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TECHNOLOGY FOR A CHANGING WORLD

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SOFTWARE ISSUES FOR MODULES JN5121-000-M04 AND JN5121-Z01-M04

Dear Sir

This module submission, relates to Jennic module products JN5121-000-M04 and JN5121-Z01-M04. This document will justify why both modules can be covered by one FCC-ID, and therefore be covered by one submission.

This document will cover:

1. Description of modules and the difference
2. Explanation of the PHY and MAC layer
3. Explanation of the Zigbee network layer
4. Software for compliance testing

DESCRIPTION OF MODULES AND THE DIFFERENCES

The two modules both have the same bill of materials, including the PCB (ref Z1000 Z1M4504), antenna connection and radio/ microcontroller device (JN5121). The microcontroller has a common PHY and MAC software element to both modules.

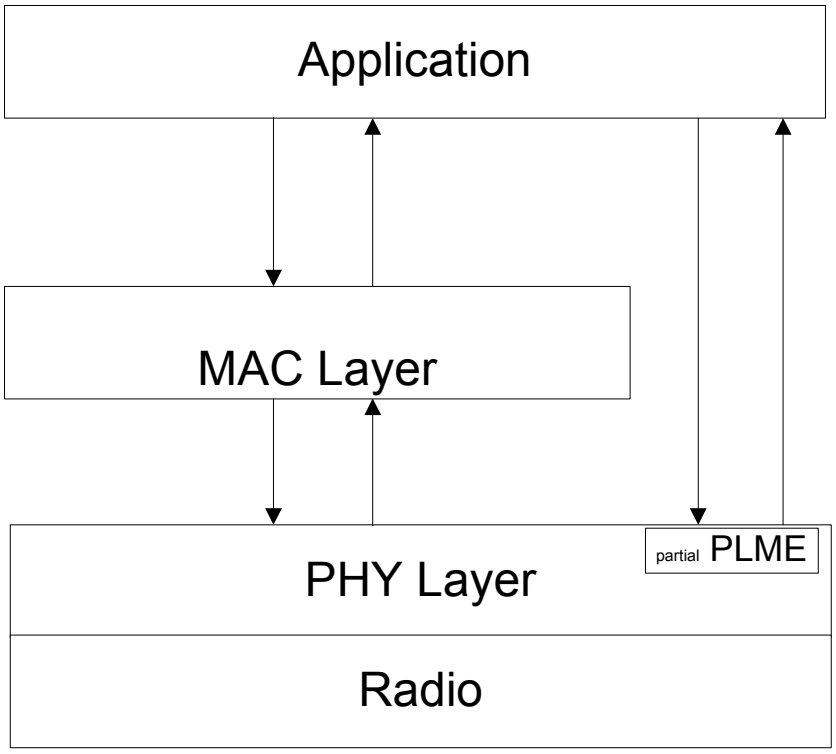
The JN5121-Z01-M04 module also has a Zigbee Network software layer.

EXPLANATION OF THE PHY AND MAC LAYER

The end-user can only control the radio within the JN5121 device using the software functions within the PHY and MAC layer. The control straight to the PHY Layer is limited to selecting the channel and reducing the operating power from the standard setting. All other control occurs via the MAC layer.

These software functions are hard coded and can not be altered by the end user. Therefore, any application developed on the module will exhibit the same RF characteristics.

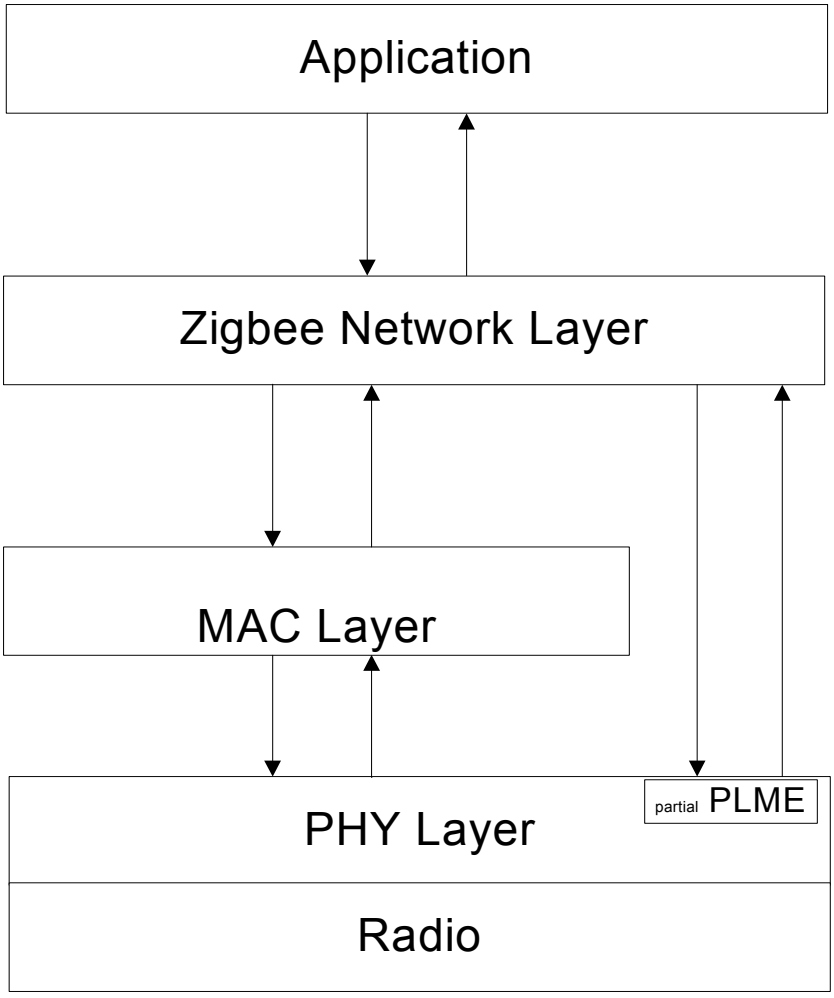
The interaction of the application and the PHY and MAC layers is demonstrated in the following diagram. Full details of the MAC layer are provided in the 802.15.4 MAC Software reference Manual (JN-RM-2002-Stack_Software).



EXPLANATION OF THE ZIGBEE NETWORK LAYER

The JN5121-Z01-M04 module has a Zigbee Network Layer in addition to the PHY and MAC layer software. The end-user's application code controls radio operation via the Zigbee Network layer. This can then interface to the radio through the MAC and PHY layer, in the same way that an application does without the presence of the Zigbee network layer. Therefore, any application developed on the module will exhibit the same RF characteristics as an application developed without the Zigbee Network layer. The interaction of the layers is demonstrated in the following diagram.

At the PHY level, the Network layer can only influence the frequency of occurance of packets. All other parameters – packet length, output power, transmit frequency are under control of the IEEE 802.15.4 MAC layer as per the JN5121-000-M04 module.



SOFTWARE FOR COMPLIANCE TESTING

As required by FCC regulations, the test reports associated with this submission were achieved by the use of special test software to configure the radio in the same manner that the MAC and PHY layers do, with the exception of allowing access to some extra test modes such as the continual transmit modes with modulated or un-modulated signals. Therefore, they are representative of the radio performance that will be achieved by end-users of these two module products.

Yours sincerely,

Stephen Bate