CC31xx SLS Transceiver Mode Application

Overview

This is a sample application demonstrating how to use CC31xx's transceiver mode of operation. This is the ability of a device to send data directly over the WLAN MAC layer without being connected to a WLAN AP.

Note: This wiki page is only applicable for **CC3100-SDK v1.0.0** and upward releases. For documentation on older SDKs' examples, refer corresponding file in **<cc3100-sdk-installation-location>\cc3100-sdk\docs\examples**

Application details

Two use-cases that are shown in the example code are:

- **TX Continuous:** In this mode, the SimpleLink device is able to communicate directly over the Wi-Fi PHY layer, .i.e. bypass the Network Stack, Wi-Fi driver and MAC layer. In this mode, the user is given with a full flexibility in building the transmitted packet.

Note: : User is fully responsible for building the transmitted packet. If it is desired to build a proprietary protocol on top of Wi-Fi PHY layer, then the user should be familiar with Wi-Fi MAC layer specifications and build the packet appropriately.

- **RX Statistics:** Main purpose is to provide major medium statistics. Statistics provided by CC3100 are:
  - **Received Packets:** The number of packets sampled.
  - **Received FCS:** The number of packets received that had frame check sequence errors.
  - **Received PLCP:** The number of packets received that had physical layer convergence protocol errors.
  - **Average RSSI:** for Management/Other Packets: The average signal strength of the management packets or data packets.
  - **RSSI Histogram:** A histogram showing the signal strength of the different packets during the collection period.
  - **Rate Histogram:** A histogram of the transmission rate of the different packets. The rates corresponding to the numbers can be found in the RateIndex_e enum in the wlan.h header file.
  - **Sample Time:** The amount of time spent gathering samples.

For information on how to use Visual-Studio or Eclipse to compile and run this application, refer to cc3100_getting_started_guide_swru375 [1] in '<cc3100/>docs' folder.

By default, this application communicates w/ CC3100 over SPI. The SDK has UART-Drivers as well for 'SimpleLink Studio' platform. For using the UART interface to communicate w/ CC3100, macro **SL_IF_TYPE_UART** has to be defined in the application-project's properties. Also, 'COMM_PORT_NUM' in **main.c** needs to be changed to the first com-port that gets enumerated for 'J6' of 'CC31xxEMUBOOST Brd'. In case four ports are getting enumerated, user should use the third com-port.

Limitations/Known Issues

- TX continuous mode works in WiFi disconnected mode only
- The user needs to make sure the connection policy is not set to auto/fast mode
- Complete RX statistics can be obtained in disconnected mode only, however this feature can be used to get the get the RSSI of the AP the device is connected to.
- When sl_recv() API is invoked in transceiver mode, the SimpleLink device remains in RX mode and doesn't go to low power mode

References

[1] http://www.ti.com/lit/pdf/swru375

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