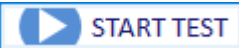

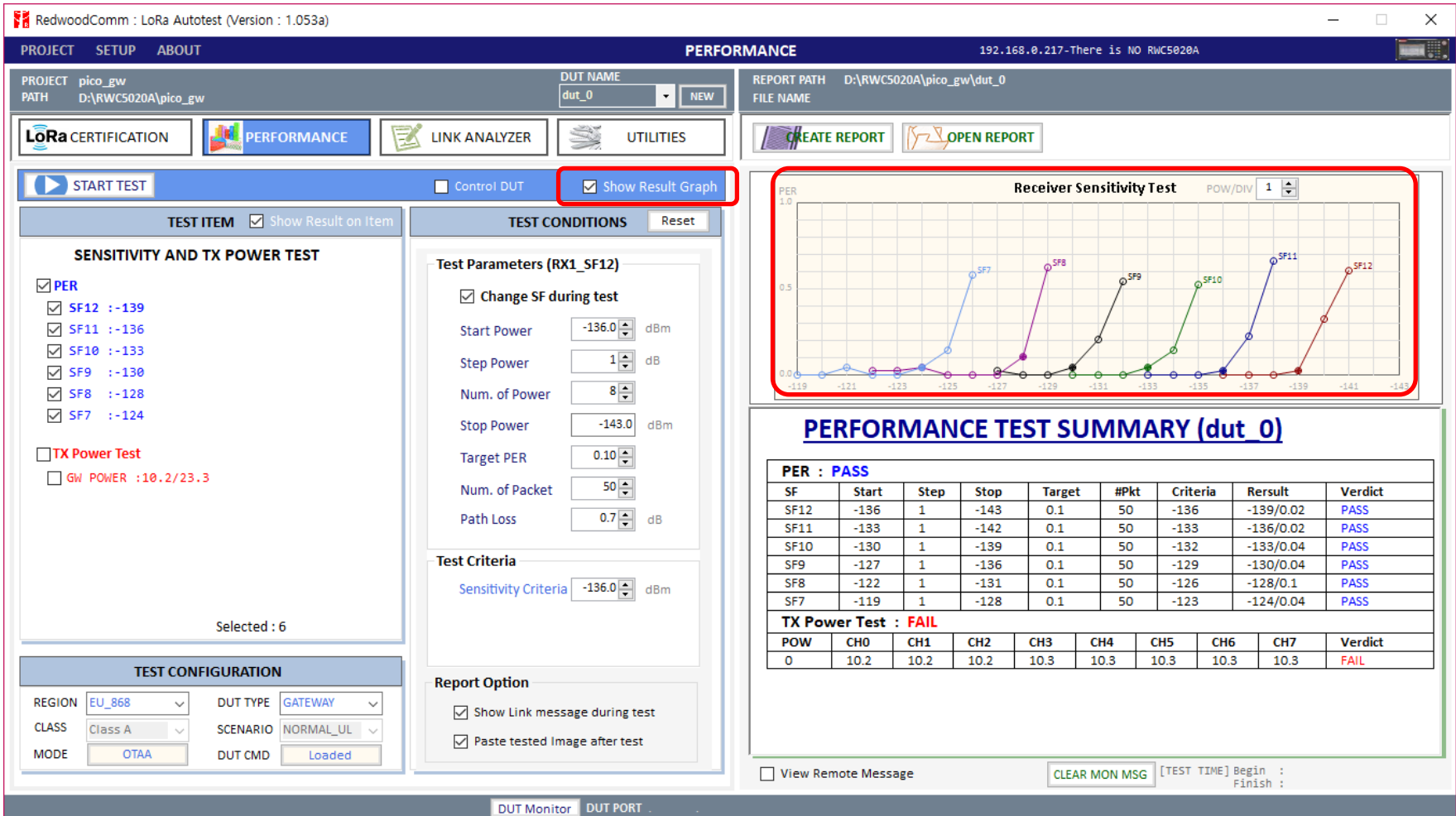


Minimum sensitivity test using RWC5020A and application program

RedwoodComm

Sensitivity Test Using Application Program

Clicking  makes RWC5020A measure PER at each power user set and search the minimum sensitivity power under the test conditions. In order to see the PER chart while you test, check 



The screenshot displays the RedwoodComm LoRa Autotest (Version 1.053a) interface. The main window is titled "PERFORMANCE" and shows the following configuration and results:

PROJECT SETUP ABOUT
PROJECT: pico_gw, PATH: D:\RWC5020A\pico_gw, DUT NAME: dut_0, REPORT PATH: D:\RWC5020A\pico_gw\dut_0, FILE NAME: [blank]

TEST ITEM Show Result on Item

SENSITIVITY AND TX POWER TEST

- PER
 - SF12 :-139
 - SF11 :-136
 - SF10 :-133
 - SF9 :-130
 - SF8 :-128
 - SF7 :-124
- TX Power Test
 - GW POWER :10.2/23.3

Selected : 6

TEST CONDITIONS Show Result Graph

Test Parameters (RX1_SF12)

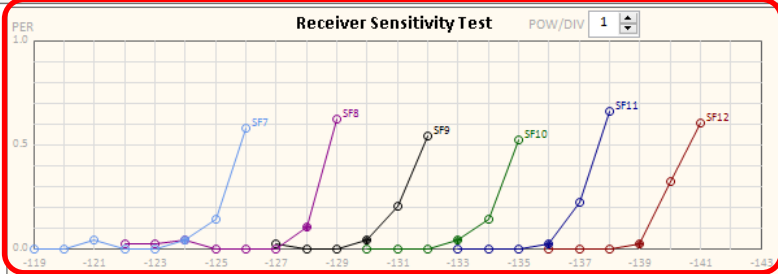
- Change SF during test
- Start Power: -136.0 dBm
- Step Power: 1 dB
- Num. of Power: 8
- Stop Power: -143.0 dBm
- Target PER: 0.10
- Num. of Packet: 50
- Path Loss: 0.7 dB

Test Criteria
Sensitivity Criteria: -136.0 dBm

Report Option

- Show Link message during test
- Paste tested Image after test

Receiver Sensitivity Test (POW/DIV 1)



PERFORMANCE TEST SUMMARY (dut_0)

PER : PASS

SF	Start	Step	Stop	Target	#Pkt	Criteria	Result	Verdict
SF12	-136	1	-143	0.1	50	-136	-139/0.02	PASS
SF11	-133	1	-142	0.1	50	-133	-136/0.02	PASS
SF10	-130	1	-139	0.1	50	-132	-133/0.04	PASS
SF9	-127	1	-136	0.1	50	-129	-130/0.04	PASS
SF8	-122	1	-131	0.1	50	-126	-128/0.1	PASS
SF7	-119	1	-128	0.1	50	-123	-124/0.04	PASS

TX Power Test : FAIL

POW	CH0	CH1	CH2	CH3	CH4	CH5	CH6	CH7	Verdict
0	10.2	10.2	10.2	10.3	10.3	10.3	10.3	10.3	FAIL

View Remote Message [TEST TIME] Begin : [blank] Finish : [blank]

Test parameters

SF : Select items you want to test and set the test parameters and criteria for each SF(Spreading Factor)

Sensitivity Criteria : Means the measured sensitivity power which has the PER that is not over the target PER should be greater than the criteria power. It could be a user defined criteria.

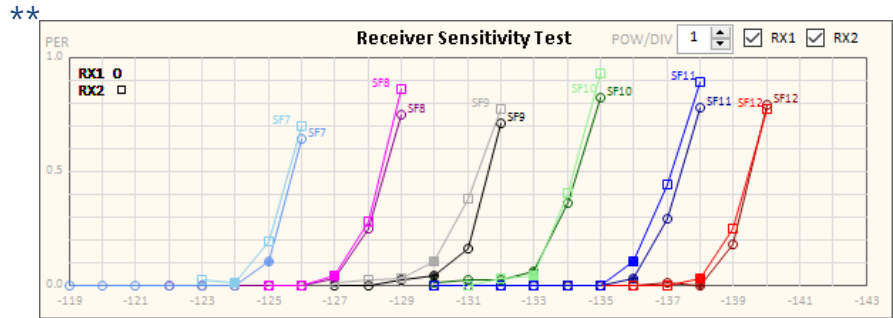
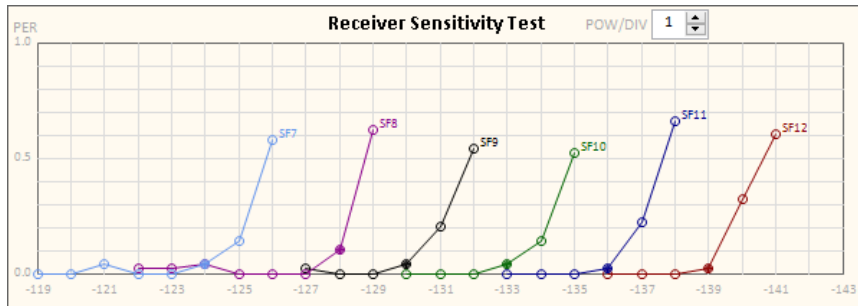
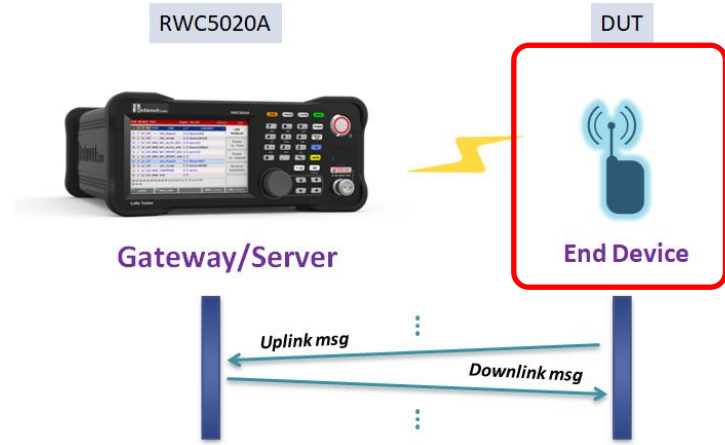
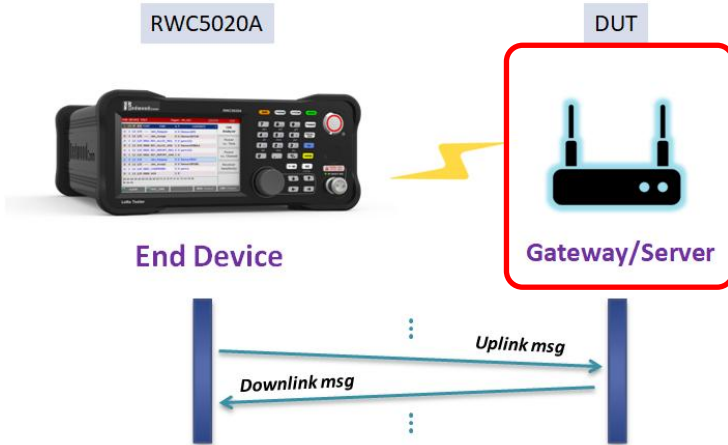
Device Type : User must select device type(GATEWAY or END DEVICE) before test to make RWC5020A operate correctly.

The screenshot shows a test configuration interface with three main panels: TEST ITEM, TEST CONDITIONS, and TEST CONFIGURATION.

- TEST ITEM**: Titled "SENSITIVITY AND TX POWER TEST", it contains a list of checkboxes for PER, SF12, SF11, SF10, SF9, SF8, and SF7 (all checked), and TX Power Test with a sub-item GW POWER (checked). A "Show Result on Item" checkbox is also present. At the bottom, it says "Selected : 7".
- TEST CONDITIONS**: Titled "Test Parameters (RX1_SF12)", it includes a "Change SF during test" checkbox (checked) and several numeric input fields: Start Power (-136.0 dBm), Step Power (1 dB), Num. of Power (8), Stop Power (-143.0 dBm), Target PER (0.10), Num. of Packet (50), and Path Loss (0.7 dB). Below this is a "Test Criteria" section with a "Sensitivity Criteria" field set to -136.0 dBm.
- TEST CONFIGURATION**: Contains dropdown menus for REGION (EU_868), DUT TYPE (GATEWAY), CLASS (Class A), and SCENARIO (NORMAL_UL). It also has a MODE field set to OTAA and a DUT CMD field set to Loaded.

Red boxes in the image highlight the SF selection list, the Test Parameters section, the Sensitivity Criteria field, and the DUT TYPE dropdown menu.

Sensitivity Test Result



PER : PASS

SF	Start	Step	Stop	Target	#Pkt	Criteria	Result	Verdict
SF12	-136	1	-143	0.1	50	-136	-139/0.02	PASS
SF11	-133	1	-142	0.1	50	-133	-136/0.02	PASS
SF10	-130	1	-139	0.1	50	-132	-133/0.04	PASS
SF9	-127	1	-136	0.1	50	-129	-130/0.04	PASS
SF8	-122	1	-131	0.1	50	-126	-128/0.1	PASS
SF7	-119	1	-128	0.1	50	-123	-124/0.04	PASS

PER using RX1 Window : PASS

SF	Start	Step	Stop	Target	#Pkt	Criteria	Result	Verdict
SF12	-134	1	-143	0.1	100	-136	-138/0	PASS
SF11	-130	1	-139	0.1	100	-133	-136/0.03	PASS
SF10	-130	1	-139	0.1	100	-132	-133/0.06	PASS
SF9	-127	1	-134	0.1	100	-129	-130/0.04	PASS
SF8	-122	1	-131	0.1	100	-126	-127/0.03	PASS
SF7	-119	1	-128	0.1	100	-123	-125/0.1	PASS

PER using RX2 Window : PASS

SF	Start	Step	Stop	Target	#Pkt	Criteria	Result	Verdict
SF12	-134	1	-143	0.1	100	-136	-138/0.03	PASS
SF11	-130	1	-139	0.1	100	-133	-136/0.1	PASS
SF10	-131	1	-135	0.1	100	-132	-133/0.04	PASS
SF9	-127	1	-133	0.1	100	-129	-130/0.1	PASS
SF8	-125	1	-129	0.1	100	-126	-127/0.04	PASS
SF7	-123	1	-127	0.1	100	-123	-124/0.01	PASS

* Result with a commercial gateway(conducted)
 **Result with a commercial end device(conducted)