

WLC1515 MP-A13 15W Wireless Power Tx Quick Start Guide

This document is a quick start guide for powering, using, and updating FW using the WLC1515 MP-A13 15W automotive wireless power transmitter reference solution. This EVK supports WPC Specification 1.3+ and charges wireless Receiver devices following the Qi protocol. The EVK will deliver 15W to EPP type Rx outputs and 5W to BPP type Rx devices using any of the three MP-A13 coils. The reference board demonstrates the capabilities and features of the Infineon WLC1515 automotive wireless charging transmitter.

Once the EVK is removed from the packaging it will be immediately ready to power (+12 V_{DC}) and start charging wireless receivers. To get started simply connect a DC power supply or car battery to the positive and negative input terminals or insert wires into the terminal connector J1 provide 12V and place any Rx above any coil:

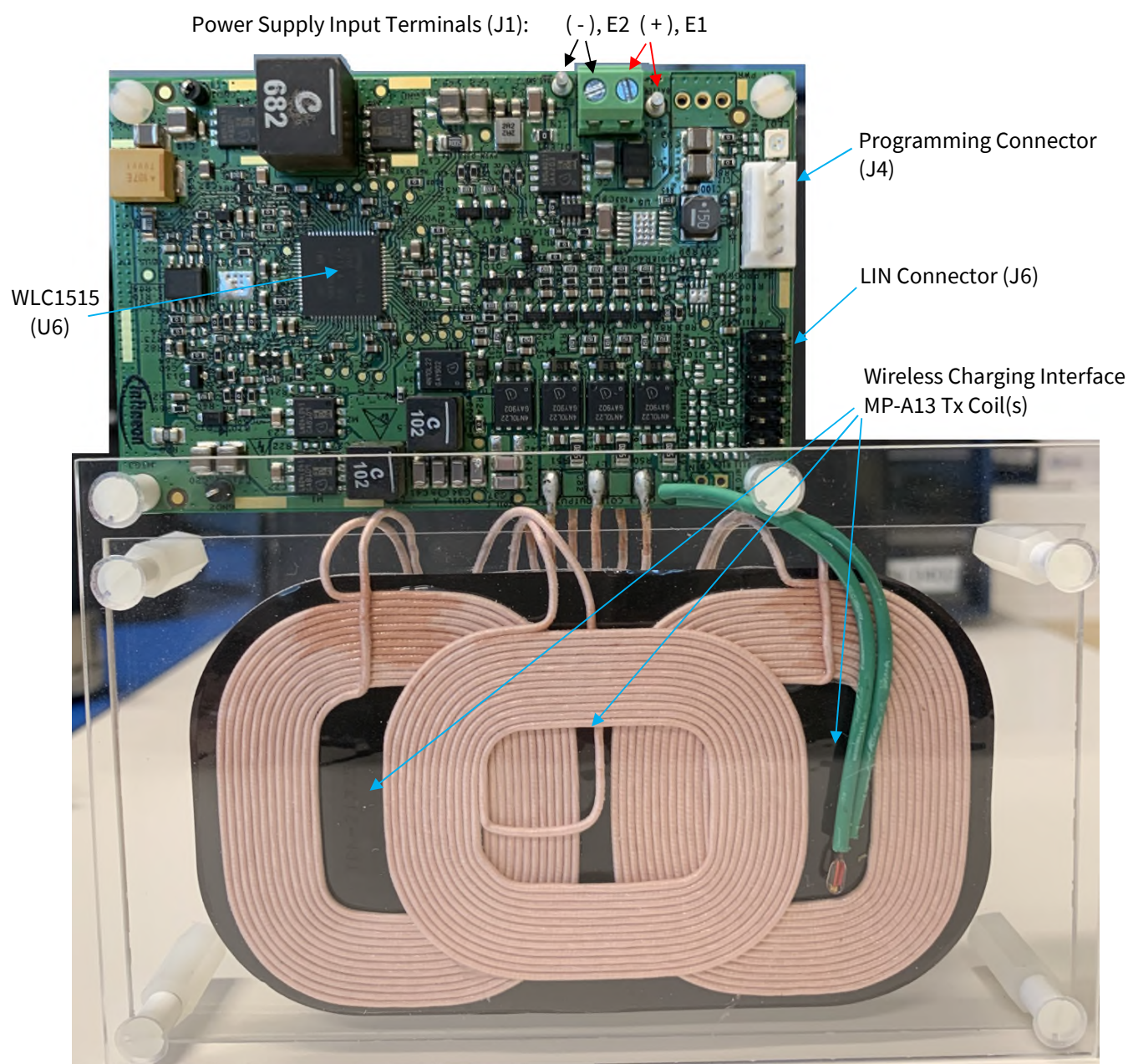


Figure 1 - REF_WLCAUTO_TX15W_C1 MP-A13 Automotive 3-coil EVK

1 Contents

REF_WLCAUTO_TX15W_C1 reference board

- HPI dongle (HPI_DONGLE) for programming/debugging
- Quick start guide

The following items may be required for evaluating the wireless power transmitter capabilities of the reference board. Note that these are not included in the reference board package.

- Qi- compatible phone or wireless power Rx EVK (such as WLC1250).
- Windows PC running Windows OS 10 or higher to run the Wireless Charging Configuration Utility
- DC Power Supply (up 24V, 3A rated)

Contact Infineon Technical Support to get the release package of the 15-W Auto Tx MP-A13 reference board which includes hardware design files, Wireless Charging Configuration Utility, documents and firmware files.

1.1 Additional Board details

The key functional blocks of the Infineon Automotive wireless power MP-A13 transmitter are marked below:

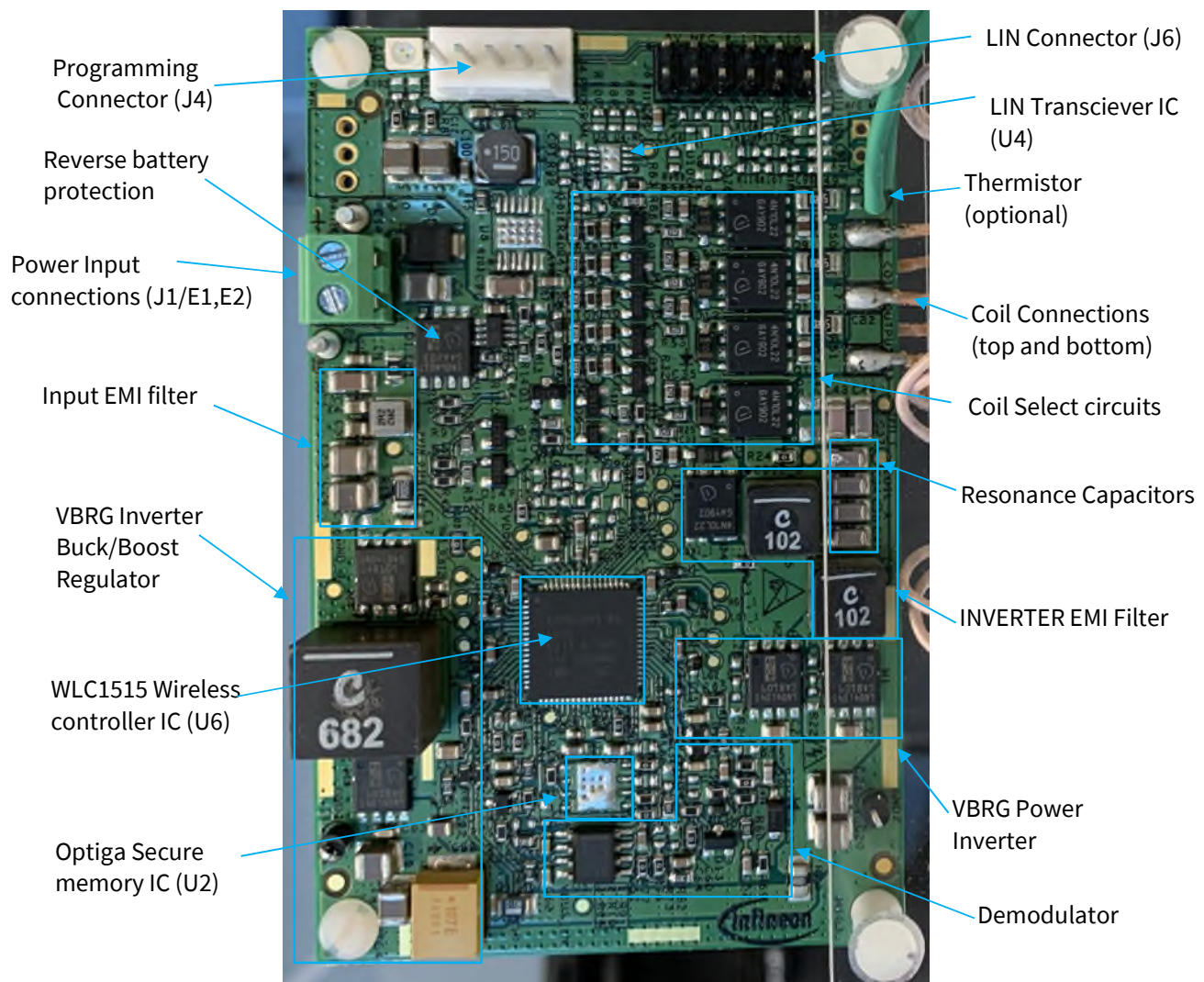


Figure 2- Functional circuit block of the REF_WLCAUTO_TX15W_C1 Reference design PCB

2 Reference board features

The WLC1515 Automotive solution is a feature rich wireless charger specifically designed for automotive applications. The following are key features of the reference board:

1. Qi 1.3.2+ compatible.
2. Robust ASK and FSK in-band communication between transmitter and receiver.
3. State of the art foreign object detection based on Q-factor and power loss.
4. Wide input voltage ranges from 4.5 V to 24 V.
5. Integrated buck/boost converter gate drive and control for continuous power delivery.
6. Integrated gate drive for full-bridge inverter operating range of 110 -147 kHz switching frequency.
7. MP-A13 triple coil design for large active areas.
8. Efficiency of greater than 75% at full load of 15W delivered by Rx.
9. Convenient GUI and I2C, LIN and programming support.
10. LED indicator to alert users of faults and status.

2.1 Wireless Charging Configuration Utility

The WLC1515 controller is a fully programmable controller allowing users to configure the firmware parameters and store them in its internal flash memory. The Wireless Charging Configuration Utility is a Microsoft Windows application developed by Infineon to enable the WLC1515 user to configure and program the WLC1515 device. The utility allows users to:

1. To read the firmware configuration data from the REF_WLCAUTO_TX15W_C1 reference board and modify or create a new configuration and hex FW file to download to the WLC1515.
2. Program the resulting configuration data onto the target WLC1515 device or program the complete firmware to new boards and devices.

WLC1150 controller supports programming over an I2C interfaces. Usage of the Wireless Charging Configuration Utility requires the HPI dongle hardware, which is included in the reference design package.

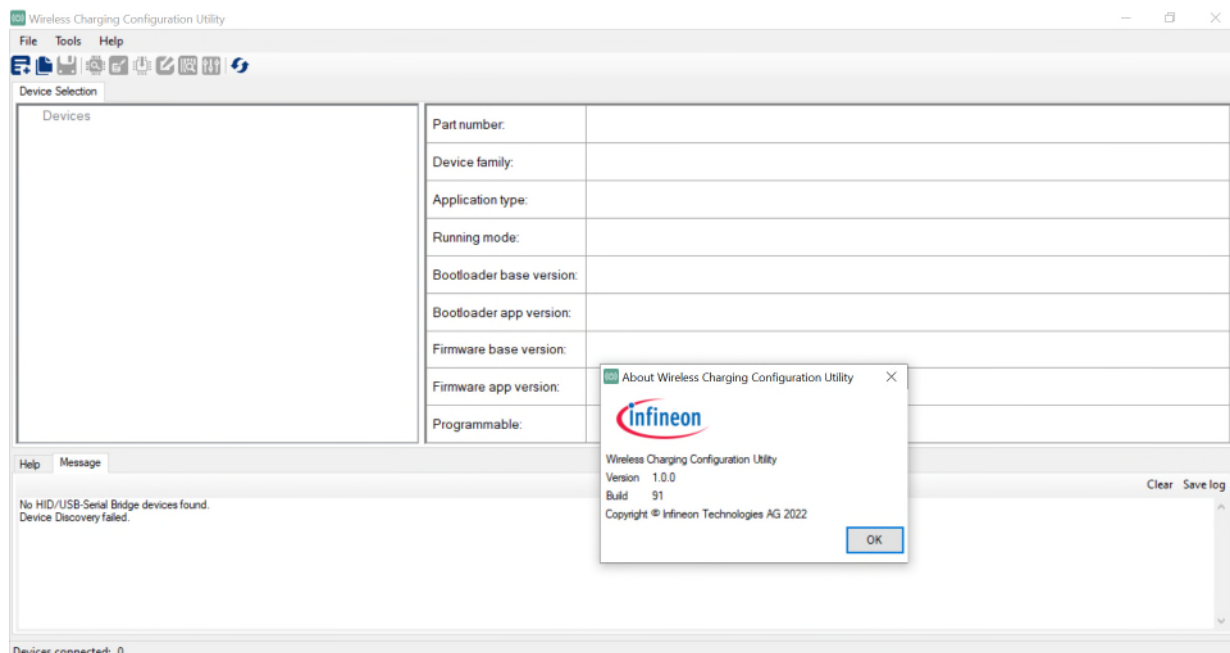


Figure 3 - Wireless Charging Configuration Utility

2.2 Configuring and downloading the firmware

WLC1515 IC is a programmable controller which supports downloading the updated/modified configuration data and the firmware over USB CC or I2C communication.

2.2.1

I2C communication-based set-up

[Error! Reference source not found.](#) describes the set-up to download configuration data or firmware over the I2C interface of the WLC1150 controller.

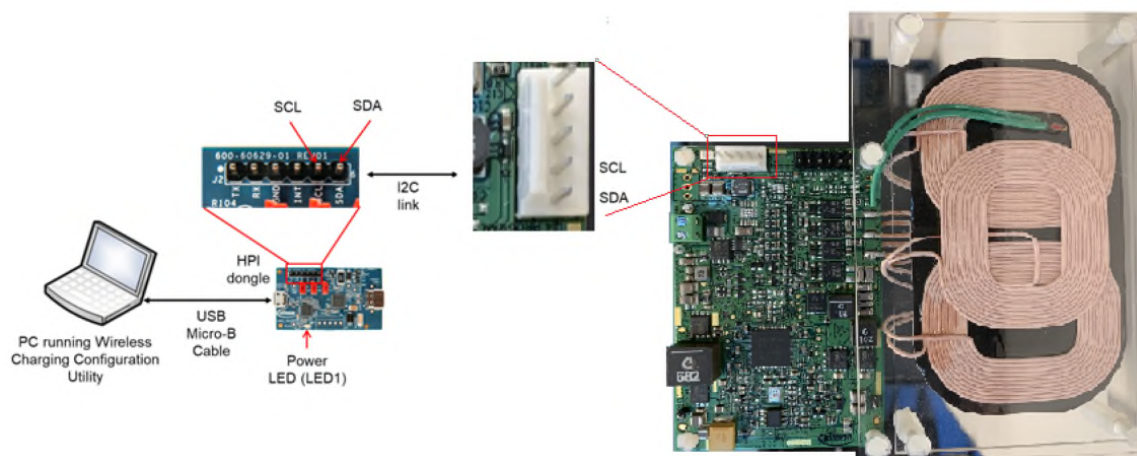


Figure 4- Figure 1 I2C communication-based set-up

Execute the following procedure to create the set-up:

1. Establish an I2C connection between the WLC1515 reference board and HPI dongle by connecting the two jumper wires.
 - a) Connect a jumper wire between SCL pin of HPI dongle (pin no. 5 of J2 header) and HPI_I2C_SCL pin of WLC1515 reference board (pin no. 4 of J2 header).
 - b) Connect a jumper wire between SDA pin of HPI dongle (pin no. 6 of J2 header) and HPI_I2C_SDA pin of WLC1515 reference board (pin no. 5 of J2 header).
2. Connect the HPI dongle to the PC using a USB micro-B cable.
3. The Power LED (LED1) on HPI Dongle glows blue.
4. Now the set-up is ready for use by the Wireless Charging Configuration Utility.

See the Wireless Charging Utility user guide to understand the procedure to configure the various firmware parameters and the procedure to download the configuration or firmware. The user guide can be accessed

from the Help menu of the utility.

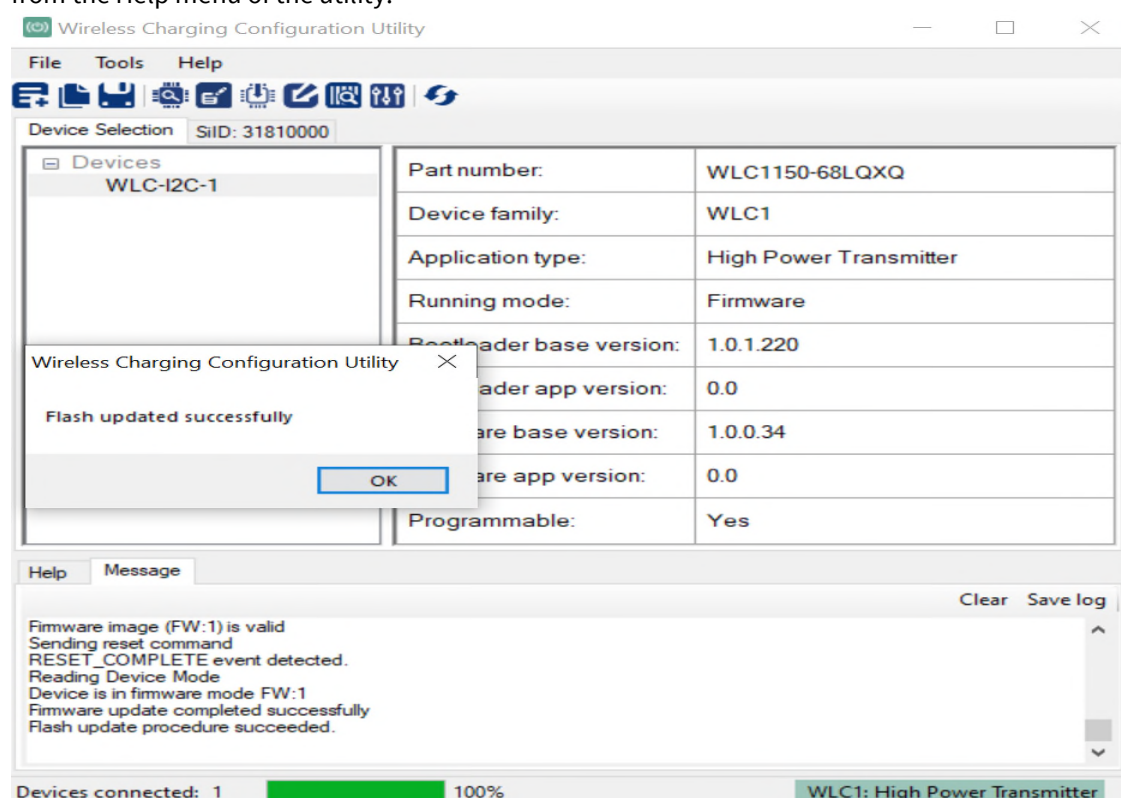


Figure 5 - Successful download of configuration file

Safety information

The REF_WLCAUTO_TX15W_C1 reference board is intended for use as an evaluation platform for hardware or software in a laboratory environment. The board is an open-system design, which does not include a shielded enclosure. Due to this reason, do not use this board near any medical equipment or RF devices.

Attaching additional wiring to this product or modifying the product operation from the factory default may affect its performance and cause interference with other apparatus in the immediate vicinity. If such interference is detected, suitable mitigating measures must be taken.



The REF_WLCAUTO_TX15W_C1 reference board contains ESD-sensitive devices. Electrostatic charges readily accumulate on the human body and any equipment, which can cause a discharge without detection. Permanent damage may occur to devices subjected to high-energy discharges. Proper ESD precautions are recommended to avoid performance degradation or loss of functionality. Store unused REF_WLCAUTO_TX15W_C1 reference boards in the protective shipping package.