

QN9080 PCB validation with Non Signaling Test Using MT8872

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SECURE CONNECTIONS
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Purpose

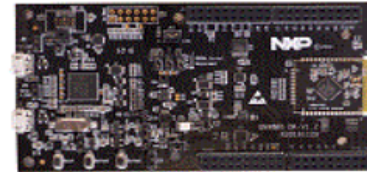
Customer, WNC is designing QN9080 into their IoT gateway project. They have Anritsu's MT887x non-signaling equipment. WNC asks if QN9080 can be tested with MT887x. We co-work with Anritsu Taiwan to integrate QN9080 and MT887x to perform 1M bps, 2M bps and Frame error rate test. This document will address the QN9080 setup and MT887x connection setup. Finally we show the 1M bps, 2M bps and frame error rate results. The Anritsu equipment is applied to MT8870, MT8872 model name.

QN9080 Setup

1. Download the latest QN9080 SDK example code from NXP website. The latest version is 2.2.1 (Released 2019-10-31) .

Select Development Board

Search for your board or kit to get started.



Search by Name

Select a Board, Kit, or Processor

- Boards
 - QN908XCDK**
 - QN9090DK6
- Kits
- Processors
 - QN908XC

Hardware Details

Board	QN908XCDK
Device	QN908XC
Core Type / Max Freq	Cortex-M4F / 32MHz
Device Memory Size	512 KB Flash 128 KB RAM

Actions

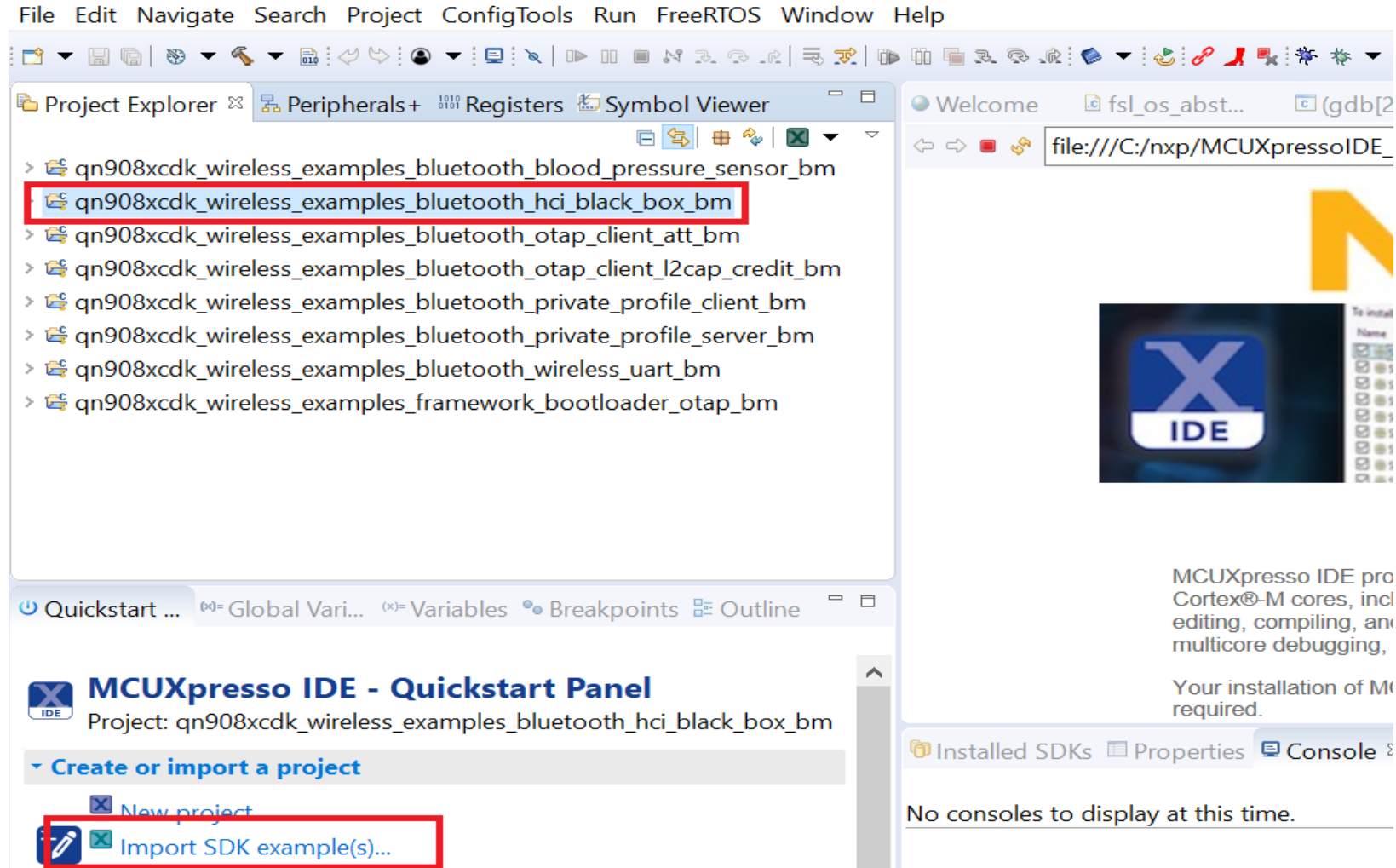
Build MCUXpresso SDK



Explore selection with Pins tool

QN9080 Setup(Continued)

2. Import “ HCI_Black_Box “ example from MCUXpresso.



QN9080 Setup (Continued)

3. Select either bm or freertos version

Import projects

Project name prefix: Project name suffix:

Use default location

Location:

Project Type

C Project C++ Project C Static Library C++ Static Library

Project Options

SDK Debug Console Semihost UART

Copy sources

Import other files

Examples

type to filter

Name	Version
> <input type="checkbox"/> blood_pressure_sensor	
> <input type="checkbox"/> cycling_power_sensor	
> <input type="checkbox"/> cycling_speed_cadence_sensor	
> <input type="checkbox"/> glucose_sensor	
▼ <input checked="" type="checkbox"/> hci_black_box	
<input checked="" type="checkbox"/> bm	
<input type="checkbox"/> freertos	
> <input type="checkbox"/> health_thermometer	
> <input type="checkbox"/> heart_rate_sensor	

QN9080 Setup (Continued)

4. Compile and load “HCI_Black_Box” into QN9080 Target board.

```
CDT Build Console [qn908xcdk_wireless_examples_bluetooth_hci_black_box_bm]

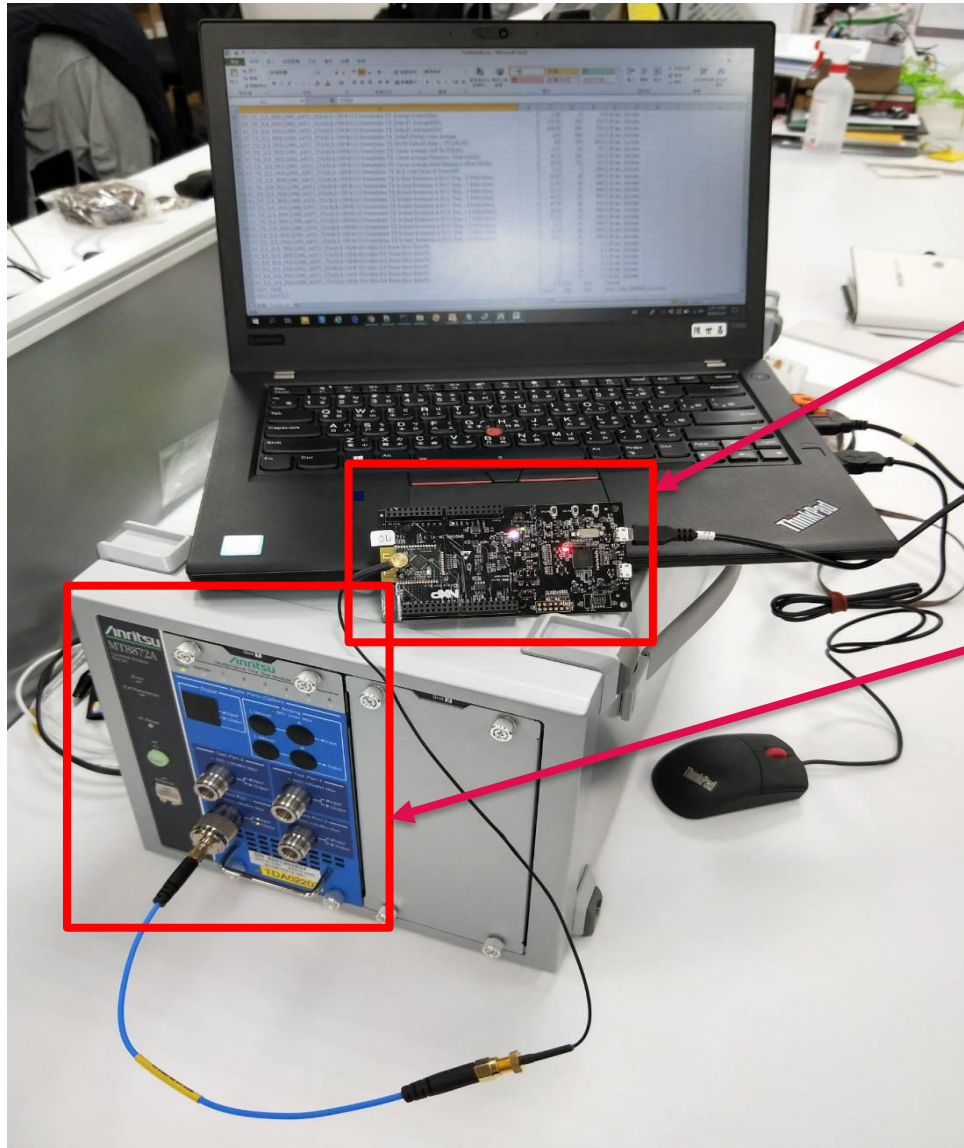
Finished building: ../bluetooth/hci_transport/source/hcit_serial_interface.c

Finished building: ../bluetooth/controller/interface/controller_config.c

Building target: qn908xcdk_wireless_examples_bluetooth_hci_black_box_bm.axf
Invoking: MCU Linker
arm-none-eabi-gcc -L"C:\nxp\MCUXpressoIDE_10.2.1_795\QN9080 workspace\qn908xcdk_wireless_examples_bluetooth_
Memory region      Used Size  Region Size  %age Used
  m_bootloader:      0 GB      0 GB        -1.#J%
  m_interrupts:      276 B     276 B       100.00%
  m_bootFlags:       0 GB      0 GB        -1.#J%
  m_text:            73348 B   509676 B    14.39%
m_InternalStorage:  0 GB      0 GB        -1.#J%
  fNVM_region:       0 GB      4 KB        0.00%
  sNVM_region:       1 B       4 KB        0.02%
  m_data:            23408 B   127 KB     18.00%
Finished building target: qn908xcdk_wireless_examples_bluetooth_hci_black_box_bm.axf

make --no-print-directory post-build
Performing post-build steps
arm-none-eabi-size "qn908xcdk_wireless_examples_bluetooth_hci_black_box_bm.axf"; # arm-none-eabi-objcopy -v
  text    data    bss    dec    hex filename
 73608   1404   22013   97025   17b01 qn908xcdk_wireless_examples_bluetooth_hci_black_box_bm.axf
```

QN9080 Connection Setup with MT8872



QN9080 Test Target

MT8872

QN9080 Connection Setup with MT8872



RF connection with MT8872

RF connection with QN9080

PC Connection Setup with MT8872



Test Results at 2402 MHz, 1M bps

ITEM	VALUE	UPPER	LOWER	DESCRIPTION
VERSION	2.1.3.17	NA	NA	Success
BT_TX_BLE_FREQ2402_ANT1_STABLE-OFF@0.0 PowerIndex TX Average Power(dBm)	-2.19	6	-4	0.36 sec.
BT_TX_BLE_FREQ2402_ANT1_STABLE-OFF@0.0 PowerIndex TX Delta-F1 Average(kHz)	249.33	275	225	0.36 sec.
BT_TX_BLE_FREQ2402_ANT1_STABLE-OFF@0.0 PowerIndex TX Delta-F2 Average(kHz)	218.63	999	185	0.36 sec.
BT_TX_BLE_FREQ2402_ANT1_STABLE-OFF@0.0 PowerIndex TX DeltaF2/DeltaF1 ratio Average	0.88	999	0.8	0.36 sec.
BT_TX_BLE_FREQ2402_ANT1_STABLE-OFF@0.0 PowerIndex TX 99.9% Delta-F2 Max > 185 kHz(%)	100	100	99.9	0.36 sec.
BT_TX_BLE_FREQ2402_ANT1_STABLE-OFF@0.0 PowerIndex TX Carrier Average Drift f _n -f ₀ (kHz)	-0.95	50	-50	0.36 sec.
BT_TX_BLE_FREQ2402_ANT1_STABLE-OFF@0.0 PowerIndex TX Carrier Average Frequency Offset f _n (kHz)	40.94	150	-150	0.36 sec.
BT_TX_BLE_FREQ2402_ANT1_STABLE-OFF@0.0 PowerIndex TX Carrier Average Initial Frequency offset f ₀ (kHz)	40.09	150	-150	0.36 sec.
BT_TX_BLE_FREQ2402_ANT1_STABLE-OFF@0.0 PowerIndex TX BLE Crest Factor of Power(dB)	0.09	3	-999	0.36 sec.
BT_TX_BLE_FREQ2402_ANT1_STABLE-OFF@0.0 PowerIndex TX In-band Emissions at NOC Freq. - 5 MHz(dBm)	-56.44	-32	-999	0.36 sec.
BT_TX_BLE_FREQ2402_ANT1_STABLE-OFF@0.0 PowerIndex TX In-band Emissions at NOC Freq. - 4 MHz(dBm)	-54.66	-32	-999	0.36 sec.
BT_TX_BLE_FREQ2402_ANT1_STABLE-OFF@0.0 PowerIndex TX In-band Emissions at NOC Freq. - 3 MHz(dBm)	-51.98	-32	-999	0.36 sec.
BT_TX_BLE_FREQ2402_ANT1_STABLE-OFF@0.0 PowerIndex TX In-band Emissions at NOC Freq. - 2 MHz(dBm)	-47.39	-22	-999	0.36 sec.
BT_TX_BLE_FREQ2402_ANT1_STABLE-OFF@0.0 PowerIndex TX In-band Emissions at NOC Freq. + 2 MHz(dBm)	-49.2	-22	-999	0.36 sec.
BT_TX_BLE_FREQ2402_ANT1_STABLE-OFF@0.0 PowerIndex TX In-band Emissions at NOC Freq. + 3 MHz(dBm)	-53.28	-32	-999	0.36 sec.
BT_TX_BLE_FREQ2402_ANT1_STABLE-OFF@0.0 PowerIndex TX In-band Emissions at NOC Freq. + 4 MHz(dBm)	-56.38	-32	-999	0.36 sec.
BT_TX_BLE_FREQ2402_ANT1_STABLE-OFF@0.0 PowerIndex TX In-band Emissions at NOC Freq. + 5 MHz(dBm)	-58.25	-32	-999	0.36 sec.

Test Results at 2442MHz, 1M bps

BT_TX_BLE_FREQ2442_ANT1_STABLE-OFF@0.0 PowerIndex TX Average Power(dBm)	-2.11	6	-4	0.34 sec.
BT_TX_BLE_FREQ2442_ANT1_STABLE-OFF@0.0 PowerIndex TX Delta-F1 Average(kHz)	248.36	275	225	0.34 sec.
BT_TX_BLE_FREQ2442_ANT1_STABLE-OFF@0.0 PowerIndex TX Delta-F2 Average(kHz)	219.21	999	185	0.34 sec.
BT_TX_BLE_FREQ2442_ANT1_STABLE-OFF@0.0 PowerIndex TX DeltaF2/DeltaF1 ratio Average	0.88	999	0.8	0.34 sec.
BT_TX_BLE_FREQ2442_ANT1_STABLE-OFF@0.0 PowerIndex TX 99.9% Delta-F2 Max > 185 kHz(%)	100	100	99.9	0.34 sec.
BT_TX_BLE_FREQ2442_ANT1_STABLE-OFF@0.0 PowerIndex TX Carrier Average Drift lfn-f0l(kHz)	-1.33	50	-50	0.34 sec.
BT_TX_BLE_FREQ2442_ANT1_STABLE-OFF@0.0 PowerIndex TX Carrier Average Frequency Offset fn(kHz)	40.18	150	-150	0.34 sec.
BT_TX_BLE_FREQ2442_ANT1_STABLE-OFF@0.0 PowerIndex TX Carrier Average Initial Frequency offset f0(kHz)	39.78	150	-150	0.34 sec.
BT_TX_BLE_FREQ2442_ANT1_STABLE-OFF@0.0 PowerIndex TX BLE Crest Factor of Power(dB)	0.1	3	-999	0.34 sec.
BT_TX_BLE_FREQ2442_ANT1_STABLE-OFF@0.0 PowerIndex TX In-band Emissions at NOC Freq. - 5 MHz(dBm)	-56.86	-32	-999	0.34 sec.
BT_TX_BLE_FREQ2442_ANT1_STABLE-OFF@0.0 PowerIndex TX In-band Emissions at NOC Freq. - 4 MHz(dBm)	-55.08	-32	-999	0.34 sec.
BT_TX_BLE_FREQ2442_ANT1_STABLE-OFF@0.0 PowerIndex TX In-band Emissions at NOC Freq. - 3 MHz(dBm)	-52.34	-32	-999	0.34 sec.
BT_TX_BLE_FREQ2442_ANT1_STABLE-OFF@0.0 PowerIndex TX In-band Emissions at NOC Freq. - 2 MHz(dBm)	-48.27	-22	-999	0.34 sec.
BT_TX_BLE_FREQ2442_ANT1_STABLE-OFF@0.0 PowerIndex TX In-band Emissions at NOC Freq. + 2 MHz(dBm)	-49.76	-22	-999	0.34 sec.
BT_TX_BLE_FREQ2442_ANT1_STABLE-OFF@0.0 PowerIndex TX In-band Emissions at NOC Freq. + 3 MHz(dBm)	-53.64	-32	-999	0.34 sec.
BT_TX_BLE_FREQ2442_ANT1_STABLE-OFF@0.0 PowerIndex TX In-band Emissions at NOC Freq. + 4 MHz(dBm)	-55.66	-32	-999	0.34 sec.
BT_TX_BLE_FREQ2442_ANT1_STABLE-OFF@0.0 PowerIndex TX In-band Emissions at NOC Freq. + 5 MHz(dBm)	-57.45	-32	-999	0.34 sec.

Test Results at 2480MHz, 1M bps

BT_TX_BLE_FREQ2480_ANT1_STABLE-OFF@0.0 PowerIndex TX Average Power(dBm)	-2.21	6	-4	0.53 sec.
BT_TX_BLE_FREQ2480_ANT1_STABLE-OFF@0.0 PowerIndex TX Delta-F1 Average(kHz)	249.02	275	225	0.53 sec.
BT_TX_BLE_FREQ2480_ANT1_STABLE-OFF@0.0 PowerIndex TX Delta-F2 Average(kHz)	219.35	999	185	0.53 sec.
BT_TX_BLE_FREQ2480_ANT1_STABLE-OFF@0.0 PowerIndex TX DeltaF2/DeltaF1 ratio Average	0.88	999	0.8	0.53 sec.
BT_TX_BLE_FREQ2480_ANT1_STABLE-OFF@0.0 PowerIndex TX 99.9% Delta-F2 Max > 185 kHz(%)	100	100	99.9	0.53 sec.
BT_TX_BLE_FREQ2480_ANT1_STABLE-OFF@0.0 PowerIndex TX Carrier Average Drift lfn-f0l(kHz)	-0.46	50	-50	0.53 sec.
BT_TX_BLE_FREQ2480_ANT1_STABLE-OFF@0.0 PowerIndex TX Carrier Average Frequency Offset fn(kHz)	41.17	150	-150	0.53 sec.
BT_TX_BLE_FREQ2480_ANT1_STABLE-OFF@0.0 PowerIndex TX Carrier Average Initial Frequency offset f0(kHz)	41.09	150	-150	0.53 sec.
BT_TX_BLE_FREQ2480_ANT1_STABLE-OFF@0.0 PowerIndex TX BLE Crest Factor of Power(dB)	0.09	3	-999	0.53 sec.
BT_TX_BLE_FREQ2480_ANT1_STABLE-OFF@0.0 PowerIndex TX In-band Emissions at NOC Freq. - 5 MHz(dBm)	-56.87	-32	-999	0.53 sec.
BT_TX_BLE_FREQ2480_ANT1_STABLE-OFF@0.0 PowerIndex TX In-band Emissions at NOC Freq. - 4 MHz(dBm)	-54.99	-32	-999	0.53 sec.
BT_TX_BLE_FREQ2480_ANT1_STABLE-OFF@0.0 PowerIndex TX In-band Emissions at NOC Freq. - 3 MHz(dBm)	-52.43	-32	-999	0.53 sec.
BT_TX_BLE_FREQ2480_ANT1_STABLE-OFF@0.0 PowerIndex TX In-band Emissions at NOC Freq. - 2 MHz(dBm)	-48.68	-22	-999	0.53 sec.
BT_TX_BLE_FREQ2480_ANT1_STABLE-OFF@0.0 PowerIndex TX In-band Emissions at NOC Freq. + 2 MHz(dBm)	-50.18	-22	-999	0.53 sec.
BT_TX_BLE_FREQ2480_ANT1_STABLE-OFF@0.0 PowerIndex TX In-band Emissions at NOC Freq. + 3 MHz(dBm)	-54.19	-32	-999	0.53 sec.
BT_TX_BLE_FREQ2480_ANT1_STABLE-OFF@0.0 PowerIndex TX In-band Emissions at NOC Freq. + 4 MHz(dBm)	-56.34	-32	-999	0.53 sec.
BT_TX_BLE_FREQ2480_ANT1_STABLE-OFF@0.0 PowerIndex TX In-band Emissions at NOC Freq. + 5 MHz(dBm)	-58.33	-32	-999	0.53 sec.

Test Results at 2402MHz, 2M bps

BT_TX_2LE_FREQ2402_ANT1_STABLE-OFF@13.0 PowerIndex TX Average Power(dBm)	-2.16	6	-4	0.34 sec.
BT_TX_2LE_FREQ2402_ANT1_STABLE-OFF@13.0 PowerIndex TX Delta-F1 Average(kHz)	514.47	580	450	0.34 sec.
BT_TX_2LE_FREQ2402_ANT1_STABLE-OFF@13.0 PowerIndex TX Delta-F2 Average(kHz)	438.94	999	370	0.34 sec.
BT_TX_2LE_FREQ2402_ANT1_STABLE-OFF@13.0 PowerIndex TX DeltaF2/DeltaF1 ratio Average	0.85	999	0.8	0.34 sec.
BT_TX_2LE_FREQ2402_ANT1_STABLE-OFF@13.0 PowerIndex TX 99.9% Delta-F2 Max > 370 kHz(%)	100	100	99.9	0.34 sec.
BT_TX_2LE_FREQ2402_ANT1_STABLE-OFF@13.0 PowerIndex TX Carrier Average Drift fn-f0 (kHz)	-5.31	50	-50	0.34 sec.
BT_TX_2LE_FREQ2402_ANT1_STABLE-OFF@13.0 PowerIndex TX Carrier Average Frequency Offset fn(kHz)	39.82	150	-150	0.34 sec.
BT_TX_2LE_FREQ2402_ANT1_STABLE-OFF@13.0 PowerIndex TX Carrier Average Initial Frequency offset f0(kHz)	39.82	150	-150	0.34 sec.
BT_TX_2LE_FREQ2402_ANT1_STABLE-OFF@13.0 PowerIndex TX BLE Crest Factor of Power(dB)	0.12	3	-999	0.34 sec.
BT_TX_2LE_FREQ2402_ANT1_STABLE-OFF@13.0 PowerIndex TX In-band Emissions at NOC Freq. - 8 MHz(dBm)	-52.82	-30	-999	0.34 sec.
BT_TX_2LE_FREQ2402_ANT1_STABLE-OFF@13.0 PowerIndex TX In-band Emissions at NOC Freq. - 7 MHz(dBm)	-51.78	-30	-999	0.34 sec.
BT_TX_2LE_FREQ2402_ANT1_STABLE-OFF@13.0 PowerIndex TX In-band Emissions at NOC Freq. - 6 MHz(dBm)	-50.78	-30	-999	0.34 sec.
BT_TX_2LE_FREQ2402_ANT1_STABLE-OFF@13.0 PowerIndex TX In-band Emissions at NOC Freq. - 5 MHz(dBm)	-49.68	-20	-999	0.34 sec.
BT_TX_2LE_FREQ2402_ANT1_STABLE-OFF@13.0 PowerIndex TX In-band Emissions at NOC Freq. - 4 MHz(dBm)	-47.56	-20	-999	0.34 sec.
BT_TX_2LE_FREQ2402_ANT1_STABLE-OFF@13.0 PowerIndex TX In-band Emissions at NOC Freq. + 4 MHz(dBm)	-50.5	-20	-999	0.34 sec.
BT_TX_2LE_FREQ2402_ANT1_STABLE-OFF@13.0 PowerIndex TX In-band Emissions at NOC Freq. + 5 MHz(dBm)	-52.4	-20	-999	0.34 sec.
BT_TX_2LE_FREQ2402_ANT1_STABLE-OFF@13.0 PowerIndex TX In-band Emissions at NOC Freq. + 6 MHz(dBm)	-53.35	-30	-999	0.34 sec.
BT_TX_2LE_FREQ2402_ANT1_STABLE-OFF@13.0 PowerIndex TX In-band Emissions at NOC Freq. + 7 MHz(dBm)	-54.04	-30	-999	0.34 sec.
BT_TX_2LE_FREQ2402_ANT1_STABLE-OFF@13.0 PowerIndex TX In-band Emissions at NOC Freq. + 8 MHz(dBm)	-54.73	-30	-999	0.34 sec.

Test Results at 2442MHz, 2M bps

BT_TX_2LE_FREQ2442_ANT1_STABLE-OFF@13.0 PowerIndex TX Delta-F2 Average(kHz)	438.27	999	370	0.34 sec.
BT_TX_2LE_FREQ2442_ANT1_STABLE-OFF@13.0 PowerIndex TX DeltaF2/DeltaF1 ratio Average	0.85	999	0.8	0.34 sec.
BT_TX_2LE_FREQ2442_ANT1_STABLE-OFF@13.0 PowerIndex TX 99.9% Delta-F2 Max > 370 kHz(%)	100	100	99.9	0.34 sec.
BT_TX_2LE_FREQ2442_ANT1_STABLE-OFF@13.0 PowerIndex TX Carrier Average Drift fn-f0 (kHz)	-4.55	50	-50	0.34 sec.
BT_TX_2LE_FREQ2442_ANT1_STABLE-OFF@13.0 PowerIndex TX Carrier Average Frequency Offset fn(kHz)	40.52	150	-150	0.34 sec.
BT_TX_2LE_FREQ2442_ANT1_STABLE-OFF@13.0 PowerIndex TX Carrier Average Initial Frequency offset f0(kHz)	40.51	150	-150	0.34 sec.
BT_TX_2LE_FREQ2442_ANT1_STABLE-OFF@13.0 PowerIndex TX BLE Crest Factor of Power(dB)	0.11	3	-999	0.34 sec.
BT_TX_2LE_FREQ2442_ANT1_STABLE-OFF@13.0 PowerIndex TX In-band Emissions at NOC Freq. - 8 MHz(dBm)	-53.18	-30	-999	0.34 sec.
BT_TX_2LE_FREQ2442_ANT1_STABLE-OFF@13.0 PowerIndex TX In-band Emissions at NOC Freq. - 7 MHz(dBm)	-52.54	-30	-999	0.34 sec.
BT_TX_2LE_FREQ2442_ANT1_STABLE-OFF@13.0 PowerIndex TX In-band Emissions at NOC Freq. - 6 MHz(dBm)	-51.26	-30	-999	0.34 sec.
BT_TX_2LE_FREQ2442_ANT1_STABLE-OFF@13.0 PowerIndex TX In-band Emissions at NOC Freq. - 5 MHz(dBm)	-50.22	-20	-999	0.34 sec.
BT_TX_2LE_FREQ2442_ANT1_STABLE-OFF@13.0 PowerIndex TX In-band Emissions at NOC Freq. - 4 MHz(dBm)	-47.87	-20	-999	0.34 sec.
BT_TX_2LE_FREQ2442_ANT1_STABLE-OFF@13.0 PowerIndex TX In-band Emissions at NOC Freq. + 4 MHz(dBm)	-49.98	-20	-999	0.34 sec.
BT_TX_2LE_FREQ2442_ANT1_STABLE-OFF@13.0 PowerIndex TX In-band Emissions at NOC Freq. + 5 MHz(dBm)	-51.97	-20	-999	0.34 sec.
BT_TX_2LE_FREQ2442_ANT1_STABLE-OFF@13.0 PowerIndex TX In-band Emissions at NOC Freq. + 6 MHz(dBm)	-52.64	-30	-999	0.34 sec.
BT_TX_2LE_FREQ2442_ANT1_STABLE-OFF@13.0 PowerIndex TX In-band Emissions at NOC Freq. + 7 MHz(dBm)	-53.35	-30	-999	0.34 sec.
BT_TX_2LE_FREQ2442_ANT1_STABLE-OFF@13.0 PowerIndex TX In-band Emissions at NOC Freq. + 8 MHz(dBm)	-54.03	-30	-999	0.34 sec.

Test Results at 2480MHz, 2M bps

BT_TX_2LE_FREQ2480_ANT1_STABLE-OFF@13.0 PowerIndex TX Average Power(dBm)	-2.21	6	-4	0.33 sec.
BT_TX_2LE_FREQ2480_ANT1_STABLE-OFF@13.0 PowerIndex TX Delta-F1 Average(kHz)	510.29	580	450	0.33 sec.
BT_TX_2LE_FREQ2480_ANT1_STABLE-OFF@13.0 PowerIndex TX Delta-F2 Average(kHz)	438.26	999	370	0.33 sec.
BT_TX_2LE_FREQ2480_ANT1_STABLE-OFF@13.0 PowerIndex TX DeltaF2/DeltaF1 ratio Average	0.86	999	0.8	0.33 sec.
BT_TX_2LE_FREQ2480_ANT1_STABLE-OFF@13.0 PowerIndex TX 99.9% Delta-F2 Max > 370 kHz(%)	100	100	99.9	0.33 sec.
BT_TX_2LE_FREQ2480_ANT1_STABLE-OFF@13.0 PowerIndex TX Carrier Average Drift fn-f0 (kHz)	-0.91	50	-50	0.33 sec.
BT_TX_2LE_FREQ2480_ANT1_STABLE-OFF@13.0 PowerIndex TX Carrier Average Frequency Offset fn(kHz)	38.38	150	-150	0.33 sec.
BT_TX_2LE_FREQ2480_ANT1_STABLE-OFF@13.0 PowerIndex TX Carrier Average Initial Frequency offset f0(kHz)	38.1	150	-150	0.33 sec.
BT_TX_2LE_FREQ2480_ANT1_STABLE-OFF@13.0 PowerIndex TX BLE Crest Factor of Power(dB)	0.12	3	-999	0.33 sec.
BT_TX_2LE_FREQ2480_ANT1_STABLE-OFF@13.0 PowerIndex TX In-band Emissions at NOC Freq. - 8 MHz(dBm)	-53.06	-30	-999	0.33 sec.
BT_TX_2LE_FREQ2480_ANT1_STABLE-OFF@13.0 PowerIndex TX In-band Emissions at NOC Freq. - 7 MHz(dBm)	-51.71	-30	-999	0.33 sec.
BT_TX_2LE_FREQ2480_ANT1_STABLE-OFF@13.0 PowerIndex TX In-band Emissions at NOC Freq. - 6 MHz(dBm)	-50.8	-30	-999	0.33 sec.
BT_TX_2LE_FREQ2480_ANT1_STABLE-OFF@13.0 PowerIndex TX In-band Emissions at NOC Freq. - 5 MHz(dBm)	-49.62	-20	-999	0.33 sec.
BT_TX_2LE_FREQ2480_ANT1_STABLE-OFF@13.0 PowerIndex TX In-band Emissions at NOC Freq. - 4 MHz(dBm)	-47.88	-20	-999	0.33 sec.
BT_TX_2LE_FREQ2480_ANT1_STABLE-OFF@13.0 PowerIndex TX In-band Emissions at NOC Freq. + 4 MHz(dBm)	-50.4	-20	-999	0.33 sec.
BT_TX_2LE_FREQ2480_ANT1_STABLE-OFF@13.0 PowerIndex TX In-band Emissions at NOC Freq. + 5 MHz(dBm)	-51.7	-20	-999	0.33 sec.
BT_TX_2LE_FREQ2480_ANT1_STABLE-OFF@13.0 PowerIndex TX In-band Emissions at NOC Freq. + 6 MHz(dBm)	-52.91	-30	-999	0.33 sec.
BT_TX_2LE_FREQ2480_ANT1_STABLE-OFF@13.0 PowerIndex TX In-band Emissions at NOC Freq. + 7 MHz(dBm)	-54.02	-30	-999	0.33 sec.
BT_TX_2LE_FREQ2480_ANT1_STABLE-OFF@13.0 PowerIndex TX In-band Emissions at NOC Freq. + 8 MHz(dBm)	-54.67	-30	-999	0.33 sec.

Test Results at FER(Frame Error Rate)

BT_RX_BLE_FREQ2402_ANT1_STABLE-ON@-60.0 dBm RX Frame Error Rate(%)	0.6	10	0	1.13 sec.
BT_RX_BLE_FREQ2442_ANT1_STABLE-ON@-60.0 dBm RX Frame Error Rate(%)	0	10	0	1.06 sec.
BT_RX_BLE_FREQ2480_ANT1_STABLE-ON@-60.0 dBm RX Frame Error Rate(%)	0.6	10	0	1.06 sec.
BT_RX_2LE_FREQ2402_ANT1_STABLE-ON@-70.0 dBm RX Frame Error Rate(%)	1.5	10	0	1.05 sec.
BT_RX_2LE_FREQ2442_ANT1_STABLE-ON@-70.0 dBm RX Frame Error Rate(%)	0.1	10	0	1.05 sec.
BT_RX_2LE_FREQ2480_ANT1_STABLE-ON@-70.0 dBm RX Frame Error Rate(%)	0.7	10	0	1.06 sec.
TEST_TIME	9.75	NA	NA	Success
TEST_RESULT	PASS	NA	NA	Error Cod



THANK YOU!