Application Report

Migration Guide from CC2640R2F to CC2640R2L

ABSTRACT

This application report describes the hardware changes to be made when moving from the CC2640R2F to the CC2640R2L SimpleLink™ wireless MCU.

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1 Differences Between CC2640R2F and CC2640R2L

CC2640R2L is the latest generation of ultra-low power wireless MCUs for 2.4 GHz operation from Texas Instruments. The CC2640R2L supports Bluetooth® low energy as well as proprietary RF.

Please see the table below that highlights the major differences between the two devices:

Table 1-1. Differences Between CC2640R2F and CC2640R2L

Features	CC2640R2F	CC2640R2L
Peripherals		
Sensor Controller Engine	Yes	No
Comparators	Yes	No
Constant Current Source	Yes	No
Packages	RGZ (7-mm x 7-mm)	RGZ (7-mm x 7-mm)
	RHB (5-mm x 5-mm)	RHB (5-mm x 5-mm)
	RSM (4-mm x 4-mm)	
	YFV (2.7-mm x 2.7-mm)	
Standby Current		
No Cache RCOSC_LF	1.1 uA	1.5 uA
No Cache XOSC_LF	1.3 uA	1.7 uA
With Cache RCOSC_LF	2.8 uA	6.2 uA
With Cache XOSC_LF	3.0 uA	6.2 uA
BLE 2 Mbps PHY		
RF Sensitivity	-91 dBm	-90 dBm

2 PCB Design and Layout

From a package point of view, the corresponding packages of both devices are pin to pin compatible and a PCB design made for CC2640R2F can be reused for the CC2640R2L.

Also, the CC2640R2 Launchpad supports both CC2640R2F and CC2640R2L devices in 7x7 packages.

3 RF Compliance and Certification

Although CC2640R2L is similar to CC2640R2F from an RF and pin compatibility perspective, a new regulatory compliance certificate may be required if a PCB design is reused in production for the other device. This needs to be verified with an accredited test house, which needs to be made aware of the update to the BOM.

To obtain a waiver (if applicable) for drop in replacement, the customer may have to file an amendment to the regulatory authority notifying them of the differences between the two devices showing no RF performance impact.

If RF performance is impacted, a recertification may be required depending on the rules and regulation of the governing authority.

RF certification of the customer's application and end equipment is the customer's responsibility. The customer is solely responsible for the design, validation, and testing of its applications as well as for compliance with all legal and regulatory requirements concerning its applications. Industry best practices generally require that the customer and their test house conduct qualification tests on actual applications taking into account possible environmental and other conditions that the customer's application may encounter. TI recommends consulting with the accredited certification test house for further regulatory requirements.

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4 Summary

A PCB designed for the CC2640R2F can be reused for the CC2640R2L, as the devices (in the 7x7 and 5x5 QFN package) are pin to pin compatible. However, a recertification may be required if the RF performance measured is different as a result of the replacement.

5 References

1. Texas Instruments: CC2640R2L Data Sheet
2. Texas Instruments: CC13x0, CC26x0 SimpleLink™ Wireless MCU Technical Reference Manual
3. Texas Instruments: CC2640R2 LaunchPad Design Files

6 Revision History

DATE	REVISION	NOTES
June 2020	*	Initial Release

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