RTX2254 BLUETOOTH RF TESTER
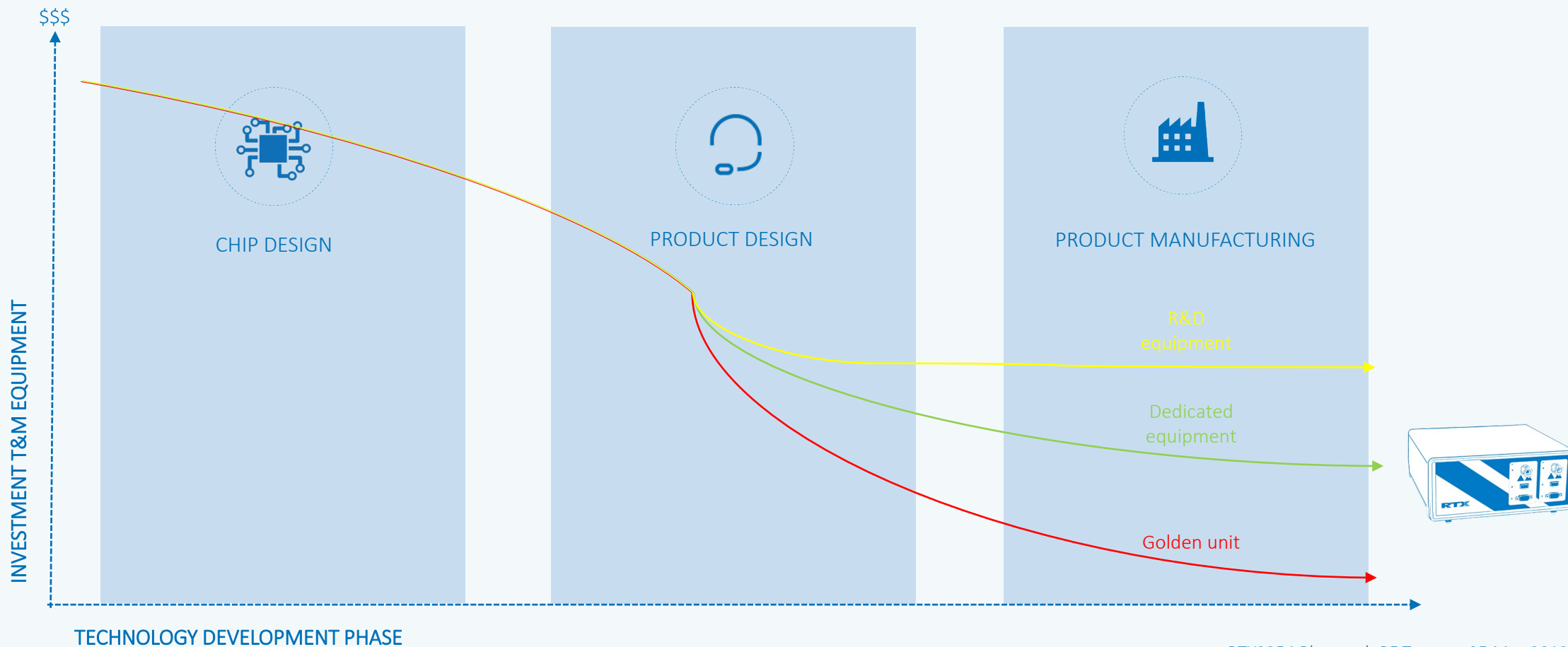
26 JUNE 2019

RTX
WIRELESS WISDOM

RTX2254 BLUETOOTH RF TESTER
THE CHALLENGE

Choosing the best approach to obtain high ROI in manufacturing without sacrificing quality

RTX2254 BLUETOOTH RF TESTER
FEATURES

- Supports Bluetooth 4.0, 4.1, 4.2, 5.0 & 5.1

- Parametric test of key parameters

- Full HCI control of DUT during RF test via embedded interface

- Auto-sensing level converter (HCI)

- Interface to all devices through same USB port

- Available with single or dual DUT support

- Supports all generally available BLE chip sets

- Competitively priced

ENSURING PRODUCT QUALITY ON A LIMITED BUDGET
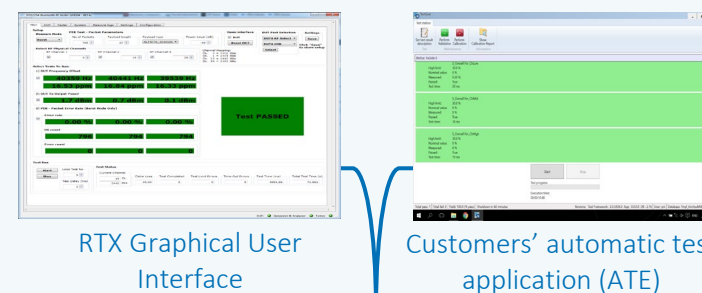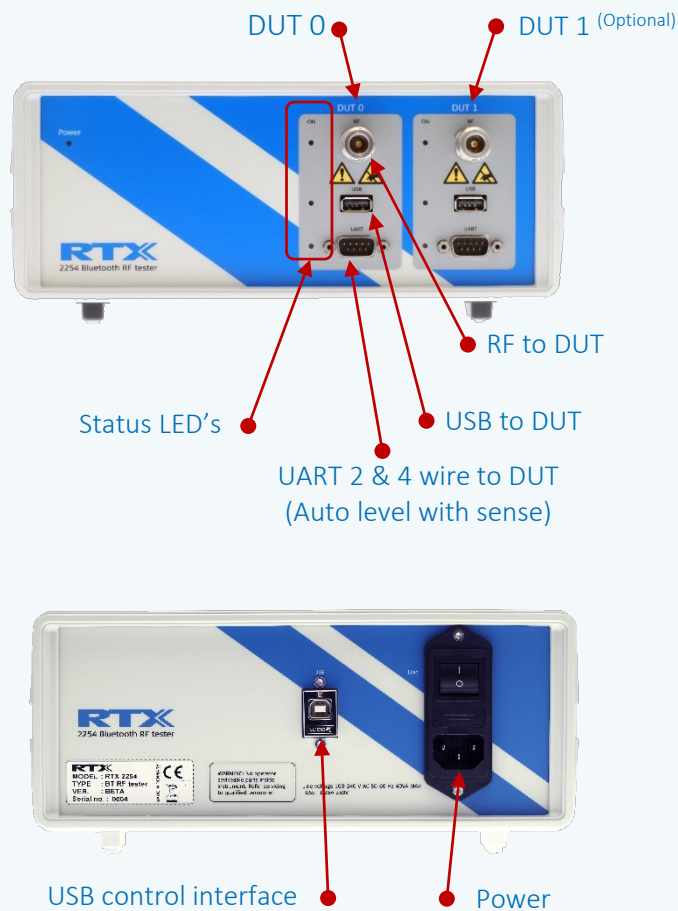
RTX2254 BLUETOOTH RF TESTER
MEASUREMENT CAPABILITIES

- Transmit power

- Carrier frequency offset

- Packet Error Rate (PER)

- Receiver sensitivity

RTX2254 BLUETOOTH RF TESTER
INTERFACING TO RF TESTER

DUT 0

DUT 1 (Optional)

RF to DUT

USB to DUT

Status LED's

UART 2 & 4 wire to DUT
(Auto level with sense)

USB control interface

Power

RTX Graphical User Interface

Customers' automatic test application (ATE)
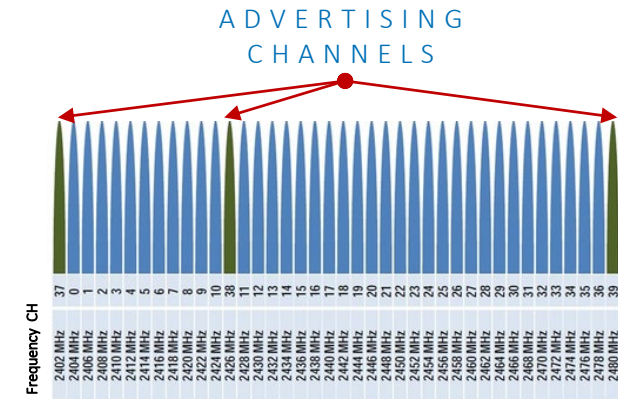
Driver

RTX's versatile driver:

- Can co-exist with chip vendors dedicated BLE driver(s)

- Enables support for all HCI commands and firmware downloads, etc.

- Enables remote control of RTX2254 and DUT

- Is included in the software package together with GUI, API documentation, sample code, etc.

RF

RF

HCI

HCI

RTX2254 BLUETOOTH RF TESTER
ADVERTISING MODE

- DTM requires an HCI interface which typical is NOT exposed in assembled products

- RTX2254 option D enables the user to measure the RF performance in OTA by utilizing the BT SIG specified advertising mode in the DUT

- Measurement capability on TX are identical to the capability in DTM

- RX PER measured on Scan response packages from DUT and typical on 5-10 packages to obtain low test time

- Additional feature for automatically measuring the RX sensitivity level on the selected channel(s)
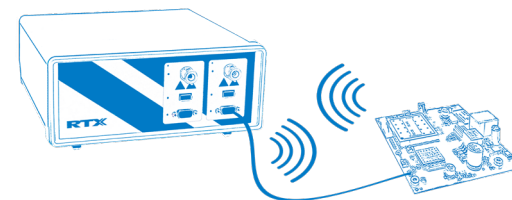

ADVERTISING CHANNELS

RTX2254 BLUETOOTH RF TESTER
SPECIAL TIME LIMITED PROMOTION PACKAGE

- Complete solution with support for test in both **DTM** and **Advertising Mode**

- Includes:

  - RTX2254 Bluetooth RF Tester, 2 ported

  - Option D: Advertising mode

  - Option E: Highspeed mode

LIMITED TIME OFFER!

VALID FROM

JUNE 1ST TO SEPTEMBER 30TH 2019

(DTM) DIRECT TEST MODE

ADVERTISING MODE

RTX2254 BLUETOOTH RF TESTER
APPLICATIONS

Manufacturing

- Automatic Test Equipment (ATE) system for inline test of BLE products

- ATE system for combined tests of BLE products (firmware download, baseband and RF test, etc.)

- ATE systems used in combination with dual DUT supported RTX2254 reduce tact time and thus optimize equipment utilization

Q/A

- Manual or automatic sample test of manufactured BLE products

R&D

- Control of BLE device in R&D measurement set-up

- Swift verification of RF performance of prototypes

RTX2254 BLUETOOTH RF TESTER
ROADMAP

RTX2254 options under consideration to enable support for a range of BLE features and increase its flexibility

RTX NO	Feature	BLE version	Release date
95201009	Option E: High performance providing 40% improvement in speed.	All	Q2 – 2019
95201008	Option D: Advertising test mode (Remove the need for HCI to control through DTM). Very suitable for verification of performance on fully assembled units where the HCI is not exposed.	All	Q2 – 2019
95201006	Option B: High speed 2 M bit (Optional feature in BLE 5.0 standard)	5.0	Q4 – 2019
95201007	Option C: Long range 125 + 500 K bit (Optional feature in BLE 5.0 standard)	5.0	Q4 - 2019
95201005	Option A: Extended packages >37 – 255 octets (Optional feature in BLE 4.2/5.0 standard)	4.2	Q4 - 2019

Customer requests may influence priority of and release order of the above options based on customer demand.

RTX2254 BLUETOOTH RF TESTER
TEST CAPABILITIES VS BLE VERSION

The basic test capabilities of RTX2254 are sufficient for all evolutions of BLE versions.
BLE mandatory and optional features refer to device requirements vs BLE version (e.g. 4.1).

BLE version	Description	Mandatory	Optional
4.0, 4.1, 4.2, 5.0 & 5.1	Frequency accuracy (Carrier)	X	
4.0, 4.1, 4.2, 5.0 & 5.1	Power output level	X	
4.0, 4.1, 4.2, 5.0 & 5.1	Packet Error Rate (PER)	X	
4.0, 4.1, 4.2, 5.0 & 5.1	Packet Length =<37 octets	X	
4.2, 5.0 & 5.1	Extended Packet >37 - 255 octets		X
4.2, 5.0 & 5.1	Data rate 1 M bit	X	
5.0 & 5.1	Data rate 2 M bit (LE 2M)		X
5.0 & 5.1	Data rate 500 K bit (LE coded)		X
5.0 & 5.1	Data rate 125 K bit (LE coded)		X

RTX2254 BLUETOOTH RF TESTER
OPTIONS

OPTION A
Extended packages >37 – 255 octets

- Data extension defined for BT 4.2 and enhances data-rate up to 250%

- Applications with need for frequent and fast firmware update

OPTION B
High speed 2 M bit

- Feature defined for BT 5.0 and double the data rate compared to 4.2

- Utilizing the LE 2M PHY

- Typical for video and propriety audio applications

RTX2254 BLUETOOTH RF TESTER
OPTIONS CONTINUED

OPTION C
Long range 125 + 500 K bit

- Feature defined for BT 5.0 to enhance the range by lowering data rate and implementing the LE Coded PHY using Forward Error Correction (FEC)

- Typical for sensor applications where long range important parameter.

OPTION D
Advertising test mode

- Alternative solution where the physical HCI interface (DTM) is NOT required by testing on the Advertising channels with the DUT in advertising mode

- Very useful for RF performance test on fully assembled products where the HCI interface typically is not exposed

- Installation: Software option to be installed at RTX or user

RTX2254 BLUETOOTH RF TESTER
OPTIONS CONTINUED

OPTION E

High performance

- Performance enhancement to further improve ROI

- Highly suitable for high volume manufacturing

- Test time reduction app. 40% when testing in DTM

- Installation: Hardware and software option to be installed at RTX

THANK YOU

RTX A/S · STROEMMEN 6 · 9400 NOERRESUNDBY · DENMARK · TEL. +45 9632 2300 · SALES@RTX.DK