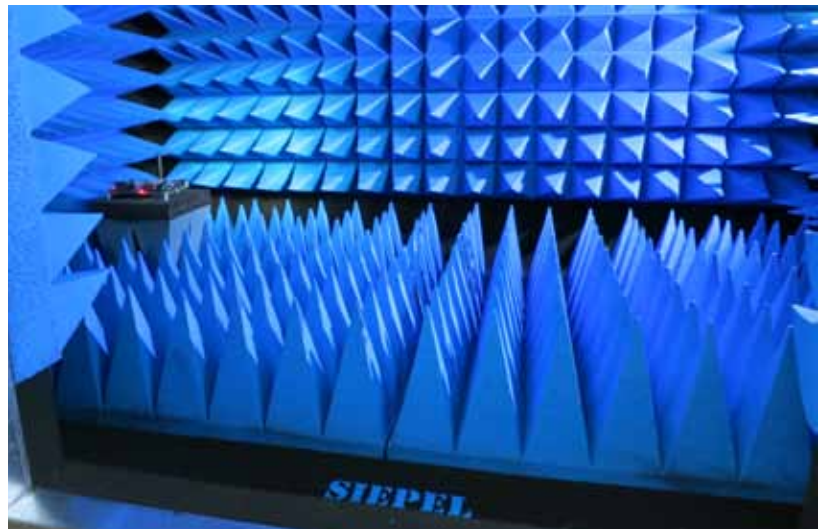


LoRa CERTIFIED LABORATORY



The LoRa Certified Lab at IMST performs testing necessary for LoRa certification acc to LoRa-WAN™ specification. Covering:

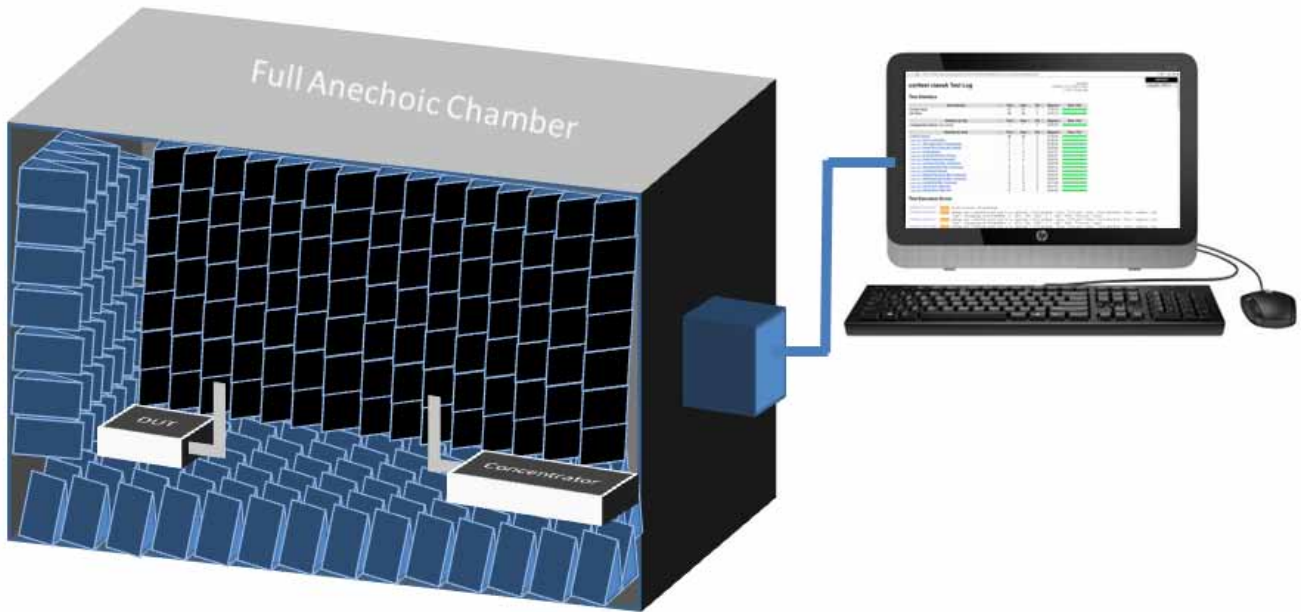


- Activation OTA / by personalization
- Application functionality test
- Downlink Packet Error Rate tests
- Cryptography tests
- Receive Window tests
- Handling of sequence number
- Device Status Request test
- Add/Modify channel tests
- Confirmed/Unconfirmed uplink/downlink test
- Modify and verify of setting downlink parameters
- Modify and verify downlink timing parameters
- Data rate adaptation tests (incl. Optional DRs)
- Transmit Power control tests
- Confirmed / unconfirmed frames tests
- Retransmission of confirmed frames

OPTIONAL SERVICES

- Test diagnostics and guidelines for corrections (optional)
- Disable non-default uplink channels
- Downlink RF Timing Test
- Downlink Frame Pending feature
- Link Check Request test
- Simple tests for MAC commands
- Check uplink frequencies
- Support in case of problems

TESTING PRINCIPLE



certest classA Test Log

20160323 16:12:29 GMT+02:00
41 384 10 74435 App

Test Statistics

Total Statistics	Total	Pass	Fail	Elapsed	Pass / Fail
Critical Tests	67	67	0	01:14:44	Pass / Fail
All Tests	88	88	0	01:53:15	Pass / Fail

Statistics by Test	Total	Pass	Fail	Elapsed	Pass / Fail
Unsupported_Device (non-Static)	1	1	0	00:00:00	Pass / Fail

Statistics by Suite	Total	Pass	Fail	Elapsed	Pass / Fail
certest_classA	88	88	0	01:54:44	Pass / Fail
LoRaWAN Device Activation	2	2	0	00:06:20	Pass / Fail
LoRaWAN Test Application Functionality	2	2	0	00:06:22	Pass / Fail
LoRaWAN Packet Error Rate (Rx) (Default)	1	1	0	00:05:45	Pass / Fail
LoRaWAN Cryptography	5	5	0	00:07:09	Pass / Fail
LoRaWAN Downlink Window Timing	4	4	0	00:06:27	Pass / Fail
LoRaWAN Frame Sequence Number	3	3	0	00:06:44	Pass / Fail
LoRaWAN Downlinking Max. Command	1	1	0	00:06:19	Pass / Fail
LoRaWAN Non-Standard Max. Command	8	8	0	00:02:14	Pass / Fail
LoRaWAN Confirmed Packets	5	5	0	00:09:37	Pass / Fail
LoRaWAN Repetition/Retransmit Max. Command	5	5	0	00:06:02	Pass / Fail
LoRaWAN Linking/Retransmit Max. Command	8	8	0	00:06:44	Pass / Fail
LoRaWAN Linking Retransmit Max. Command	13	13	0	00:13:30	Pass / Fail
LoRaWAN Packet Error Rate (Tx)	3	3	0	00:07:27	Pass / Fail
LoRaWAN Packet Error Rate (Rx)	8	8	0	00:04:55	Pass / Fail

ADDITIONAL SERVICES FOR LORA DEVICES

- Radio Performance Measurements, including TRP (Total Radiated Power) and TIS (Total Isotropic Sensitivity)
- CE/EMC relevant testing for development & international Type Approval
- RED (R&TTE) testing
- SAR –measurements for body-worn devices

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