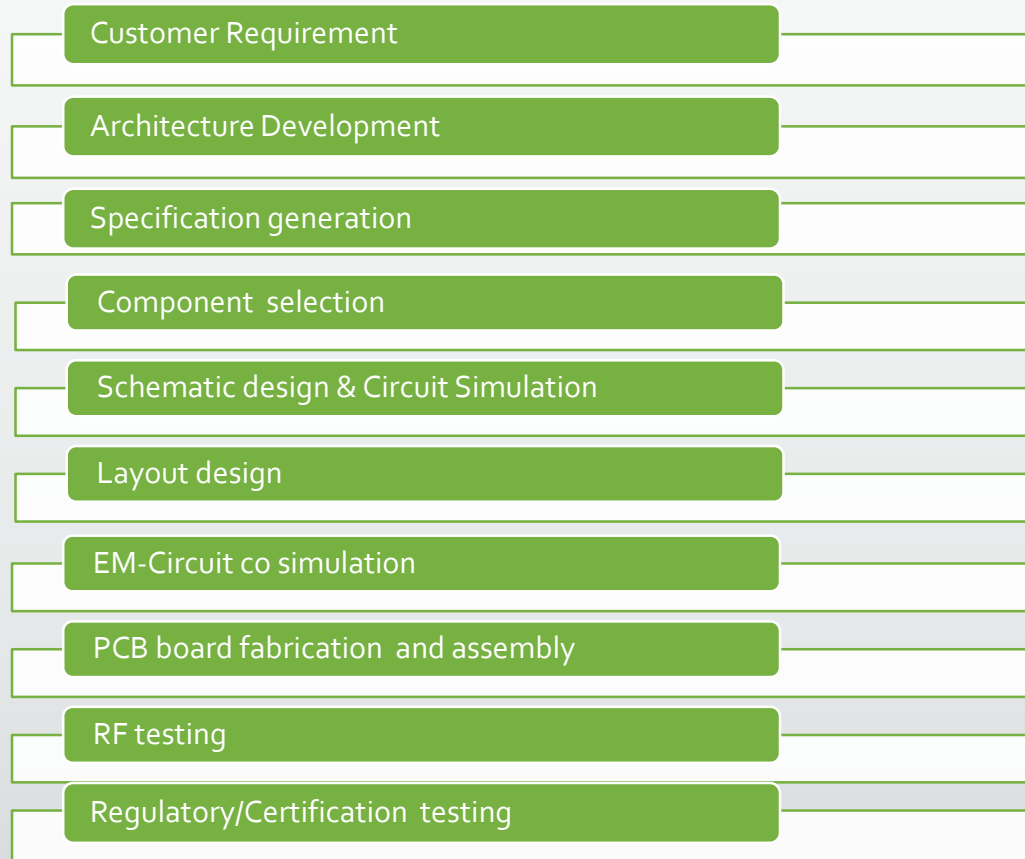
- Carry out Circuit simulation/Link budget/Cascaded chain analysis and finalize the components
- PCB Schematic design
- PCB Layout design
- Circuit-EM co simulation
- Signal integrity/Thermal/EMI & EMC analysis of PCB board layout design
- Gerber generation
- Fabrication of board/Assembly of components

Testing and Certification phase



- Basic testing(Open/Short, Power supply, Clock)
- RF performance testing as per standard
- EMI/EMC testing
- Antenna performance testing
- Certification testing (FCC/ETSI)

RF Circuit/System Design Flow



RF Design Services Offered

Wireless Module Design

RF/Wireless system Design

Post silicon board design

Wireless link budget analysis

Custom Transmitter/Receiver Design

Multi radio designs

RF Circuit Design

RF Simulations

Evaluation board design

Propagation analysis

Military RF Applications

Cascaded RF Chain analysis

Why WiWo Tech

- Competitive market rates
- Experienced engineering team with rich expertise in having carried out multiple RF/Wireless module and system designs, RF Circuit designs
- Guaranteed customer satisfaction
- Requirements met on time with high quality of work
- Expertise in various RF EM simulation tools like ADS,MWO,CST,HFSS
- EM CAD Tool based simulations to verify link budget, Matching response, RF front end cascaded chain performance, regulatory performance
- Flexible business models
- Complete documentation package of work carried out





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