

Electromagnetic Design

ANTENNA DESIGN

Ensure the best coverage with application specific antenna design
Improve and reduce cost of existing design

RF DESIGN

Choose radio(s) for your application
Success with architecture, performance, interoperability and regulatory requirements

HIGH-SPEED DIGITAL DESIGN

Secure EMC performance
Prevent malfunction of hardware in all environmental conditions throughout lifetime of the product



Who we are

- EM team consists of RF, antenna, electronics, FPGA, power supply, tester and high-speed layout designers
- EM main team and EM test facilities are located in city of Jyväskylä in Finland
- More EM team specialists are working in several other Etteplan offices in Finland and Poland

Simulations we do

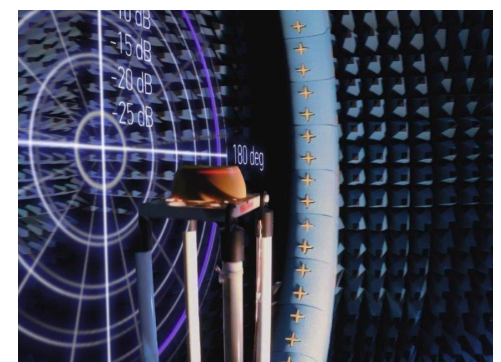
- Antenna
- RF circuit simulation (e.g. matching, stability, linearity, gain, noise figure, Monte Carlo analysis)
- Characteristic Impedance of any kind of structure
- Power Integrity
- Signal Integrity
- DDRx

Measurement tools we use

- Satimo Stargate 64 antenna test chamber
 - Active and passive measurements from 0.3 to 6 GHz
 - Antenna gain, efficiency and 2D/3D radiation patterns
- Anechoic test chambers for interoperability testing to find out how radio tolerates intersystem and intrasystem interference
- RF test instruments e.g. VNAs, spectrum analyzers, TDR, high-speed oscilloscopes and radio communication testers
- Automated RF tests
 - GSM, GPRS, EGPRS, WCDMA, HSDPA, HSUPA, HSPA+, DC-HSDPA and CDMA2000, LTE Classic and Cat M1
 - Bluetooth Classic, 2.0 EDR and LE
 - Wi-Fi 802.11 b/g/n
 - GPS

We manage technologies

- Cellular technologies (2G/3G/4G/5G, Cat NB1/2, Cat M1/2, and private LTE)
- Bluetooth (upto 5.1)
- Wi-Fi (upto Wi-Fi 6)
- LoRa and LoRaWAN
- GNSS and many IPS (Indoor Positioning Systems)
- NFC and RFID
- Proprietary radios for ISM frequency bands
- TETRA for public safety
- High-speed e.g. DDRx, SerDes, Ethernet, USB, PCIe



Satimo Stargate 64