



Wiliot Gateway Certificate Passed!

Summary

Run Info:

Run date: 03/04/2025, 14:06:04

Tests duration: 00:26:58

Certificate version: 1.5.1a1

Certification Kit Info:

BLE simulator mac: 7E895C63A4D8

BLE simulator version: 4.4.52

Tested Device Info:

Tested gateway ID: ERM865235053431512

PASSED	INCONCLUSIVE	FAILED	TOTAL
4	0	0	4

Name	Result	Duration
ConnectionTest	PASSED	00:02:31
UplinkTest	PASSED	00:01:24
DownlinkTest	PASSED	00:03:13
StressTest	INFO	00:19:04

ConnectionTest

PASSED

Test duration: 00:02:31

Phase	Result	Duration
ConnectionStage	PASSED	00:00:41
InterferenceAnalysisStage	INFO	00:01:50

ConnectionStage

PASSED

Stage run time: 0:00:41.211654

This stage awaits the gateway to establish MQTT connection and upload it's configurations via the 'status' topic as it's first message.

Protobuf serialization detected

GW Status packet received:

```
{"gatewayId": "ERM865235053431512", "gatewayType": "erm", "downlinkSupported": true, "bridgeOtaUpgradeSupported": true, "apiVersion": 205, "bleSwVersion": "2.0.0", "interfaceSwVersion": "4.4.1", "config": {"accessControlList": {}, "gnssAlwaysOn": {"boolValue": false}, "clockUpdateInterval": {"integerValue": 1440}, "periodicGatewayInfo": {"integerValue": 0}, "inputEvents": {"boolValue": false}, "receiveWhileUpdating": {"boolValue": true}, "chargerAlwaysOn": {"boolValue": false}, "locationLostTime": {"integerValue": 0}, "transmitPixels": {"boolValue": false}, "networkPolicy": {"integerValue": 0}, "movMinDistance": {"integerValue": 0}, "movMinDuration": {"integerValue": 0}, "wiliotServer": {"stringValue": "custom"}, "temperatureInterval": {"integerValue": 0}, "enableScanning": {"boolValue": true}, "gnssMaxDuration": {"integerValue": 90}, "idleReportInterval": {"integerValue": 60}, "movementDetection": {"stringValue": "automatic"}, "geoLocationRefreshTime": {"integerValue": 1440}, "pixelLimit": {"integerValue": 0}, "movAboveSpeed": {"integerValue": 0}, "movStoppedDuration": {"integerValue": 0}, "bluetoothAlwaysOn": {"boolValue": false}, "automaticReboot": {"integerValue": 720}, "bluetoothAdvertise": {"boolValue": false}, "exitPIMode": {"boolValue": true}, "protocolVersion": {"integerValue": 2}, "chargerDailyMax": {"integerValue": 30}, "workWithoutPower": {"boolValue": false}, "gwPingInterval": {"integerValue": 0}}}
```

Capability set: downlinkSupported - True

Capability set: bridgeOtaUpgradeSupported - True

InterferenceAnalysisStage

INFO

Stage run time: 0:01:50.485181

This stage analyze BLE interference level (Bad CRC %).

Channel 37 (2402 MHz) Ambient Interference (bad CRC percentage) is: 40%.

Good CRC packets = 2795, bad CRC packets: 1862

Channel 38 (2426 MHz) Ambient Interference (bad CRC percentage) is: 36%.

Good CRC packets = 3031, bad CRC packets: 1730

Channel 39 (2480 MHz) Ambient Interference (bad CRC percentage) is: 37%.

Good CRC packets = 2820, bad CRC packets: 1688

UplinkTest

PASSED

Test duration: 00:01:24

Phase	Result	Duration
ManagementPacketStage	PASSED	00:00:10
DataPacketStage	PASSED	00:00:27
SensorPacketStage	PASSED	00:00:07
SequentialSequenceIdStage	PASSED	00:00:00
AliasBridgeIdStage	PASSED	00:00:00
GeolocationStage	PASSED	00:00:00

ManagementPacketStage

PASSED

Stage run time: 0:00:10.419221

This stage simulates management advertisements from a single bridge. Expects the gateway to scan & upload them.

Number of unique packets sent: 2

Number of unique packets received: 2

Stage data saved - /home/oren/.local/share/wiliot/gw-certificate/20250403_140604/UplinkTest/ManagementPacketStage.csv

DataPacketStage

PASSED

Stage run time: 0:00:27.058382

This stage simulates advertisements from three bridges. Expects the gateway to scan & upload them.

Number of unique packets sent: 36

Number of unique packets received: 36

Number of total packets received: 36

Number of duplicates out of total: 0

Stage data saved - /home/oren/.local/share/wiliot/gw-certificate/20250403_140604/UplinkTest/DataPacketStage.csv

SensorPacketStage

PASSED

Stage run time: 0:00:07.606718

This stage simulates sensor packets advertisements. Expects the gateway to scan & upload them.

Number of sensor packets sent: 12

Number of sensor packets received correctly: 9

Packets not received:

pkt_id duplication time_delay

FA0EAB04 5 20

F9F78C1A 5 20

045DA6C2 5 20

Stage data saved - /home/oren/.local/share/wiliot/gw-certificate/20250403_140604/UplinkTest/SensorPacketStage.csv

SequentialSequenceldStage

PASSED

Stage run time: 0:00:00.000456

This stage validates expected sequenceld in all packets.

AliasBridgeIDStage

PASSED

Stage run time: 0:00:00.078201

This stage validates the uploaded aliasBridgeId is as expected per payload.

---Alias bridge ID is valid

GeolocationStage

PASSED

Stage run time: 0:00:00.198057

This stage checks if lat/lng were uploaded under 'location' (optional JSON key) in the uploaded data messages.

Number of unique locations received: 11

Stage data saved - /home/oren/.local/share/wiliot/gw-certificate/20250403_140604/UplinkTest/GeolocationStage.csv

DownlinkTest

PASSED

Test duration: 00:03:13

Phase	Result	Duration
SanityStage	PASSED	00:01:28
CorrelationStage	PASSED	00:01:44

SanityStage

PASSED

Stage run time: 0:01:28.578859

This stage verifies that the gateway advertises requested packets. These are requested via Advertisement actions published to the 'update' topic (MQTT).

Channel 37: Pass

- Total 9 MQTT payloads sent
- Total 65 BLE Packets received by sniffer (including duplicates)
- R Value: 0.30737704918032804 | Slope: 0.008333333333333335

Channel 38: Pass

- Total 9 MQTT payloads sent
- Total 68 BLE Packets received by sniffer (including duplicates)
- R Value: 0.5067567567567568 | Slope: 0.008333333333333334

Channel 39: Pass

- Total 9 MQTT payloads sent
- Total 68 BLE Packets received by sniffer (including duplicates)
- R Value: 0.0576923076923076 | Slope: 0.006666666666666668

Sent data saved - /home/oren/.local/share/wiliot/gw-certificate/20250403_140604/DownlinkTest/SanityStage_sent.csv

Sniffed data saved - /home/oren/.local/share/wiliot/gw-certificate/20250403_140604/DownlinkTest/SanityStage_sniffed.csv

Graph saved - /home/oren/.local/share/wiliot/gw-certificate/20250403_140604/DownlinkTest/SanityStage.html

CorrelationStage

PASSED

Stage run time: 0:01:44.472506

This stage checks how consistently the gateway advertises packets. Expects a consistently increasing packets count with increasing 'txMaxDuration'.

Channel 37: Pass

- Total 15 MQTT payloads sent
- Total 121 BLE Packets received by sniffer (including duplicates)
- R Value: 0.8495075913007796 | Slope: 0.007583333333333334

Channel 38: Pass

- Total 15 MQTT payloads sent
- Total 111 BLE Packets received by sniffer (including duplicates)
- R Value: 0.9250090678273486 | Slope: 0.008416666666666668

Channel 39: Pass

- Total 15 MQTT payloads sent
- Total 110 BLE Packets received by sniffer (including duplicates)
- R Value: 0.9652509652509652 | Slope: 0.008333333333333335

Sent data saved - /home/oren/.local/share/wiliot/gw-certificate/20250403_140604/DownlinkTest/CorrelationStage_sent.csv

Sniffed data saved - /home/oren/.local/share/wiliot/gw-certificate/20250403_140604/DownlinkTest/CorrelationStage_sniffed.csv

Graph saved - /home/oren/.local/share/wiliot/gw-certificate/20250403_140604/DownlinkTest/CorrelationStage.html

StressTest

INFO

Test duration: 00:19:04

Phase	Result	Duration
StressTestStage	INFO	00:18:30

StressTestStage

INFO

Stage run time: 0:18:30.359048

This stage attempts different PPS (packets per second) rates to examine the gateway limit (actual PPS may vary per OS).

Test - 20 packets per second. Actual packet per second - 19.94
Number of packets sent 997
Number of packets received 563
Test - 40 packets per second. Actual packet per second - 39.7333
Number of packets sent 1192
Number of packets received 402
Test - 60 packets per second. Actual packet per second - 59.4333
Number of packets sent 1783
Number of packets received 493
Test - 80 packets per second. Actual packet per second - 79.0333
Number of packets sent 2371
Number of packets received 430
Test - 100 packets per second. Actual packet per second - 98.2667
Number of packets sent 2948
Number of packets received 421
Test - 120 packets per second. Actual packet per second - 117.9
Number of packets sent 3537
Number of packets received 449
Test - 140 packets per second. Actual packet per second - 137.167
Number of packets sent 4115
Number of packets received 426
Test - 160 packets per second. Actual packet per second - 156.1
Number of packets sent 4683
Number of packets received 453
Test - 180 packets per second. Actual packet per second - 175.233
Number of packets sent 5257
Number of packets received 474
Test - 200 packets per second. Actual packet per second - 194.067
Number of packets sent 5822
Number of packets received 476
Test - 220 packets per second. Actual packet per second - 214.9
Number of packets sent 6447
Number of packets received 453
Test - 250 packets per second. Actual packet per second - 241.133
Number of packets sent 7234
Number of packets received 416
Test - 285 packets per second. Actual packet per second - 248
Number of packets sent 7440
Number of packets received 391
Test - 333 packets per second. Actual packet per second - 248.067
Number of packets sent 7442
Number of packets received 408

Timestamps errors during PPS 20:

Multiple packets were uploaded with identical timestamp (ts = 1743678878020)
Multiple packets were uploaded with identical timestamp (ts = 1743678905840)

Timestamps errors during PPS 40:

Multiple packets were uploaded with identical timestamp (ts = 1743678981820)

Timestamps errors during PPS 60:

Multiple packets were uploaded with identical timestamp (ts = 1743679066010)

Multiple packets were uploaded with identical timestamp (ts = 1743679052740)

Additional errors (1) are suppressed to avoid clutter

Timestamps errors during PPS 80:

Multiple packets were uploaded with identical timestamp (ts = 1743679139840)

Multiple packets were uploaded with identical timestamp (ts = 1743679131000)

Timestamps errors during PPS 100:

Multiple packets were uploaded with identical timestamp (ts = 1743679220760)

Multiple packets were uploaded with identical timestamp (ts = 1743679220010)

Additional errors (1) are suppressed to avoid clutter

Timestamps errors during PPS 120:

Multiple packets were uploaded with identical timestamp (ts = 1743679306870)

Timestamps errors during PPS 140:

Multiple packets were uploaded with identical timestamp (ts = 1743679371010)

Multiple packets were uploaded with identical timestamp (ts = 1743679365730)

Timestamps errors during PPS 160:

Multiple packets were uploaded with identical timestamp (ts = 1743679458010)

Timestamps errors during PPS 180:

Multiple packets were uploaded with identical timestamp (ts = 1743679542020)

Multiple packets were uploaded with identical timestamp (ts = 1743679532000)

Additional errors (1) are suppressed to avoid clutter

Timestamps errors during PPS 200:

Multiple packets were uploaded with identical timestamp (ts = 1743679602750)

Multiple packets were uploaded with identical timestamp (ts = 1743679609780)

Additional errors (1) are suppressed to avoid clutter

Timestamps errors during PPS 222:

Multiple packets were uploaded with identical timestamp (ts = 1743679692010)

Multiple packets were uploaded with identical timestamp (ts = 1743679705020)

Timestamps errors during PPS 250:

Multiple packets were uploaded with identical timestamp (ts = 1743679762930)

Multiple packets were uploaded with identical timestamp (ts = 1743679787050)

Additional errors (1) are suppressed to avoid clutter

Timestamps errors during PPS 333:

Multiple packets were uploaded with identical timestamp (ts = 1743679938130)

Stage data saved - /home/oren/.local/share/wiliot/gw-certificate/20250403_140604/StressTest/StressTestStage.csv