Test Right.
Design Right.

- **ILAC AND FINAS ACCREDITED**
- **CTIA AUTHORIZED TEST LAB**
- **SAR & OTA TESTING**
- **CE & FCC CERTIFICATIONS**

FINAS Finnish Accreditation Service T287 (EN ISO/IEC 17025)

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VERKOTAN'S COMPETENCES

01

Global Services

Testing and certification services according to EU, USA and country requirements.

02

Accredited laboratory with professionals

Our laboratory and technical team have earned the highest accreditations and operator approvals available for OTA / SAR testing.

03

Tailored for your product development

Improve your process efficiency and streamline your device testing cycles.

04

The Best Engineers

Practical development and support in R&D phase ensure that you get the test results you need to launch your product on time.

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OUR SERVICES

ACCREDITED SAR TESTING

SAR testing for cellular, satellite, TETRA, BLE, WLAN, VHF & UHF radio devices, cellular base station antennas and many more!

ACCREDITED OTA TESTING

Our World-Class inhouse-developed test system delivers from 2 to 3 times faster OTA testing for GPS, 2G, 3G and 4G, WLAN and Bluetooth.

TAILORED TEST SERVICES

Our highly experienced engineers offer help and advice to anyone having challenges with existing test methods.

CE & FCC CERTIFICATIONS

We provide solutions for both pre-certifications and formal certifications, Not only can we save you money, we can ensure your product will pass the first time.

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WORLD'S MOST ADVANCED SAR AND OTA TEST CHAMBERS

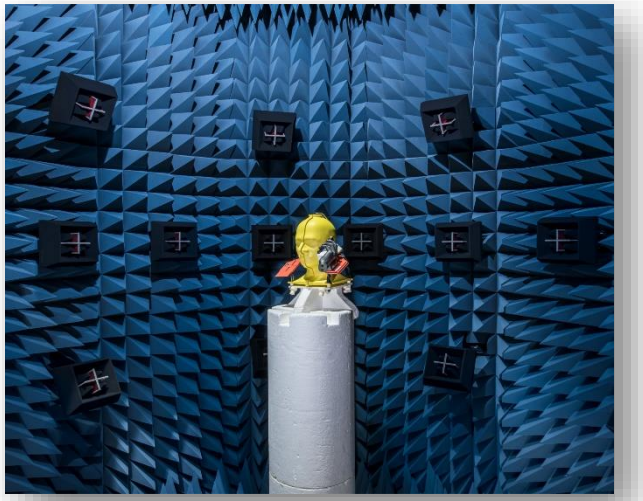
Multiple SAR Testing Systems

Engineers and robots tuned to perfection.

SAR Testing Capabilities:
- Head, body and whole body capability
- SAR testing in non-signaling and signaling modes
- Dielectric parameter validation

Testing capacity:
- 12 000h/year

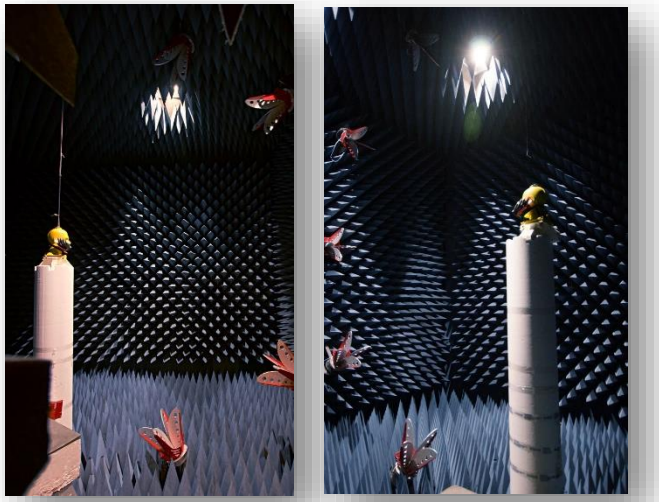
Measurable frequency range:
- 30MHz-6000MHz



MIMO OTA Test Chamber

Emulating realistic field radio conditions anywhere in the world.

Dimensions:
- Diameter: 6.0m
- Height: 5.8m
- Measurement Distance 2.2m



Multiple RF OTA Testing Chambers

Built and developed by our own engineers.

Dimensions:
- Width: 7.3m, length: 6.2m, height: 6.8m
- Measurement distance: 3.4m

Frequency Range:
- 400MHz – 20GHz
- Capacity of 19 000h / year

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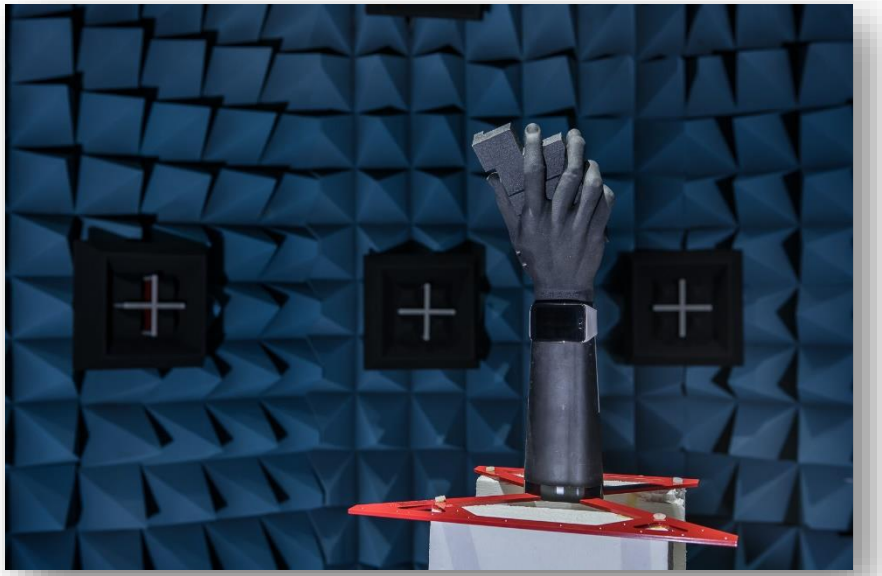
Testing Capabilities



SAR testing
LTE, WCDMA, GSM, CDMA, WLAN, Bluetooth, TETRA, VHF, UHF

BT and BLE
TRP + TRS
Standalone* TRP

A-GPS certification
(Over GSM,WCDMA, LTE FDD/TDD)
TIS/TRS
UHIS
PIGS (UE-Assisted / -Based)
ICD

GNSS tests
GPS Air Performance Test
ETSI EN-3033413
Adjacent frequency band selectivity

Additional GNNS tests
Antenna efficiency
Standalone GPS

Operator Cellular RF OTA tests
According operator specifications
LTE Envelope Correlation Coefficient (ECC)

Additional cellular tests
LTE MIMO OTA
E-GPRS/HSPA/LTE DL&UL Throughput

LTE MIMO OTA
According to the CTIA 1.1 and 3GPP specifications
4x2 MIMO OTA
4x4 MIMO OTA

Wi-Fi PTCRB certification
TRP + TRS
Conducted Tx Power and Rx Sensitivity
Wi-Fi desense
Cellular desense

Additional Wi-Fi tests
Standalone* TRP
MIMO OTA

Cellular PTCRB certification
Antenna efficiency
GSM TRP + TRS
GSM + E-GPRS TRP + TRS (singlepoint)
GSM ICD
GSM Sensitivity Response
WCDMA TRP + TRS
WCDMA ICD
WCDMA Sensitivity Response
LTE TRP + TRS
LTE Intermediate Channel Sensitivity
LTE Sensitivity Response
LTE Carrier Aggregation TRP + TRS, ICD
CDMA TRP + TIS

Antenna tests
3D antenna patterns (active & passive)

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Antenna performance for all the IoT radios

- For any radio systems the antenna is a key component for the performance. Testing the antenna properties of all antennas is the basis of all wireless performance testing:
  - All type of communication antennas from 400MHz up to 6GHz
  - Non-cellular antennas like BT, BLE, WLAN, ZigBee, UWB…
  - GNSS antennas for satellite positioning systems like GPS, Glonass, Galileo, Beidou…
- Antenna performance reports will include all key parameters for antenna characterization.

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Laboratory testing in active mode with cellular communication signaling and radio channel emulator

- Coverage is important for the IoT device service capability

  Testing in active radio communication mode will ensure IoT device coverage capability which is essential information lfor cellular operators acceptance

- Total Radiated Power and Total Radiated Sensitivity for IoT devices like CAT 1 M and Narrow Band modes is needed to test for ensure coverage performance

- MIMO OTA testing measures performance in specified radio channel conditions for IoT devices designed for high data throughput applications

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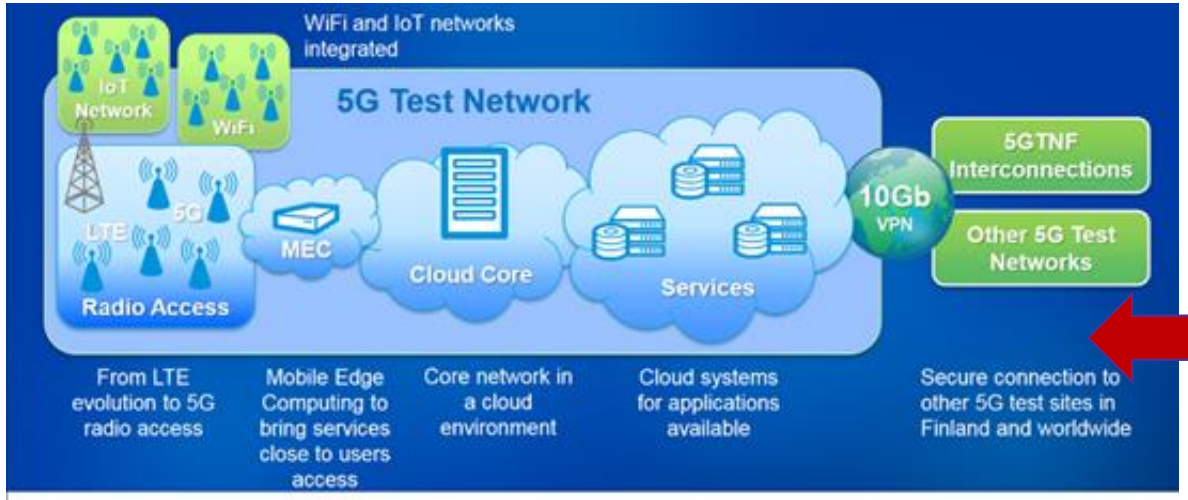
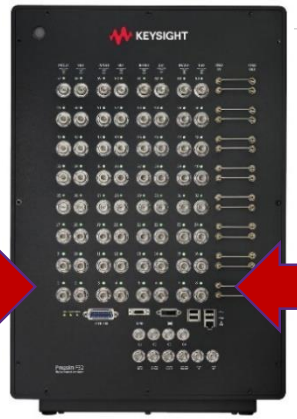
Laboratory testing with radio channel environment and IoT device connected to live test network

- Testing enables end to end data throughput measurements through the all HW and SW layers





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Verkotan Full bars ahead

We help you deliver leading radio products.

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