AN1392: Detailed Timing Test Results for RAIL

This application note provides information about various timing measurements that may be of interest when using RAIL to develop an application. These timings may vary based on the chip, software release, and other RF/PHY settings, so be sure to reference this document as you update software.

KEY POINTS

- Implementation approach
- About the results
- Results summary
- Detailed results for this release

1 Introduction

Users of Silicon Labs' EFR32 chips may have questions about the time it takes for various radio operations. Not all of these are easy to document with the APIs as they may vary by chip, PHY, or even software release. This document is meant to provide some of those numbers as measured on a particular release in a subset of possible situations. Note that these numbers are informational and may change from release to release or chip to chip.

Note that some users will want to create an application that sends and receives packets at specific times for a synchronized communications channel. While you can use the timings around `RAIL_StartRx()` and `RAIL_StartTx()` to enable that, a better approach is to use the `RAIL_StartScheduledTx()` and `RAIL_ScheduleRx()` APIs, which enable these synchronized operations more reliably from release to release.

2 Implementation Approach

To measure this data, Silicon Labs builds a special version of RAIL and adds some extra application software to capture radio state change events and use hardware timestamping where possible. The goal is to introduce as little overhead as possible and to build an almost stock version of the library and application. This implementation uses an interrupt handler to capture radio state transition events and timestamp them, so some overhead is introduced. Because the application is only testing, the latency from this is minimal and is largely canceled out by measuring the time difference between two state transitions.

In this release, these measurements are taken using the single protocol version of the RAIL library. Different numbers and more variables would be expected if measuring with the multiprotocol version, as it would interact with the radio scheduler for every radio operation.

3 About the Results

Below is a description of each timing measurement and how it is taken. Measurement data for each is provided in the Result section. When a limited set of options impacts the timing, results are provided for every possible set of options, to cover all use cases.

- **Active Radio to Idle Time** – The time to transition into idle mode while in the middle of packet reception. Because the different `RAIL_Idle()` modes and the point in packet reception when `RAIL_Idle()` is called impact this time, the test is run across all idle modes and the abort is triggered at several different points.
- **Channel Change Time (RX to RX)** – The time to transition from receive on one channel to receive on another channel. This involves the radio being idled, reconfiguring the radio for the new channel, and then restarting receive. Measured by checking the time to transition out of the Rx state and into the Rx state on the new channel.
- **ConfigChannel Time** – The time to apply a radio channel configuration with the `RAIL_ConfigChannels()` API. Characterized by implementing the **RAIL Utility, Protocol** component in the test application.
- **EM2 to Active Radio Time** – The time from EM2 sleep wakeup until the radio is ready to receive a packet in an optimal application. This includes the time to restart the HFXO on the radio board and restart the receiver. Measured both with and without resynchronizing the high frequency RAIL time base with the low frequency sleep clock in the `RAIL_ConfigSleepAlt()` API.
- **Image Rejection Calibration (IRCAL) Time** – The time to perform image rejection calibration. Characterized by wrapping a call to `RAIL_CalibrateIrAlt()` and running the test several times to see how long it takes to complete.
- **RAIL_Init() Time With and Without DMA** – The time to initialize the radio via `RAIL_Init()` with and without using a DMA channel to load the sequencer image. Measured by building the application with and without the **RAIL Utility, DMA** component and wrapping the call to `RAIL_Init()`.
- **RX API Call to Actual RX Ready State Time** – The time from the `RAIL_StartRx()` function call until the receiver is active and ready for packet data. Measured from the API call until the radio enters the receive state. The `idleToRx` time is set to 0 µs. Also note that there may be additional receive chain delays that depend on the bitrate of your PHY so it's possible more time would be required here to successfully receive a packet.
- **RX Packet Receive to Event Trigger** – The time from the radio packet receive operation completing until the RAIL event for packet reception is received by the application. Measured by comparing the timer tick at which the packet reception is complete to the time the user callback is triggered. This removed the PHY dependency that influenced the initial results on Series 2. The test application minimizes interrupt latency and other system overhead that can influence this time in a real-world application.
- **TX API Call to Actual Transmit Time** – The time from calling `RAIL_StartTx()` until the first bit of the preamble goes on the air. Measured by computing the time from the API call being issued until the radio enters the transmit state. The idleToTx time is set to 0 µs and the Power Amplifier `rampTime` is configured to the default for that chip in the **RAIL Utility, PA** component. This test is also run over the most common RAIL_TxOptions_t values to show their impact.
- **Temperature Calibration Time** – The time taken to perform temperature calibration. Characterized by calling `RAIL_CalibrateTemp()` and measuring the time between leaving the receive state and completing this calibration.
- **TX to RX** and **RX to TX Auto State Transition Times (Minimal)** – The minimum time required to transition from transmit to receive and vice versa. The `RAIL_SetStateTiming` API is used with the `txToRx` and `rxToTx` transition times set to 0 µs, to eliminate additional delays. Measured by monitoring the radio state transition time from the end of one state until the beginning of the next.

4 Results Summary

This section provides a summary across Gecko SDK Suite (GSDK) releases. The detailed results for this release are included in section 5.

- Version 4.4.0: Moved protocol specific initialization to the initialization functions for that protocol on EFR32xG22 and newer. This resulted in a reduction in the RAIL_Init() time and a corresponding increase in the protocol specific initialization functions.
- Version 4.3.0: Minor updates.
- Version 4.2.0: Results comparisons have been added. **RX Packet Receive to Event Trigger** test method was changed to remove the PHY dependency for Series 2 parts (G23). This explains the variances from the initial results for this test.
- Version 4.1.1: Initial release. Results from RAIL included in GSDK version 4.1.1 for the EFR32FG12 and EFR32xG23 platforms.

5 Results for This Release

The following pages show the measurement results for this release and a comparison with the results from the previous release.

Chip Type: G12			
RAIL Timing	**PHY**	**Average**	**Units**
Active Radio to Idle Time with Idle Mode: 0 and Idle Delay(Us): 0	IEEE802154_2P4GHZ	529	us
Active Radio to Idle Time with Idle Mode: 0 and Idle Delay(Us): 0	PHY_Datasheet_915M_2GFSK_2Mbps_500K	89	us
Active Radio to Idle Time with Idle Mode: 0 and Idle Delay(Us): 0	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	305.1	us
Active Radio to Idle Time with Idle Mode: 0 and Idle Delay(Us): 0	PHY_Datasheet_915M_2GFSK_50Kbps_25K	2897	us
Active Radio to Idle Time with Idle Mode: 0 and Idle Delay(Us): 80	IEEE802154_2P4GHZ	529	us
Active Radio to Idle Time with Idle Mode: 0 and Idle Delay(Us): 80	PHY_Datasheet_915M_2GFSK_2Mbps_500K	89	us
Active Radio to Idle Time with Idle Mode: 0 and Idle Delay(Us): 80	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	305.1	us
Active Radio to Idle Time with Idle Mode: 0 and Idle Delay(Us): 80	PHY_Datasheet_915M_2GFSK_50Kbps_25K	2896.5	us
Active Radio to Idle Time with Idle Mode: 1 and Idle Delay(Us): 0	IEEE802154_2P4GHZ	54.6	us
Active Radio to Idle Time with Idle Mode: 1 and Idle Delay(Us): 0	PHY_Datasheet_915M_2GFSK_2Mbps_500K	63.6	us
Active Radio to Idle Time with Idle Mode: 1 and Idle Delay(Us): 0	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	63.4	us
Active Radio to Idle Time with Idle Mode: 1 and Idle Delay(Us): 0	PHY_Datasheet_915M_2GFSK_50Kbps_25K	62.9	us
Active Radio to Idle Time with Idle Mode: 1 and Idle Delay(Us): 80	IEEE802154_2P4GHZ	137.5	us
Active Radio to Idle Time with Idle Mode: 1 and Idle Delay(Us): 80	PHY_Datasheet_915M_2GFSK_2Mbps_500K	89	us
Active Radio to Idle Time with Idle Mode: 1 and Idle Delay(Us): 80	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	146.6	us
Active Radio to Idle Time with Idle Mode: 1 and Idle Delay(Us): 80	PHY_Datasheet_915M_2GFSK_50Kbps_25K	145.8	us
Active Radio to Idle Time with Idle Mode: 2 and Idle Delay(Us): 0	IEEE802154_2P4GHZ	63.1	us
Active Radio to Idle Time with Idle Mode: 2 and Idle Delay(Us): 0	PHY_Datasheet_915M_2GFSK_2Mbps_500K	70.7	us
Active Radio to Idle Time with Idle Mode: 2 and Idle Delay(Us): 0	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	72.6	us
Active Radio to Idle Time with Idle Mode: 2 and Idle Delay(Us): 0	PHY_Datasheet_915M_2GFSK_50Kbps_25K	71.5	us
Active Radio to Idle Time with Idle Mode: 2 and Idle Delay(Us): 80	IEEE802154_2P4GHZ	145	us
Active Radio to Idle Time with Idle Mode: 2 and Idle Delay(Us): 80	PHY_Datasheet_915M_2GFSK_2Mbps_500K	89	us
Active Radio to Idle Time with Idle Mode: 2 and Idle Delay(Us): 80	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	155.4	us
Active Radio to Idle Time with Idle Mode: 2 and Idle Delay(Us): 80	PHY_Datasheet_915M_2GFSK_50Kbps_25K	154.2	us
Active Radio to Idle Time with Idle Mode: 3 and Idle Delay(Us): 0	IEEE802154_2P4GHZ	64.4	us
Active Radio to Idle Time with Idle Mode: 3 and Idle Delay(Us): 0	PHY_Datasheet_915M_2GFSK_2Mbps_500K	72.2	us
Active Radio to Idle Time with Idle Mode: 3 and Idle Delay(Us): 0	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	73	us
Active Radio to Idle Time with Idle Mode: 3 and Idle Delay(Us): 0	PHY_Datasheet_915M_2GFSK_50Kbps_25K	72.8	us
Active Radio to Idle Time with Idle Mode: 3 and Idle Delay(Us): 80	IEEE802154_2P4GHZ	147	us
Active Radio to Idle Time with Idle Mode: 3 and Idle Delay(Us): 80	PHY_Datasheet_915M_2GFSK_2Mbps_500K	89	us
Active Radio to Idle Time with Idle Mode: 3 and Idle Delay(Us): 80	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	155.3	us
Active Radio to Idle Time with Idle Mode: 3 and Idle Delay(Us): 80	PHY_Datasheet_915M_2GFSK_50Kbps_25K	155.7	us
Channel Change Time (RX to RX) 0 -> 0	PHY_Datasheet_915M_2GFSK_2Mbps_500K	92.4	us
Channel Change Time (RX to RX) 0 -> 0	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	95.8	us
Channel Change Time (RX to RX) 0 -> 0	PHY_Datasheet_915M_2GFSK_50Kbps_25K	90.9	us
Channel Change Time (RX to RX) 0 -> 1	PHY_Datasheet_915M_2GFSK_2Mbps_500K	132.9	us
Channel Change Time (RX to RX) 0 -> 1	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	132.7	us
Channel Change Time (RX to RX) 0 -> 1	PHY_Datasheet_915M_2GFSK_50Kbps_25K	135.5	us
Channel Change Time (RX to RX) 20 -> 20	IEEE802154_2P4GHZ	92.9	us
Channel Change Time (RX to RX) 20 -> 21	IEEE802154_2P4GHZ	130.2	us
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_BLE_1MBPS	Internal PHY	258.3	us
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_BLE_2MBPS	Internal PHY	275.1	us
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_IEEE802154_2P4GHZ	Internal PHY	249.1	us
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_IEEE802154_2P4GHZ_ANTDIV	Internal PHY	249.3	us
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_IEEE802154_2P4GHZ_ANTDIV_COEX	Internal PHY	249.5	us
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_IEEE802154_2P4GHZ_COEX	Internal PHY	249.4	us
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_IEEE802154_GB868_863MHZ	Internal PHY	244	us
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_IEEE802154_GB868_915MHZ	Internal PHY	242.3	us
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_PROPRIETARY	PHY_Datasheet_915M_2GFSK_2Mbps_500K	6.9	us
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_PROPRIETARY	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	6.8	us
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_PROPRIETARY	PHY_Datasheet_915M_2GFSK_50Kbps_25K	6.9	us
EM2 to Active Radio Time No SYNC	IEEE802154_2P4GHZ	607.6	us
EM2 to Active Radio Time No SYNC	PHY_Datasheet_915M_2GFSK_2Mbps_500K	606.1	us
EM2 to Active Radio Time No SYNC	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	608.1	us
EM2 to Active Radio Time No SYNC	PHY_Datasheet_915M_2GFSK_50Kbps_25K	608.4	us
EM2 to Active Radio Time With SYNC	IEEE802154_2P4GHZ	666.6	us
EM2 to Active Radio Time With SYNC	PHY_Datasheet_915M_2GFSK_2Mbps_500K	665.5	us
EM2 to Active Radio Time With SYNC	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	666	us
EM2 to Active Radio Time With SYNC	PHY_Datasheet_915M_2GFSK_50Kbps_25K	672.7	us
Image Rejection Calibration Time BLE 1Mbps	Internal PHY	21.2	us
Image Rejection Calibration Time BLE 2Mbps	Internal PHY	21.4	us
Image Rejection Calibration Time IEEE 802.15.4	Internal PHY	21.6	us
Image Rejection Calibration Time Proprietary	PHY_Datasheet_915M_2GFSK_2Mbps_500K	150040.2	us
Image Rejection Calibration Time Proprietary	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	150091.8	us
Image Rejection Calibration Time Proprietary	PHY_Datasheet_915M_2GFSK_50Kbps_25K	96710.6	us
RAIL_Init() Time with DMA	Internal PHY	708	us
RAIL_Init() Time without DMA	Internal PHY	1427	us
RX API call to actual RX ready state time Channel 0 -> 0	PHY_Datasheet_915M_2GFSK_2Mbps_500K	72.2	us
RX API call to actual RX ready state time Channel 0 -> 0	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	75.9	us
RX API call to actual RX ready state time Channel 0 -> 0	PHY_Datasheet_915M_2GFSK_50Kbps_25K	71	us
RX API call to actual RX ready state time Channel 0 -> 1	PHY_Datasheet_915M_2GFSK_2Mbps_500K	115.5	us
RX API call to actual RX ready state time Channel 0 -> 1	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	112.7	us

Chip Type: G12			
RAIL Timing	**PHY**	**Average**	**Units**
RX API call to actual RX ready state time Channel 0 -> 1	PHY_Datasheet_915M_2GFSK_50Kbps_25K	112.9	us
RX API call to actual RX ready state time Channel 20 -> 20	IEEE802154_2P4GHZ	73	us
RX API call to actual RX ready state time Channel 20 -> 21	IEEE802154_2P4GHZ	110.3	us
RX pkt receive to event trigger with option RAIL_RX_OPTION_STORE_CRC	IEEE802154_2P4GHZ	25	us
RX pkt receive to event trigger with option RAIL_RX_OPTION_STORE_CRC	PHY_Datasheet_915M_2GFSK_2Mbps_500K	18.8	us
RX pkt receive to event trigger with option RAIL_RX_OPTION_STORE_CRC	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	19	us
RX pkt receive to event trigger with option RAIL_RX_OPTION_STORE_CRC	PHY_Datasheet_915M_2GFSK_50Kbps_25K	18.8	us
RX pkt receive to event trigger with option RAIL_RX_OPTION_TRACK_ABORTED_FRAMES	IEEE802154_2P4GHZ	89	us
RX pkt receive to event trigger with option RAIL_RX_OPTION_TRACK_ABORTED_FRAMES	PHY_Datasheet_915M_2GFSK_2Mbps_500K	26.7	us
RX pkt receive to event trigger with option RAIL_RX_OPTION_TRACK_ABORTED_FRAMES	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	50.9	us
RX pkt receive to event trigger with option RAIL_RX_OPTION_TRACK_ABORTED_FRAMES	PHY_Datasheet_915M_2GFSK_50Kbps_25K	338.3	us
RX to TX Auto state transition times	IEEE802154_2P4GHZ	107.2	us
RX to TX Auto state transition times	PHY_Datasheet_915M_2GFSK_2Mbps_500K	110.5	us
RX to TX Auto state transition times	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	110.4	us
RX to TX Auto state transition times	PHY_Datasheet_915M_2GFSK_50Kbps_25K	110.2	us
TX API call to actual transmit time with option ALT PREAMBLE LEN 128	IEEE802154_2P4GHZ	95.5	us
TX API call to actual transmit time with option ALT PREAMBLE LEN 128	PHY_Datasheet_915M_2GFSK_2Mbps_500K	94.1	us
TX API call to actual transmit time with option ALT PREAMBLE LEN 128	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	94	us
TX API call to actual transmit time with option ALT PREAMBLE LEN 128	PHY_Datasheet_915M_2GFSK_50Kbps_25K	94.3	us
TX API call to actual transmit time with option ANTENNA 0	IEEE802154_2P4GHZ	95.6	us
TX API call to actual transmit time with option ANTENNA 0	PHY_Datasheet_915M_2GFSK_2Mbps_500K	94.6	us
TX API call to actual transmit time with option ANTENNA 0	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	94.6	us
TX API call to actual transmit time with option ANTENNA 0	PHY_Datasheet_915M_2GFSK_50Kbps_25K	94.7	us
TX API call to actual transmit time with option ANTENNA 1	IEEE802154_2P4GHZ	95.8	us
TX API call to actual transmit time with option ANTENNA 1	PHY_Datasheet_915M_2GFSK_2Mbps_500K	94.5	us
TX API call to actual transmit time with option ANTENNA 1	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	94.5	us
TX API call to actual transmit time with option ANTENNA 1	PHY_Datasheet_915M_2GFSK_50Kbps_25K	94.5	us
TX API call to actual transmit time with option CCA ONLY	IEEE802154_2P4GHZ	95.8	us
TX API call to actual transmit time with option CCA ONLY	PHY_Datasheet_915M_2GFSK_2Mbps_500K	94.7	us
TX API call to actual transmit time with option CCA ONLY	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	94.7	us
TX API call to actual transmit time with option CCA ONLY	PHY_Datasheet_915M_2GFSK_50Kbps_25K	94.6	us
TX API call to actual transmit time with option CCA PEAK RSSI	IEEE802154_2P4GHZ	95.7	us
TX API call to actual transmit time with option CCA PEAK RSSI	PHY_Datasheet_915M_2GFSK_2Mbps_500K	94.5	us
TX API call to actual transmit time with option CCA PEAK RSSI	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	94.5	us
TX API call to actual transmit time with option CCA PEAK RSSI	PHY_Datasheet_915M_2GFSK_50Kbps_25K	94.6	us
TX API call to actual transmit time with option Default	IEEE802154_2P4GHZ	88.7	us
TX API call to actual transmit time with option Default	PHY_Datasheet_915M_2GFSK_2Mbps_500K	87.8	us
TX API call to actual transmit time with option Default	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	87.6	us
TX API call to actual transmit time with option Default	PHY_Datasheet_915M_2GFSK_50Kbps_25K	87.6	us
TX API call to actual transmit time with option REMOVE CRC	IEEE802154_2P4GHZ	96.5	us
TX API call to actual transmit time with option REMOVE CRC	PHY_Datasheet_915M_2GFSK_2Mbps_500K	95.5	us
TX API call to actual transmit time with option REMOVE CRC	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	95.2	us
TX API call to actual transmit time with option REMOVE CRC	PHY_Datasheet_915M_2GFSK_50Kbps_25K	95.3	us
TX API call to actual transmit time with option RESEND	IEEE802154_2P4GHZ	96	us
TX API call to actual transmit time with option RESEND	PHY_Datasheet_915M_2GFSK_2Mbps_500K	94.6	us
TX API call to actual transmit time with option RESEND	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	94.8	us
TX API call to actual transmit time with option RESEND	PHY_Datasheet_915M_2GFSK_50Kbps_25K	94.9	us
TX API call to actual transmit time with option SYNC WORD ID 1	IEEE802154_2P4GHZ	95.7	us
TX API call to actual transmit time with option SYNC WORD ID 1	PHY_Datasheet_915M_2GFSK_2Mbps_500K	94.6	us
TX API call to actual transmit time with option SYNC WORD ID 1	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	94.4	us
TX API call to actual transmit time with option SYNC WORD ID 1	PHY_Datasheet_915M_2GFSK_50Kbps_25K	94.3	us
TX API call to actual transmit time with option WAIT FOR AUTO ACK	IEEE802154_2P4GHZ	124.6	us
TX API call to actual transmit time with option WAIT FOR AUTO ACK	PHY_Datasheet_915M_2GFSK_2Mbps_500K	119.5	us
TX API call to actual transmit time with option WAIT FOR AUTO ACK	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	119.7	us
TX API call to actual transmit time with option WAIT FOR AUTO ACK	PHY_Datasheet_915M_2GFSK_50Kbps_25K	119.9	us
Temperature Calibration Time	IEEE802154_2P4GHZ	69.8	us
Temperature Calibration Time	PHY_Datasheet_915M_2GFSK_2Mbps_500K	66.9	us
Temperature Calibration Time	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	70	us
Temperature Calibration Time	PHY_Datasheet_915M_2GFSK_50Kbps_25K	65.1	us
Tx To Rx Auto state transition times	IEEE802154_2P4GHZ	82	us
Tx To Rx Auto state transition times	PHY_Datasheet_915M_2GFSK_2Mbps_500K	89.1	us
Tx To Rx Auto state transition times	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	89.2	us
Tx To Rx Auto state transition times	PHY_Datasheet_915M_2GFSK_50Kbps_25K	90.6	us

ChipType: G12				
RAIL Timing	**PHY**	**4.3.0**	**4.4.0**	**Diff**
Active Radio to Idle Time with Idle Mode: 0 and Idle Delay(Us): 0	IEEE802154_2P4GHZ	601.3	529	-72.3
Active Radio to Idle Time with Idle Mode: 0 and Idle Delay(Us): 0	PHY_Datasheet_915M_2GFSK_2Mbps_500K	111.5	89.0	-22.5
Active Radio to Idle Time with Idle Mode: 0 and Idle Delay(Us): 0	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	330.0	305.1	-24.9
Active Radio to Idle Time with Idle Mode: 0 and Idle Delay(Us): 0	PHY_Datasheet_915M_2GFSK_50Kbps_25K	2922.6	2897.0	-25.6
Active Radio to Idle Time with Idle Mode: 0 and Idle Delay(Us): 80	IEEE802154_2P4GHZ	601.0	529	-72.0
Active Radio to Idle Time with Idle Mode: 0 and Idle Delay(Us): 80	PHY_Datasheet_915M_2GFSK_2Mbps_500K	112.3	89.0	-23.3
Active Radio to Idle Time with Idle Mode: 0 and Idle Delay(Us): 80	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	329.9	305.1	-24.8
Active Radio to Idle Time with Idle Mode: 0 and Idle Delay(Us): 80	PHY_Datasheet_915M_2GFSK_50Kbps_25K	2922.4	2896.5	-25.9
Active Radio to Idle Time with Idle Mode: 1 and Idle Delay(Us): 0	IEEE802154_2P4GHZ	51.6	54.6	3.0
Active Radio to Idle Time with Idle Mode: 1 and Idle Delay(Us): 0	PHY_Datasheet_915M_2GFSK_2Mbps_500K	47.6	63.6	16.0
Active Radio to Idle Time with Idle Mode: 1 and Idle Delay(Us): 0	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	46.6	63.4	16.8
Active Radio to Idle Time with Idle Mode: 1 and Idle Delay(Us): 0	PHY_Datasheet_915M_2GFSK_50Kbps_25K	45.7	62.9	17.2
Active Radio to Idle Time with Idle Mode: 1 and Idle Delay(Us): 80	IEEE802154_2P4GHZ	131.0	137.5	6.5
Active Radio to Idle Time with Idle Mode: 1 and Idle Delay(Us): 80	PHY_Datasheet_915M_2GFSK_2Mbps_500K	110.9	89.0	-21.9
Active Radio to Idle Time with Idle Mode: 1 and Idle Delay(Us): 80	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	129.0	146.6	17.6
Active Radio to Idle Time with Idle Mode: 1 and Idle Delay(Us): 80	PHY_Datasheet_915M_2GFSK_50Kbps_25K	129.5	145.8	16.3
Active Radio to Idle Time with Idle Mode: 2 and Idle Delay(Us): 0	IEEE802154_2P4GHZ	43.1	63.1	20.0
Active Radio to Idle Time with Idle Mode: 2 and Idle Delay(Us): 0	PHY_Datasheet_915M_2GFSK_2Mbps_500K	43.5	70.7	27.2
Active Radio to Idle Time with Idle Mode: 2 and Idle Delay(Us): 0	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	43.1	72.6	29.5
Active Radio to Idle Time with Idle Mode: 2 and Idle Delay(Us): 0	PHY_Datasheet_915M_2GFSK_50Kbps_25K	42.7	71.5	28.8
Active Radio to Idle Time with Idle Mode: 2 and Idle Delay(Us): 80	IEEE802154_2P4GHZ	126.0	145	19.0
Active Radio to Idle Time with Idle Mode: 2 and Idle Delay(Us): 80	PHY_Datasheet_915M_2GFSK_2Mbps_500K	112.8	89.0	-23.8
Active Radio to Idle Time with Idle Mode: 2 and Idle Delay(Us): 80	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	126.2	155.4	29.2
Active Radio to Idle Time with Idle Mode: 2 and Idle Delay(Us): 80	PHY_Datasheet_915M_2GFSK_50Kbps_25K	125.8	154.2	28.4
Active Radio to Idle Time with Idle Mode: 3 and Idle Delay(Us): 0	IEEE802154_2P4GHZ	44.2	64.4	20.2
Active Radio to Idle Time with Idle Mode: 3 and Idle Delay(Us): 0	PHY_Datasheet_915M_2GFSK_2Mbps_500K	44.3	72.2	27.9
Active Radio to Idle Time with Idle Mode: 3 and Idle Delay(Us): 0	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	44.1	73.0	28.9
Active Radio to Idle Time with Idle Mode: 3 and Idle Delay(Us): 0	PHY_Datasheet_915M_2GFSK_50Kbps_25K	44.2	72.8	28.6
Active Radio to Idle Time with Idle Mode: 3 and Idle Delay(Us): 80	IEEE802154_2P4GHZ	127.4	147	19.6
Active Radio to Idle Time with Idle Mode: 3 and Idle Delay(Us): 80	PHY_Datasheet_915M_2GFSK_2Mbps_500K	111.0	89.0	-22.0
Active Radio to Idle Time with Idle Mode: 3 and Idle Delay(Us): 80	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	128.0	155.3	27.3
Active Radio to Idle Time with Idle Mode: 3 and Idle Delay(Us): 80	PHY_Datasheet_915M_2GFSK_50Kbps_25K	127.7	155.7	28.0
Channel Change Time (RX to RX) 0 to 0 Rx To Rx	PHY_Datasheet_915M_2GFSK_2Mbps_500K	88.5	92.4	3.9
Channel Change Time (RX to RX) 0 to 0 Rx To Rx	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	91.8	95.8	4.0
Channel Change Time (RX to RX) 0 to 0 Rx To Rx	PHY_Datasheet_915M_2GFSK_50Kbps_25K	87.6	90.9	3.3
Channel Change Time (RX to RX) 0 to 1 Rx To Rx	PHY_Datasheet_915M_2GFSK_2Mbps_500K	132.4	132.9	0.5
Channel Change Time (RX to RX) 0 to 1 Rx To Rx	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	129.4	132.7	3.3
Channel Change Time (RX to RX) 0 to 1 Rx To Rx	PHY_Datasheet_915M_2GFSK_50Kbps_25K	129.6	135.5	5.9
Channel Change Time (RX to RX) 20 to 20 Rx To Rx	IEEE802154_2P4GHZ	89.6	92.9	3.3
Channel Change Time (RX to RX) 20 to 21 Rx To Rx	IEEE802154_2P4GHZ	127.5	130.2	2.7
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_BLE_1MBPS	Internal PHY	258.7	258.3	-0.4
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_BLE_2MBPS	Internal PHY	266.1	275.1	9.0
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_IEEE802154_2P4GHZ	Internal PHY	249.0	249.1	0.1
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_IEEE802154_2P4GHZ_ANTDIV	Internal PHY	248.8	249.3	0.5
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_IEEE802154_2P4GHZ_ANTDIV_COEX	Internal PHY	248.9	249.5	0.6
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_IEEE802154_2P4GHZ_COEX	Internal PHY	248.7	249.4	0.7
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_IEEE802154_GB868_863MHZ	Internal PHY	243.8	244.0	0.2
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_IEEE802154_GB868_915MHZ	Internal PHY	244.0	242.3	-1.7
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_PROPRIETARY	PHY_Datasheet_915M_2GFSK_2Mbps_500K	7.2	6.9	-0.3
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_PROPRIETARY	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	7.1	6.8	-0.3
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_PROPRIETARY	PHY_Datasheet_915M_2GFSK_50Kbps_25K	7.1	6.9	-0.2
EM2 to Active Radio Time No SYNC	IEEE802154_2P4GHZ	604.3	607.6	3.3
EM2 to Active Radio Time No SYNC	PHY_Datasheet_915M_2GFSK_2Mbps_500K	606.4	606.1	-0.3
EM2 to Active Radio Time No SYNC	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	604.5	608.1	3.6
EM2 to Active Radio Time No SYNC	PHY_Datasheet_915M_2GFSK_50Kbps_25K	604.1	608.4	4.3
EM2 to Active Radio Time With SYNC	IEEE802154_2P4GHZ	663.0	666.6	3.6
EM2 to Active Radio Time With SYNC	PHY_Datasheet_915M_2GFSK_2Mbps_500K	666.0	665.5	-0.5
EM2 to Active Radio Time With SYNC	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	662.8	666.0	3.2
EM2 to Active Radio Time With SYNC	PHY_Datasheet_915M_2GFSK_50Kbps_25K	663.9	672.7	8.8
Image Rejection Calibration Time BLE 1Mbps	Internal PHY	21.3	21.2	-0.1
Image Rejection Calibration Time BLE 2Mbps	Internal PHY	21.3	21.4	0.1
Image Rejection Calibration Time IEEE 802.15.4	Internal PHY	21.2	21.6	0.4
Image Rejection Calibration Time Proprietary	PHY_Datasheet_915M_2GFSK_2Mbps_500K	150062.0	150040.2	-21.8
Image Rejection Calibration Time Proprietary	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	150112.9	150091.8	-21.1
Image Rejection Calibration Time Proprietary	PHY_Datasheet_915M_2GFSK_50Kbps_25K	96721.8	96710.6	-11.2
RAIL_Init() Time with DMA	Internal PHY	700.0	708.0	8.0
RAIL_Init() Time without DMA	Internal PHY	1430.0	1427.0	-3.0
RX API call to actual RX ready state time Channel 0 -> 0	PHY_Datasheet_915M_2GFSK_2Mbps_500K	72.4	72.2	-0.2
RX API call to actual RX ready state time Channel 0 -> 0	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	75.4	75.9	0.5
RX API call to actual RX ready state time Channel 0 -> 0	PHY_Datasheet_915M_2GFSK_50Kbps_25K	71.2	71.0	-0.2
RX API call to actual RX ready state time Channel 0 -> 1	PHY_Datasheet_915M_2GFSK_2Mbps_500K	116.5	115.5	-1.0
RX API call to actual RX ready state time Channel 0 -> 1	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	113.1	112.7	-0.4
RX API call to actual RX ready state time Channel 0 -> 1	PHY_Datasheet_915M_2GFSK_50Kbps_25K	113.1	112.9	-0.2
RX API call to actual RX ready state time Channel 20 -> 20	IEEE802154_2P4GHZ	73.2	73.0	-0.2
RX API call to actual RX ready state time Channel 20 -> 21	IEEE802154_2P4GHZ	111.0	110.3	-0.7
RX pkt receive to event trigger with option RAIL_RX_OPTION_STORE_CRC	IEEE802154_2P4GHZ	24.8	25.0	0.2
RX pkt receive to event trigger with option RAIL_RX_OPTION_STORE_CRC	PHY_Datasheet_915M_2GFSK_2Mbps_500K	18.7	18.8	0.1
RX pkt receive to event trigger with option RAIL_RX_OPTION_STORE_CRC	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	18.6	19.0	0.4
RX pkt receive to event trigger with option RAIL_RX_OPTION_STORE_CRC	PHY_Datasheet_915M_2GFSK_50Kbps_25K	18.5	18.8	0.3

ChipType: G12				
RAIL Timing	**PHY**	**4.3.0**	**4.4.0**	**Diff**
RX pkt receive to event trigger with option RAIL_RX_OPTION_TRACK_ABORTED_FRAMES	IEEE802154_2P4GHZ	88.9	89.0	0.1
RX pkt receive to event trigger with option RAIL_RX_OPTION_TRACK_ABORTED_FRAMES	PHY_Datasheet_915M_2GFSK_2Mbps_500K	26.7	26.7	0.0
RX pkt receive to event trigger with option RAIL_RX_OPTION_TRACK_ABORTED_FRAMES	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	50.8	50.9	0.1
RX pkt receive to event trigger with option RAIL_RX_OPTION_TRACK_ABORTED_FRAMES	PHY_Datasheet_915M_2GFSK_50Kbps_25K	338.2	338.3	0.1
RX to TX Auto state transition times	IEEE802154_2P4GHZ	106.5	107.2	0.7
RX to TX Auto state transition times	PHY_Datasheet_915M_2GFSK_2Mbps_500K	130.3	110.5	-19.8
RX to TX Auto state transition times	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	130.3	110.4	-19.9
RX to TX Auto state transition times	PHY_Datasheet_915M_2GFSK_50Kbps_25K	130.3	110.2	-20.1
TX API call to actual transmit time with option ALT PREAMBLE LEN 128	IEEE802154_2P4GHZ	119.1	95.5	-23.6
TX API call to actual transmit time with option ALT PREAMBLE LEN 128	PHY_Datasheet_915M_2GFSK_2Mbps_500K	115.0	94.1	-20.9
TX API call to actual transmit time with option ALT PREAMBLE LEN 128	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	115.0	94.0	-21.0
TX API call to actual transmit time with option ALT PREAMBLE LEN 128	PHY_Datasheet_915M_2GFSK_50Kbps_25K	115.0	94.3	-20.7
TX API call to actual transmit time with option ANTENNA 0	IEEE802154_2P4GHZ	119.5	95.6	-23.9
TX API call to actual transmit time with option ANTENNA 0	PHY_Datasheet_915M_2GFSK_2Mbps_500K	115.0	94.6	-20.4
TX API call to actual transmit time with option ANTENNA 0	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	115.0	94.6	-20.4
TX API call to actual transmit time with option ANTENNA 0	PHY_Datasheet_915M_2GFSK_50Kbps_25K	115.0	94.7	-20.3
TX API call to actual transmit time with option ANTENNA 1	IEEE802154_2P4GHZ	119.5	95.8	-23.7
TX API call to actual transmit time with option ANTENNA 1	PHY_Datasheet_915M_2GFSK_2Mbps_500K	115.0	94.5	-20.5
TX API call to actual transmit time with option ANTENNA 1	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	115.0	94.5	-20.5
TX API call to actual transmit time with option ANTENNA 1	PHY_Datasheet_915M_2GFSK_50Kbps_25K	115.0	94.5	-20.5
TX API call to actual transmit time with option CCA ONLY	IEEE802154_2P4GHZ	119.5	95.8	-23.7
TX API call to actual transmit time with option CCA ONLY	PHY_Datasheet_915M_2GFSK_2Mbps_500K	115.0	94.7	-20.3
TX API call to actual transmit time with option CCA ONLY	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	115.0	94.7	-20.3
TX API call to actual transmit time with option CCA ONLY	PHY_Datasheet_915M_2GFSK_50Kbps_25K	115.0	94.6	-20.4
TX API call to actual transmit time with option CCA PEAK RSSI	IEEE802154_2P4GHZ	119.5	95.7	-23.8
TX API call to actual transmit time with option CCA PEAK RSSI	PHY_Datasheet_915M_2GFSK_2Mbps_500K	115.0	94.5	-20.5
TX API call to actual transmit time with option CCA PEAK RSSI	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	115.0	94.5	-20.5
TX API call to actual transmit time with option CCA PEAK RSSI	PHY_Datasheet_915M_2GFSK_50Kbps_25K	115.0	94.6	-20.4
TX API call to actual transmit time with option Default	IEEE802154_2P4GHZ	112.0	88.7	-23.3
TX API call to actual transmit time with option Default	PHY_Datasheet_915M_2GFSK_2Mbps_500K	108.0	87.8	-20.2
TX API call to actual transmit time with option Default	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	108.0	87.6	-20.4
TX API call to actual transmit time with option Default	PHY_Datasheet_915M_2GFSK_50Kbps_25K	108.0	87.6	-20.4
TX API call to actual transmit time with option REMOVE CRC	IEEE802154_2P4GHZ	120.2	96.5	-23.7
TX API call to actual transmit time with option REMOVE CRC	PHY_Datasheet_915M_2GFSK_2Mbps_500K	116.0	95.5	-20.5
TX API call to actual transmit time with option REMOVE CRC	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	116.0	95.2	-20.8
TX API call to actual transmit time with option REMOVE CRC	PHY_Datasheet_915M_2GFSK_50Kbps_25K	116.0	95.3	-20.7
TX API call to actual transmit time with option RESEND	IEEE802154_2P4GHZ	119.9	96.0	-23.9
TX API call to actual transmit time with option RESEND	PHY_Datasheet_915M_2GFSK_2Mbps_500K	115.1	94.6	-20.5
TX API call to actual transmit time with option RESEND	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	115.1	94.8	-20.3
TX API call to actual transmit time with option RESEND	PHY_Datasheet_915M_2GFSK_50Kbps_25K	115.1	94.9	-20.2
TX API call to actual transmit time with option SYNC WORD ID 1	IEEE802154_2P4GHZ	119.5	95.7	-23.8
TX API call to actual transmit time with option SYNC WORD ID 1	PHY_Datasheet_915M_2GFSK_2Mbps_500K	115.0	94.6	-20.4
TX API call to actual transmit time with option SYNC WORD ID 1	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	115.0	94.4	-20.6
TX API call to actual transmit time with option SYNC WORD ID 1	PHY_Datasheet_915M_2GFSK_50Kbps_25K	115.0	94.3	-20.7
TX API call to actual transmit time with option WAIT FOR AUTO ACK	IEEE802154_2P4GHZ	148.5	124.6	-23.9
TX API call to actual transmit time with option WAIT FOR AUTO ACK	PHY_Datasheet_915M_2GFSK_2Mbps_500K	140.3	119.5	-20.8
TX API call to actual transmit time with option WAIT FOR AUTO ACK	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	140.3	119.7	-20.6
TX API call to actual transmit time with option WAIT FOR AUTO ACK	PHY_Datasheet_915M_2GFSK_50Kbps_25K	140.2	119.9	-20.3
Temperature Calibration Time	IEEE802154_2P4GHZ	65.1	69.8	4.7
Temperature Calibration Time	PHY_Datasheet_915M_2GFSK_2Mbps_500K	66.0	66.9	0.9
Temperature Calibration Time	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	68.6	70.0	1.4
Temperature Calibration Time	PHY_Datasheet_915M_2GFSK_50Kbps_25K	66.0	65.1	-0.9
Tx To Rx Auto state transition times	IEEE802154_2P4GHZ	82.4	82.0	-0.4
Tx To Rx Auto state transition times	PHY_Datasheet_915M_2GFSK_2Mbps_500K	88.5	89.1	0.6
Tx To Rx Auto state transition times	PHY_Datasheet_915M_2GFSK_500Kbps_175K_mi0p7	86.9	89.2	2.3
Tx To Rx Auto state transition times	PHY_Datasheet_915M_2GFSK_50Kbps_25K	91.4	90.6	-0.8

Chip Type: G23			
RAIL Timing	**PHY**	**Average**	**Units**
Active Radio to Idle Time with Idle Mode: 0 and Idle Delay(Us): 0	PHY_Studio_915M_2GFSK_2Mbps_500K	110.1	us
Active Radio to Idle Time with Idle Mode: 0 and Idle Delay(Us): 0	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	328.2	us
Active Radio to Idle Time with Idle Mode: 0 and Idle Delay(Us): 0	PHY_Studio_915M_2GFSK_50Kbps_25K	2920.8	us
Active Radio to Idle Time with Idle Mode: 0 and Idle Delay(Us): 80	PHY_Studio_915M_2GFSK_2Mbps_500K	110.2	us
Active Radio to Idle Time with Idle Mode: 0 and Idle Delay(Us): 80	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	328.1	us
Active Radio to Idle Time with Idle Mode: 0 and Idle Delay(Us): 80	PHY_Studio_915M_2GFSK_50Kbps_25K	2920	us
Active Radio to Idle Time with Idle Mode: 1 and Idle Delay(Us): 0	PHY_Studio_915M_2GFSK_2Mbps_500K	98.8	us
Active Radio to Idle Time with Idle Mode: 1 and Idle Delay(Us): 0	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	99.7	us
Active Radio to Idle Time with Idle Mode: 1 and Idle Delay(Us): 0	PHY_Studio_915M_2GFSK_50Kbps_25K	99.1	us
Active Radio to Idle Time with Idle Mode: 1 and Idle Delay(Us): 80	PHY_Studio_915M_2GFSK_2Mbps_500K	110.2	us
Active Radio to Idle Time with Idle Mode: 1 and Idle Delay(Us): 80	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	182.5	us
Active Radio to Idle Time with Idle Mode: 1 and Idle Delay(Us): 80	PHY_Studio_915M_2GFSK_50Kbps_25K	182.5	us
Active Radio to Idle Time with Idle Mode: 2 and Idle Delay(Us): 0	PHY_Studio_915M_2GFSK_2Mbps_500K	120.2	us
Active Radio to Idle Time with Idle Mode: 2 and Idle Delay(Us): 0	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	120.1	us
Active Radio to Idle Time with Idle Mode: 2 and Idle Delay(Us): 0	PHY_Studio_915M_2GFSK_50Kbps_25K	120.1	us
Active Radio to Idle Time with Idle Mode: 2 and Idle Delay(Us): 80	PHY_Studio_915M_2GFSK_2Mbps_500K	110	us
Active Radio to Idle Time with Idle Mode: 2 and Idle Delay(Us): 80	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	203.7	us
Active Radio to Idle Time with Idle Mode: 2 and Idle Delay(Us): 80	PHY_Studio_915M_2GFSK_50Kbps_25K	203.2	us
Active Radio to Idle Time with Idle Mode: 3 and Idle Delay(Us): 0	PHY_Studio_915M_2GFSK_2Mbps_500K	122.4	us
Active Radio to Idle Time with Idle Mode: 3 and Idle Delay(Us): 0	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	122.5	us
Active Radio to Idle Time with Idle Mode: 3 and Idle Delay(Us): 0	PHY_Studio_915M_2GFSK_50Kbps_25K	122.6	us
Active Radio to Idle Time with Idle Mode: 3 and Idle Delay(Us): 80	PHY_Studio_915M_2GFSK_2Mbps_500K	110.5	us
Active Radio to Idle Time with Idle Mode: 3 and Idle Delay(Us): 80	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	206.6	us
Active Radio to Idle Time with Idle Mode: 3 and Idle Delay(Us): 80	PHY_Studio_915M_2GFSK_50Kbps_25K	206.2	us
Channel Change Time (RX to RX) 0 to 0 Rx To Rx	PHY_Studio_915M_2GFSK_2Mbps_500K	157.7	us
Channel Change Time (RX to RX) 0 to 0 Rx To Rx	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	157.8	us
Channel Change Time (RX to RX) 0 to 0 Rx To Rx	PHY_Studio_915M_2GFSK_50Kbps_25K	157.8	us
Channel Change Time (RX to RX) 0 to 1 Rx To Rx	PHY_Studio_915M_2GFSK_2Mbps_500K	243.3	us
Channel Change Time (RX to RX) 0 to 1 Rx To Rx	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	243.3	us
Channel Change Time (RX to RX) 0 to 1 Rx To Rx	PHY_Studio_915M_2GFSK_50Kbps_25K	243.5	us
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_PROPRIETARY	PHY_Studio_915M_2GFSK_2Mbps_500K	7.6	us
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_PROPRIETARY	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	7.7	us
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_PROPRIETARY	PHY_Studio_915M_2GFSK_50Kbps_25K	7.8	us
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_ZWAVE_ANZ	Internal PHY	800.1	us
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_ZWAVE_CN	Internal PHY	799.5	us
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_ZWAVE_EU	Internal PHY	799.3	us
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_ZWAVE_HK	Internal PHY	800.3	us
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_ZWAVE_IL	Internal PHY	799.4	us
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_ZWAVE_IN	Internal PHY	800.1	us
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_ZWAVE_JP	Internal PHY	829.8	us
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_ZWAVE_KR	Internal PHY	830.2	us
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_ZWAVE_MY	Internal PHY	800.5	us
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_ZWAVE_RU	Internal PHY	799.9	us
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_ZWAVE_US	Internal PHY	800	us
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_ZWAVE_US_LR_END_DEVICE	Internal PHY	816.4	us
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_ZWAVE_US_LR1	Internal PHY	792	us
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_ZWAVE_US_LR2	Internal PHY	792	us
EM2 to Active Radio Time No SYNC	PHY_Studio_915M_2GFSK_2Mbps_500K	522	us
EM2 to Active Radio Time No SYNC	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	521.6	us
EM2 to Active Radio Time No SYNC	PHY_Studio_915M_2GFSK_50Kbps_25K	517.9	us
EM2 to Active Radio Time With SYNC	PHY_Studio_915M_2GFSK_2Mbps_500K	553.2	us
EM2 to Active Radio Time With SYNC	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	553.4	us
EM2 to Active Radio Time With SYNC	PHY_Studio_915M_2GFSK_50Kbps_25K	550.1	us
Image Rejection Calibration Time Proprietary	PHY_Studio_915M_2GFSK_2Mbps_500K	200821	us
Image Rejection Calibration Time Proprietary	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	200838.5	us
Image Rejection Calibration Time Proprietary	PHY_Studio_915M_2GFSK_50Kbps_25K	200822.1	us
Image Rejection Calibration Time ZWAVE Z-Wave Region: EU-European Union Channel: 0	Internal PHY	101102.2	us
Image Rejection Calibration Time ZWAVE Z-Wave Region: JP-Japan Channel: 0	Internal PHY	201526.4	us
Image Rejection Calibration Time ZWAVE Z-Wave Region: KR-Korea Channel: 0	Internal PHY	201525.7	us
Image Rejection Calibration Time ZWAVE Z-Wave Region: USLR1-United States Long Range 1 Channel: 0	Internal PHY	101104.4	us
Image Rejection Calibration Time ZWAVE Z-Wave Region: USLRED-United States Long Range End Device Channel: 0	Internal PHY	100993.4	us
Image Rejection Calibration Time ZWAVE Z-Wave Region: US-United States Channel: 0	Internal PHY	101104.5	us
RAIL_Init() Time with DMA	Internal PHY	1138	us
RAIL_Init() Time without DMA	Internal PHY	2885	us
RX API call to actual RX ready state time Channel 0 -> 0	PHY_Studio_915M_2GFSK_2Mbps_500K	120.3	us
RX API call to actual RX ready state time Channel 0 -> 0	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	120.1	us
RX API call to actual RX ready state time Channel 0 -> 0	PHY_Studio_915M_2GFSK_50Kbps_25K	120.3	us
RX API call to actual RX ready state time Channel 0 -> 1	PHY_Studio_915M_2GFSK_2Mbps_500K	206	us
RX API call to actual RX ready state time Channel 0 -> 1	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	205.8	us
RX API call to actual RX ready state time Channel 0 -> 1	PHY_Studio_915M_2GFSK_50Kbps_25K	206	us
RX pkt receive to event trigger with option RAIL_RX_OPTION_STORE_CRC	PHY_Studio_915M_2GFSK_2Mbps_500K	27.5	us
RX pkt receive to event trigger with option RAIL_RX_OPTION_STORE_CRC	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	27.8	us
RX pkt receive to event trigger with option RAIL_RX_OPTION_STORE_CRC	PHY_Studio_915M_2GFSK_50Kbps_25K	27.6	us
RX pkt receive to event trigger with option RAIL_RX_OPTION_TRACK_ABORTED_FRAMES	PHY_Studio_915M_2GFSK_2Mbps_500K	27.7	us
RX pkt receive to event trigger with option RAIL_RX_OPTION_TRACK_ABORTED_FRAMES	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	27.6	us
RX pkt receive to event trigger with option RAIL_RX_OPTION_TRACK_ABORTED_FRAMES	PHY_Studio_915M_2GFSK_50Kbps_25K	27.9	us
RX to TX Auto state transition times	PHY_Studio_915M_2GFSK_2Mbps_500K	139.5	us
RX to TX Auto state transition times	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	146.7	us
RX to TX Auto state transition times	PHY_Studio_915M_2GFSK_50Kbps_25K	201.8	us
Temperature Calibration Time	PHY_Studio_915M_2GFSK_2Mbps_500K	122.4	us
Temperature Calibration Time	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	122	us
Temperature Calibration Time	PHY_Studio_915M_2GFSK_50Kbps_25K	122.2	us
TX API call to actual transmit time with option ALT PREAMBLE LEN 128	PHY_Studio_915M_2GFSK_2Mbps_500K	158	us
TX API call to actual transmit time with option ALT PREAMBLE LEN 128	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	156.7	us

Chip Type: G23			
RAIL Timing	**PHY**	**Average**	**Units**
TX API call to actual transmit time with option ALT PREAMBLE LEN 128	PHY_Studio_915M_2GFSK_50Kbps_25K	140.2	us
TX API call to actual transmit time with option ANTENNA 0	PHY_Studio_915M_2GFSK_2Mbps_500K	158.5	us
TX API call to actual transmit time with option ANTENNA 0	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	157	us
TX API call to actual transmit time with option ANTENNA 0	PHY_Studio_915M_2GFSK_50Kbps_25K	141.6	us
TX API call to actual transmit time with option ANTENNA 1	PHY_Studio_915M_2GFSK_2Mbps_500K	158.5	us
TX API call to actual transmit time with option ANTENNA 1	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	156.7	us
TX API call to actual transmit time with option ANTENNA 1	PHY_Studio_915M_2GFSK_50Kbps_25K	141.5	us
TX API call to actual transmit time with option CCA ONLY	PHY_Studio_915M_2GFSK_2Mbps_500K	158.1	us
TX API call to actual transmit time with option CCA ONLY	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	157	us
TX API call to actual transmit time with option CCA ONLY	PHY_Studio_915M_2GFSK_50Kbps_25K	140.4	us
TX API call to actual transmit time with option CCA PEAK RSSI	PHY_Studio_915M_2GFSK_2Mbps_500K	158.1	us
TX API call to actual transmit time with option CCA PEAK RSSI	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	156.9	us
TX API call to actual transmit time with option CCA PEAK RSSI	PHY_Studio_915M_2GFSK_50Kbps_25K	140.2	us
TX API call to actual transmit time with option Default	PHY_Studio_915M_2GFSK_2Mbps_500K	150.5	us
TX API call to actual transmit time with option Default	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	149.1	us
TX API call to actual transmit time with option Default	PHY_Studio_915M_2GFSK_50Kbps_25K	132.5	us
TX API call to actual transmit time with option REMOVE CRC	PHY_Studio_915M_2GFSK_2Mbps_500K	159.4	us
TX API call to actual transmit time with option REMOVE CRC	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	157.9	us
TX API call to actual transmit time with option REMOVE CRC	PHY_Studio_915M_2GFSK_50Kbps_25K	141.4	us
TX API call to actual transmit time with option RESEND	PHY_Studio_915M_2GFSK_2Mbps_500K	158.4	us
TX API call to actual transmit time with option RESEND	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	157	us
TX API call to actual transmit time with option RESEND	PHY_Studio_915M_2GFSK_50Kbps_25K	140.5	us
TX API call to actual transmit time with option SYNC WORD ID 1	PHY_Studio_915M_2GFSK_2Mbps_500K	158.3	us
TX API call to actual transmit time with option SYNC WORD ID 1	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	156.9	us
TX API call to actual transmit time with option SYNC WORD ID 1	PHY_Studio_915M_2GFSK_50Kbps_25K	140.4	us
TX API call to actual transmit time with option WAIT FOR AUTO ACK	PHY_Studio_915M_2GFSK_2Mbps_500K	158.9	us
TX API call to actual transmit time with option WAIT FOR AUTO ACK	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	157.4	us
TX API call to actual transmit time with option WAIT FOR AUTO ACK	PHY_Studio_915M_2GFSK_50Kbps_25K	140.6	us
Tx To Rx Auto state transition times	PHY_Studio_915M_2GFSK_2Mbps_500K	142.3	us
Tx To Rx Auto state transition times	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	141.3	us
Tx To Rx Auto state transition times	PHY_Studio_915M_2GFSK_50Kbps_25K	123.1	us

ChipType: G23				
RAIL Timing		**4.3.0**	**4.4.0**	**Diff**
Active Radio to Idle Time with Idle Mode: 0 and Idle Delay(Us): 0	PHY_Studio_915M_2GFSK_2Mbps_500K	142.2	110.1	-32.1
Active Radio to Idle Time with Idle Mode: 0 and Idle Delay(Us): 0	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	359.9	328.2	-31.7
Active Radio to Idle Time with Idle Mode: 0 and Idle Delay(Us): 0	PHY_Studio_915M_2GFSK_50Kbps_25K	2951.7	2920.8	-30.9
Active Radio to Idle Time with Idle Mode: 0 and Idle Delay(Us): 80	PHY_Studio_915M_2GFSK_2Mbps_500K	142.0	110.2	-31.8
Active Radio to Idle Time with Idle Mode: 0 and Idle Delay(Us): 80	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	359.8	328.1	-31.7
Active Radio to Idle Time with Idle Mode: 0 and Idle Delay(Us): 80	PHY_Studio_915M_2GFSK_50Kbps_25K	2951.7	2920	-31.7
Active Radio to Idle Time with Idle Mode: 1 and Idle Delay(Us): 0	PHY_Studio_915M_2GFSK_2Mbps_500K	77.8	98.8	21.0
Active Radio to Idle Time with Idle Mode: 1 and Idle Delay(Us): 0	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	77.8	99.7	21.9
Active Radio to Idle Time with Idle Mode: 1 and Idle Delay(Us): 0	PHY_Studio_915M_2GFSK_50Kbps_25K	78.2	99.1	20.9
Active Radio to Idle Time with Idle Mode: 1 and Idle Delay(Us): 80	PHY_Studio_915M_2GFSK_2Mbps_500K	141.6	110.2	-31.4
Active Radio to Idle Time with Idle Mode: 1 and Idle Delay(Us): 80	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	161.2	182.5	21.3
Active Radio to Idle Time with Idle Mode: 1 and Idle Delay(Us): 80	PHY_Studio_915M_2GFSK_50Kbps_25K	160.6	182.5	21.9
Active Radio to Idle Time with Idle Mode: 2 and Idle Delay(Us): 0	PHY_Studio_915M_2GFSK_2Mbps_500K	111.5	120.2	8.7
Active Radio to Idle Time with Idle Mode: 2 and Idle Delay(Us): 0	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	111.9	120.1	8.2
Active Radio to Idle Time with Idle Mode: 2 and Idle Delay(Us): 0	PHY_Studio_915M_2GFSK_50Kbps_25K	111.3	120.1	8.8
Active Radio to Idle Time with Idle Mode: 2 and Idle Delay(Us): 80	PHY_Studio_915M_2GFSK_2Mbps_500K	141.6	110	-31.6
Active Radio to Idle Time with Idle Mode: 2 and Idle Delay(Us): 80	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	195.0	203.7	8.7
Active Radio to Idle Time with Idle Mode: 2 and Idle Delay(Us): 80	PHY_Studio_915M_2GFSK_50Kbps_25K	194.8	203.2	8.4
Active Radio to Idle Time with Idle Mode: 3 and Idle Delay(Us): 0	PHY_Studio_915M_2GFSK_2Mbps_500K	114.8	122.4	7.6
Active Radio to Idle Time with Idle Mode: 3 and Idle Delay(Us): 0	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	114.5	122.5	8.0
Active Radio to Idle Time with Idle Mode: 3 and Idle Delay(Us): 0	PHY_Studio_915M_2GFSK_50Kbps_25K	114.6	122.6	8.0
Active Radio to Idle Time with Idle Mode: 3 and Idle Delay(Us): 80	PHY_Studio_915M_2GFSK_2Mbps_500K	141.9	110.5	-31.4
Active Radio to Idle Time with Idle Mode: 3 and Idle Delay(Us): 80	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	197.4	206.6	9.2
Active Radio to Idle Time with Idle Mode: 3 and Idle Delay(Us): 80	PHY_Studio_915M_2GFSK_50Kbps_25K	197.1	206.2	9.1
Channel Change Time (RX to RX) 0 to 0 Rx To Rx	PHY_Studio_915M_2GFSK_2Mbps_500K	162.1	157.7	-4.4
Channel Change Time (RX to RX) 0 to 0 Rx To Rx	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	162.5	157.8	-4.7
Channel Change Time (RX to RX) 0 to 0 Rx To Rx	PHY_Studio_915M_2GFSK_50Kbps_25K	162.5	157.8	-4.7
Channel Change Time (RX to RX) 0 to 1 Rx To Rx	PHY_Studio_915M_2GFSK_2Mbps_500K	248.6	243.3	-5.3
Channel Change Time (RX to RX) 0 to 1 Rx To Rx	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	248.3	243.3	-5.0
Channel Change Time (RX to RX) 0 to 1 Rx To Rx	PHY_Studio_915M_2GFSK_50Kbps_25K	248.6	243.5	-5.1
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_PROPRIETARY	PHY_Studio_915M_2GFSK_2Mbps_500K	8.1	7.6	-0.5
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_PROPRIETARY	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	8.1	7.7	-0.4
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_PROPRIETARY	PHY_Studio_915M_2GFSK_50Kbps_25K	8.1	7.8	-0.3
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_ZWAVE_ANZ	Internal PHY	693.1	800.1	107.0
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_ZWAVE_CN	Internal PHY	692.7	799.5	106.8
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_ZWAVE_EU	Internal PHY	692.5	799.3	106.8
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_ZWAVE_HK	Internal PHY	693.3	800.3	107.0
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_ZWAVE_IL	Internal PHY	693.0	799.4	106.4
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_ZWAVE_IN	Internal PHY	692.6	800.1	107.5
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_ZWAVE_JP	Internal PHY	713.6	829.8	116.2
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_ZWAVE_KR	Internal PHY	713.0	830.2	117.2
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_ZWAVE_MY	Internal PHY	693.4	800.5	107.1
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_ZWAVE_RU	Internal PHY	692.8	799.9	107.1
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_ZWAVE_US	Internal PHY	693.0	800	107.0
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_ZWAVE_US_LR1	Internal PHY	684.7	816.4	131.7
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_ZWAVE_US_LR2	Internal PHY	684.6	792	107.4
ConfigChannel Time SL_RAIL_UTIL_PROTOCOL_ZWAVE_US_LR_END_DEVICE	Internal PHY	699.7	792	92.3
EM2 to Active Radio Time No SYNC	PHY_Studio_915M_2GFSK_2Mbps_500K	458.0	522	64.0
EM2 to Active Radio Time No SYNC	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	458.3	521.6	63.3
EM2 to Active Radio Time No SYNC	PHY_Studio_915M_2GFSK_50Kbps_25K	458.2	517.9	59.7
EM2 to Active Radio Time With SYNC	PHY_Studio_915M_2GFSK_2Mbps_500K	466.0	553.2	87.2
EM2 to Active Radio Time With SYNC	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	465.5	553.4	87.9
EM2 to Active Radio Time With SYNC	PHY_Studio_915M_2GFSK_50Kbps_25K	465.4	550.1	84.7
Image Rejection Calibration Time Proprietary	PHY_Studio_915M_2GFSK_2Mbps_500K	200846.0	200821	-25.0
Image Rejection Calibration Time Proprietary	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	200857.2	200838.5	-18.7
Image Rejection Calibration Time Proprietary	PHY_Studio_915M_2GFSK_50Kbps_25K	200847.5	200822.1	-25.4
Image Rejection Calibration Time ZWAVE Z-Wave Region: EU-European Union Channel: 0	Internal PHY	101333.9	101102.2	-231.7
Image Rejection Calibration Time ZWAVE Z-Wave Region: JP-Japan Channel: 0	Internal PHY	201757.1	201526.4	-230.7
Image Rejection Calibration Time ZWAVE Z-Wave Region: KR-Korea Channel: 0	Internal PHY	201758.8	201525.7	-233.1
Image Rejection Calibration Time ZWAVE Z-Wave Region: US-United States Channel: 0	Internal PHY	101335.3	101104.4	-230.9
Image Rejection Calibration Time ZWAVE Z-Wave Region: USLR1-United States Long Range 1 Channel: 0	Internal PHY	101335.0	100993.4	-341.6
Image Rejection Calibration Time ZWAVE Z-Wave Region: USLRED-United States Long Range End Device Channel: 0	Internal PHY	101224.4	101104.5	-119.9
RAIL_Init() Time with DMA	Internal PHY	1349.0	1138	-211.0
RAIL_Init() Time without DMA	Internal PHY	3868.0	2885	-983.0
RX API call to actual RX ready state time Channel 0 -> 0	PHY_Studio_915M_2GFSK_2Mbps_500K	127.2	120.3	-6.9
RX API call to actual RX ready state time Channel 0 -> 0	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	127.5	120.1	-7.4
RX API call to actual RX ready state time Channel 0 -> 0	PHY_Studio_915M_2GFSK_50Kbps_25K	127.6	120.3	-7.3
RX API call to actual RX ready state time Channel 0 -> 1	PHY_Studio_915M_2GFSK_2Mbps_500K	214.0	206	-8.0
RX API call to actual RX ready state time Channel 0 -> 1	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	213.5	205.8	-7.7
RX API call to actual RX ready state time Channel 0 -> 1	PHY_Studio_915M_2GFSK_50Kbps_25K	213.8	206	-7.8
RX pkt receive to event trigger with option RAIL_RX_OPTION_STORE_CRC	PHY_Studio_915M_2GFSK_2Mbps_500K	27.1	27.5	0.4
RX pkt receive to event trigger with option RAIL_RX_OPTION_STORE_CRC	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	27.0	27.8	0.8
RX pkt receive to event trigger with option RAIL_RX_OPTION_STORE_CRC	PHY_Studio_915M_2GFSK_50Kbps_25K	27.1	27.6	0.5
RX pkt receive to event trigger with option RAIL_RX_OPTION_TRACK_ABORTED_FRAMES	PHY_Studio_915M_2GFSK_2Mbps_500K	27.0	27.7	0.7
RX pkt receive to event trigger with option RAIL_RX_OPTION_TRACK_ABORTED_FRAMES	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	27.0	27.6	0.6
RX pkt receive to event trigger with option RAIL_RX_OPTION_TRACK_ABORTED_FRAMES	PHY_Studio_915M_2GFSK_50Kbps_25K	27.0	27.9	0.9
RX to TX Auto state transition times	PHY_Studio_915M_2GFSK_2Mbps_500K	172.3	139.5	-32.8
RX to TX Auto state transition times	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	185.1	146.7	-38.4
RX to TX Auto state transition times	PHY_Studio_915M_2GFSK_50Kbps_25K	342.0	201.8	-140.2
TX API call to actual transmit time with option ALT PREAMBLE LEN 128	PHY_Studio_915M_2GFSK_2Mbps_500K	184.2	158	-26.2
TX API call to actual transmit time with option ALT PREAMBLE LEN 128	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	184.4	156.7	-27.7
TX API call to actual transmit time with option ALT PREAMBLE LEN 128	PHY_Studio_915M_2GFSK_50Kbps_25K	184.0	140.2	-43.8
TX API call to actual transmit time with option ANTENNA 0	PHY_Studio_915M_2GFSK_2Mbps_500K	184.4	158.5	-25.9
TX API call to actual transmit time with option ANTENNA 0	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	184.4	157	-27.4
TX API call to actual transmit time with option ANTENNA 0	PHY_Studio_915M_2GFSK_50Kbps_25K	184.7	141.6	-43.1
TX API call to actual transmit time with option ANTENNA 1	PHY_Studio_915M_2GFSK_2Mbps_500K	184.4	158.5	-25.9
TX API call to actual transmit time with option ANTENNA 1	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	184.3	156.7	-27.6
TX API call to actual transmit time with option ANTENNA 1	PHY_Studio_915M_2GFSK_50Kbps_25K	184.5	141.5	-43.0
TX API call to actual transmit time with option CCA ONLY	PHY_Studio_915M_2GFSK_2Mbps_500K	184.3	158.1	-26.2
TX API call to actual transmit time with option CCA ONLY	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	184.3	157	-27.3
TX API call to actual transmit time with option CCA ONLY	PHY_Studio_915M_2GFSK_50Kbps_25K	184.3	140.4	-43.9
TX API call to actual transmit time with option CCA PEAK RSSI	PHY_Studio_915M_2GFSK_2Mbps_500K	184.3	158.1	-26.2
TX API call to actual transmit time with option CCA PEAK RSSI	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	184.3	156.9	-27.4
TX API call to actual transmit time with option CCA PEAK RSSI	PHY_Studio_915M_2GFSK_50Kbps_25K	184.2	140.2	-44.0
TX API call to actual transmit time with option Default	PHY_Studio_915M_2GFSK_2Mbps_500K	176.2	150.5	-25.7
TX API call to actual transmit time with option Default	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	176.3	149.1	-27.2

ChipType: G23				
RAIL Timing		**4.3.0**	**4.4.0**	**Diff**
TX API call to actual transmit time with option Default	PHY_Studio_915M_2GFSK_50Kbps_25K	176.2	132.5	-43.7
TX API call to actual transmit time with option REMOVE CRC	PHY_Studio_915M_2GFSK_2Mbps_500K	185.3	159.4	-25.9
TX API call to actual transmit time with option REMOVE CRC	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	185.3	157.9	-27.4
TX API call to actual transmit time with option REMOVE CRC	PHY_Studio_915M_2GFSK_50Kbps_25K	185.3	141.4	-43.9
TX API call to actual transmit time with option RESEND	PHY_Studio_915M_2GFSK_2Mbps_500K	184.7	158.4	-26.3
TX API call to actual transmit time with option RESEND	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	184.5	157	-27.5
TX API call to actual transmit time with option RESEND	PHY_Studio_915M_2GFSK_50Kbps_25K	184.0	140.5	-43.5
TX API call to actual transmit time with option SYNC WORD ID 1	PHY_Studio_915M_2GFSK_2Mbps_500K	184.3	158.3	-26.0
TX API call to actual transmit time with option SYNC WORD ID 1	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	184.3	156.9	-27.4
TX API call to actual transmit time with option SYNC WORD ID 1	PHY_Studio_915M_2GFSK_50Kbps_25K	184.0	140.4	-43.6
TX API call to actual transmit time with option WAIT FOR AUTO ACK	PHY_Studio_915M_2GFSK_2Mbps_500K	184.3	158.9	-25.4
TX API call to actual transmit time with option WAIT FOR AUTO ACK	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	184.3	157.4	-26.9
TX API call to actual transmit time with option WAIT FOR AUTO ACK	PHY_Studio_915M_2GFSK_50Kbps_25K	184.3	140.6	-43.7
Temperature Calibration Time	PHY_Studio_915M_2GFSK_2Mbps_500K	124.8	122.4	-2.4
Temperature Calibration Time	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	124.8	122	-2.8
Temperature Calibration Time	PHY_Studio_915M_2GFSK_50Kbps_25K	124.8	122.2	-2.6
Tx To Rx Auto state transition times	PHY_Studio_915M_2GFSK_2Mbps_500K	144.6	142.3	-2.3
Tx To Rx Auto state transition times	PHY_Studio_915M_2GFSK_500Kbps_175K_mi0p7	145.2	141.3	-3.9
Tx To Rx Auto state transition times	PHY_Studio_915M_2GFSK_50Kbps_25K	144.5	123.1	-21.4

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