

Document information

Info	Content
Keywords	K32W148 module
Abstract	Application note for K32W148 CMET



Revision history

Rev	Date	Description
1.0	20221202	Initial release

The CMET for K32W148 is used to test the RF conformance testing

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1. Introduction

The CMET for K32W148 is based on the connectivity test project in the K32W148 SDK. The original project is located at `boards\k32w148evk\wireless_examples\ieee-802.15.4\connectivity_test`, which does not support the "Tigger Packet test", "Receive mode test", "TxRx Turnaround test" and "RxTx Turnaround test". We added these features in this new modified project and make it a standalone project as Customer Measurement & Evaluation Tool (CMET) for K32W148.

Feature	Description
Tigger Packet test	Enable a GPIO PTA18 as the external trigger source for Vector Signal Generator (VSG) to send out one 802.15.4 packet per trigger, then enable the K32W148 Rx mode and receive the packet and count how many packets are received.
Receive mode test	Set K32W148 to Rx mode and count how many packets are received.
TxRx Turnaround test	The K32W148 sends a packet and then waits for an ack packet.
RxTx Turnaround test	Set K32W148 to Rx mode. If the K32W148 receives a packet requesting an ack, then the device sends an ack packet out.

Path of modified codes	Description
<code>boards\k32w148evk\wireless_examples\ieee-802.15.4\connectivity_test\connectivity_test.c</code>	We need to add four features into the test tools, Packet Tigger Test, Receive Mode Test, RxTx Turnaround Test and TxRx Turnaround Test,
<code>boards\k32w148evk\wireless_examples\ieee-802.15.4\connectivity_test\connectivity_test.h</code>	
<code>boards\k32w148evk\wireless_examples\ieee-802.15.4\connectivity_test\connectivity_test_menus.c</code>	

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boards\k32w148evk\wireless_examples\ieee-802.15.4\connectivity_test\connectivity_test_menus.h	so we add three options into the test menu. One is for Packet Tigger Test, one is for Receive Mode Test, another one is for RxTx/TxRx Turnaround test.
boards\k32w148evk\wireless_examples\ieee-802.15.4\connectivity_test\bm\app_preinclude.h	Add the define for Max Tx Power and the dcdc buck mode.
middleware\wireless\ieee-802.15.4\smac\source\SMAC.c	<p>1. We comment out the code for SMACPacketCheck. In original project, when the device receives packets , the smac layer only updates and reports the packets with specific payload defined by SMAC. But when the VSG is used for test, the packets are not always same as SMAC requires.</p> <p>2. In original project, after receiving each packet, the smac layer would disable Rx first and then need the application layer to enable the Rx again. Now, since we always keep the Rx on, we would be able to receive all the packets in very short time.</p> <p>3. We add the some codes so that the device can update the event from smac to upper layer if the device receives an ack</p>

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	packet, which is not supported in the original project.
middleware\wireless\ieee-802.15.4\smac\interface\SMAC_Interface.h	We changed the default short address and default Pan id for the connectivity test

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