CC-Antenna-DK2 Quick Start Guide

1. Kit Contents

1 x CC-ANTENNA-DK2
1 x JSC - SMA cable (MXFR01JA1500)
1 x JSC - JSC cable (MXJA01JA1200)
1 x Documentation

This guide will show how to connect the CC-Antenna-DK2 to a LaunchPad, SensorTag or an Evaluation Module (EM). It will also point to additional resources.

2. Snap a board from the panel

The CC-Antenna-DK contains 13 boards; 3 calibration boards and 13 antenna boards.

Each CC-Antenna-DK has been scribed (v-cut) so a specific board can easily be snapped out of the panel. Connectivity to each antenna board is achieved via a JSC (uSMA) connector.

3. Board Overview

#	Board Description	Freq. (MHz)
1	CR2032 PCB Antenna[1]	868 or 915 / 920 & 2440[1]
2	Compact PCB Antenna (AN043)	2440
3	Fractus Chip Antenna[1]	868 or 915 / 920 & 2440
4	PCB Helical Antenna	433 or 470-510
5	Antenna Diversity	2440
6	Compact PCB Helical Antenna (DN038)	868 or 915 / 920
7	ProAnt Antenna	169
8	Antenna Diversity	868 or 915 / 920
9	Dual-band PCB Antenna[1]	868 / 915 / 920 & 2440
10	PCB Helical Antenna	433 or 868
11	PCB Antenna[1] (DN007)	868[1] / 2440
12	Single-Sided Compact PCB Antenna	868 or 915 / 920
13	"SHORT" Calibration	-
14	"LOAD" Calibration	-
15	"OPEN" Calibration	-
16	Helical Wire	169 / 315

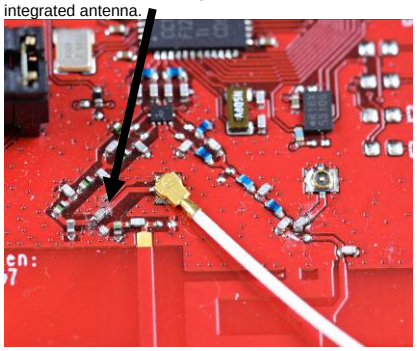
[1] Dual-band option

All Low Power RF bands are covered by the antenna kit.

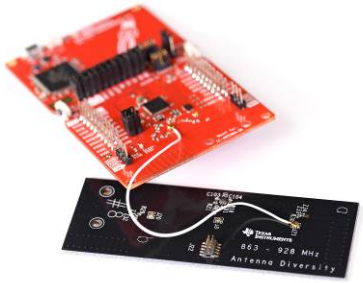
4. Connection to a SensorTag

Antenna board #9 has been snapped out from the CC-Antenna-DK2 panel and is connected to a SensorTag via the JSC to JSC cable[2].

[2] the 0 ohm resistor must be positioned towards the JSC connector on the SensorTag/LaunchPad instead of the integrated antenna.

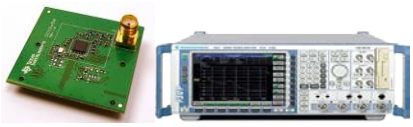


5. Connection to a LaunchPad



Antenna board #8 has been snapped out from the CC-Antenna-DK2 panel and is connected to a LaunchPad via the JSC to JSC cable[2].

6. Connection to EM or test equipment



If the antenna board shall be connected to EM or test equipment then the JSC to SMA cable can be used. The JSC to SMA cable is a low cost cable with significant insertion loss at 2.4 GHz. Alternative cables (MXHQ87XB3000) with lower insertion loss can be used. Different cable lengths are also available and this is visible in the part number.
For example: 15 cm (MXFR01JA**15**00), 12 cm (MXJA01JA**12**00) and 30 cm (MXHQ87XB**30**00). The antenna resonance can vary slightly pending on the cable length.

7. Packet Error Rate (PER)

When the antenna is connected then the Packet Error Rate test can be performed.

The exact format of the PER test will depend on the HW platform choice (EM / LaunchPad / SensorTag) and SW test suite (IAR, CCS, SmartRF Studio).

A. More information

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The TI LPRF eNews letter keeps you up to date on e.g. new products, application notes, software and events.
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We hope that the CC-Antenna-DK2 will help with the choice of antenna for your final application.

B. References

[1] Antenna Quick Selection Guide
www.ti.com/lit/swra351

[2] CC-Antenna-DK2 Documentation
www.ti.com/lit/swra496

[3] Low Power RF ICs web page
www.ti.com/lsds/ti/wireless_connectivity/overview.page

[4] Excel Practical Range Estimation
www.e2e.ti.com/support/wireless_connectivity/proprietary_sub_1_ghz_simpliciti/f/156/t/375556

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      Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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      NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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- *Reorient or relocate the receiving antenna.*
- *Increase the separation between the equipment and receiver.*
- *Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.*
- *Consult the dealer or an experienced radio/TV technician for help.*

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3.2.1 *For EVMs issued with an Industry Canada Certificate of Conformance to RSS-210*

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Concernant les EVMs avec antennes détachables

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante. Le présent émetteur radio a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés dans le manuel d'usage et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur

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2. Use EVMs only after User obtains the license of Test Radio Station as provided in Radio Law of Japan with respect to EVMs, or
3. Use of EVMs only after User obtains the Technical Regulations Conformity Certification as provided in Radio Law of Japan with respect to EVMs. Also, do not transfer EVMs, unless User gives the same notice above to the transferee. Please note that if User does not follow the instructions above, User will be subject to penalties of Radio Law of Japan.

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