# Getting started with EZ-PD™ CMG2

## About this document

### Scope and purpose

This application note introduces the USB Type-C EZ-PD™ CMG2 controller. It provides a brief overview of the CMG2 architecture, its features, and applications and covers the manufacturing test kit (MTK) in detail as a configuration tool. This document also references other design resources to help you ramp up quickly with your passive electronically marked cable assembly (EMCA) cable designs.

### Intended audience

This application note is intended for users using the USB Type-C EZ-PD™ CMG2 controller.

### Associated part family

CYPD280x

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# 1 Introduction

EZ-PD™ CMG2 is a dedicated USB Type-C EMCA controller that complies with the USB Type-C and power delivery (PD) standards for electronically marked Type-C passive cable applications. EZ-PD™ CMG2 integrates a complete Type-C transceiver, including the $R_A$ termination resistors on the $V_{CONN}$ pins and $V_{BUS}$ short-circuit protection on both the $V_{CONN}$ and Configuration Channel (CC) pins. CMG2 also includes 47 bytes of non-volatile latch (NVL) for vendor-, device-, and cable-specific configuration data. EZ-PD™ CMG2 is targeted for passive EMCA implementations with either one or two e-marker chips on the cable.

## 1.1 EZ-PD™ CMG2 features

- Type-C support and USB PD support
  - Supports USB PD specification Revision 3.1 Version 1.4 and USB Type-C specification Revision 2.1 (including support for the revised minimum $V_{CONN}$ operating voltage of 3 V)
  - Integrated high-voltage protection on CC, $V_{CONN1}$, and $V_{CONN2}$ pins to protect against accidental shorts to the $V_{BUS}$ pin on the Type-C connector up to 54 V
  - 47-byte NVL programmable over Type-C interface for storing vendor-, device-, and cable-specific configuration data
  - Termination resistor $R_A$ on $V_{CONN1}$ and $V_{CONN2}$
  - Supports $R_A$ weakening to reduce power consumption
  - Supports electronically marked passive cable implementations with one or two controllers
  - Supports up to 240 W (48 V/5 A) of power
- Clocks and oscillators
  - Integrated oscillator eliminates the need for an external clock
- Power
  - 2.7 V to 5.5 V operation with 1.7 mA sleep current
- System-level ESD protection
  - On CC, $V_{CONN1}$ and $V_{CONN2}$ pins
  - ±8 kV contact discharge and ±15 kV air gap discharge based on IEC61000-4-2 level 4C
- Packages
  - 9-ball WLCSP
  - Supports industrial temperature range (-40°C to +85°C)

## 1.2 CMG2 block diagram

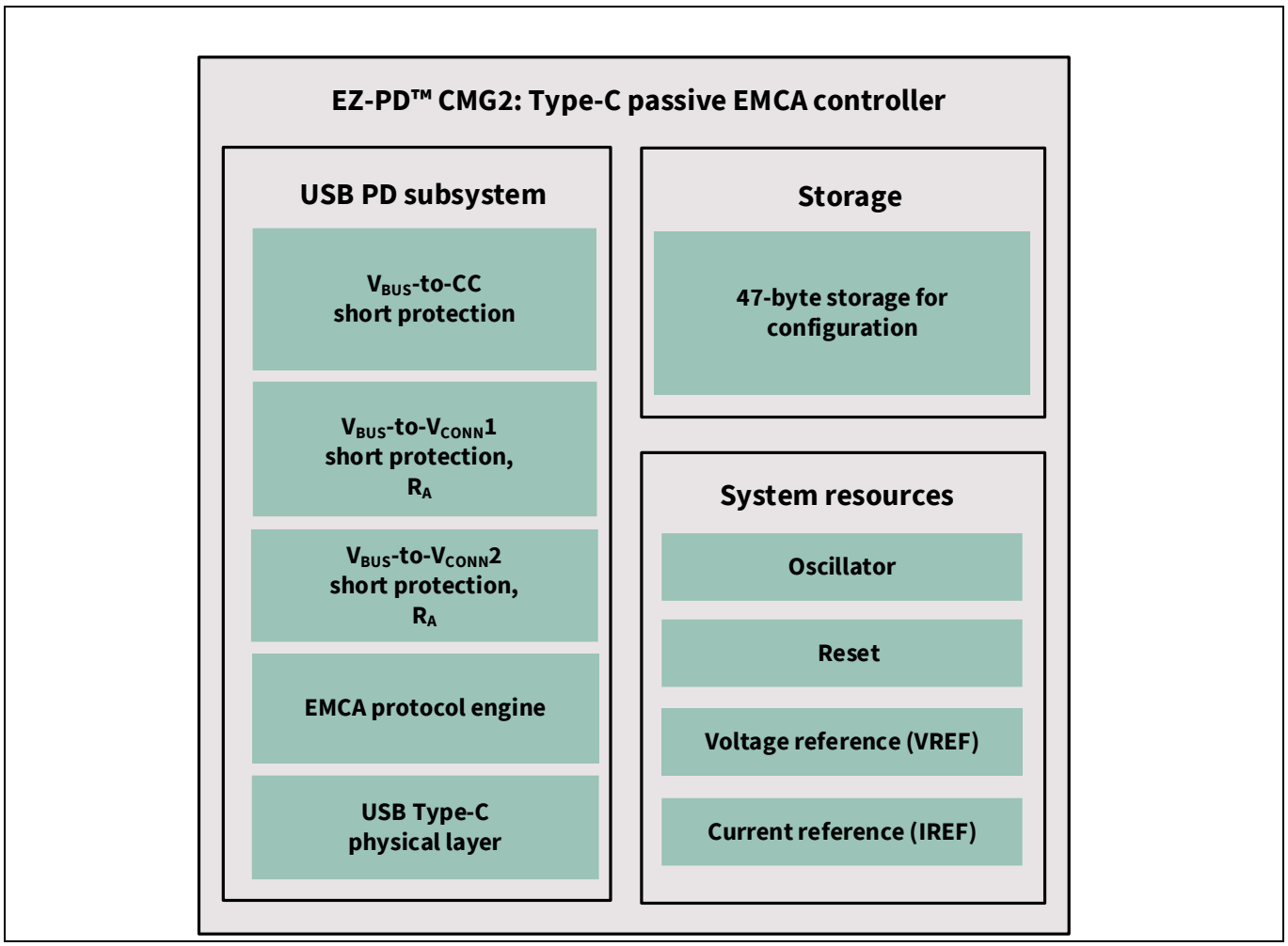


**Figure 1 EZ-PD™ CMG2 architecture block diagram**

## 1.3 Prerequisites

### 1.3.1 Hardware

- Power board from the CY4532 EZ-PD™ CCG3PA evaluation kit (EVK)
- PC with Windows 10 or later and at least one Type-A USB port
- CMG2-based passive EMCA cables
- 10-port USB 3.0 SuperSpeed hub (optional; required only for configuring/testing multiple CMG2-based passive EMCA cables)

### 1.3.2 Software

- USB EZ-PD™ Configuration Utility (version 1.4.0 or later) which includes the CMG2 MTK utility

## 1.4 CMG2 design flow

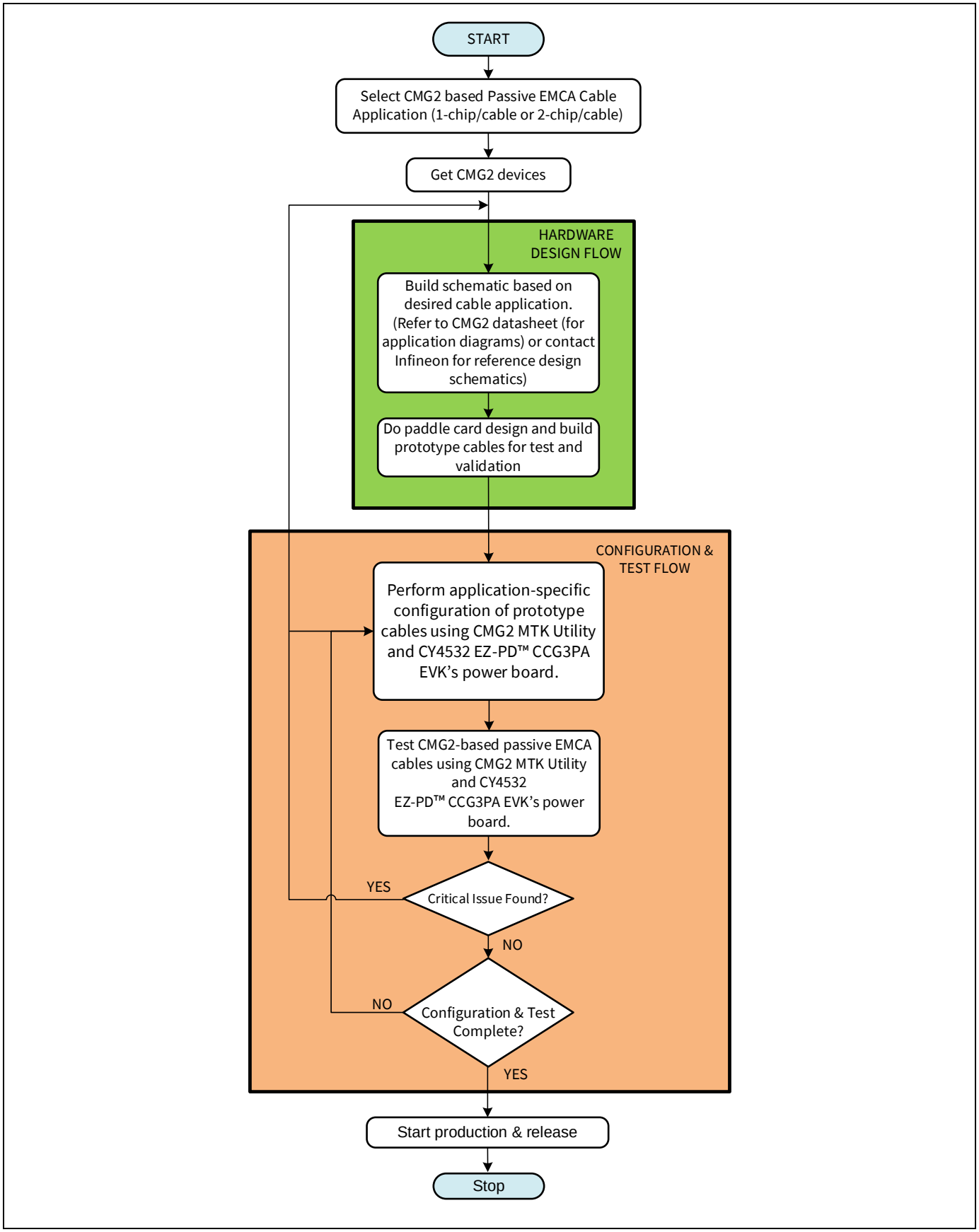


**Figure 2 CMG2 design flow**

**Hardware development phase:**

Select a CMG2-based cable application (one-chip/cable or two-chip/cable), review the reference designs, and start the hardware development phase of the design flow.

The hardware flow includes building schematics based on the end application and doing the paddle card design to get a few prototypes ready for the next phase.

**Configuration and testing phase:**

This phase requires a CY4532 EZ-PD™ CCG3PA EVK power board and USB EZ-PD™ Configuration Utility with MTK support.

CY4532 EZ-PD™ CCG3PA EVK power board is used to read/flash the configuration of CMG2.

USB EZ-PD™ Configuration Utility is used to create a configuration file (.CYACD) for the CMG2 device of the EMCA cables (.CYACD contains vendor IDs, DISC_ID, DISC_SVID, and DISC_MODES configuration). Once a configuration has been created, the CMG2 MTK utility included in the EZ-PD™ Configuration Utility is used for configuring (i.e., programming) and testing the designed cables. Up to 10 cables can be configured and tested simultaneously using the MKT utility. More information on the CMG2 MTK utility can be found in Chapter 4 (section 4.9) of the EZ-PD™ Configuration Utility user manual.

Once the hardware, configuration, and test flows are completed, the system design is ready for mass production.

## 1.5 CMG2 design resources

Table 1 lists the web resources available to help you design end applications using CMG2 devices.

**Table 1 CMG2 design resources**

| Category | Available resources |
|---|---|
| Datasheet | CMG2 datasheet |
| Hardware | CY4532 EZ-PD™ CCG3PA EVK – contains documentation and design files of the CY4532 CCG3PA EVK power board |
| Host PC software configuration and test tool | EZ-PD™ Configuration Utility 1.4.0 or later (Windows application to configure and test CMG2-based EMCA) for running the CMG2 MTK utility |

# 2 CMG2 hardware details

## 2.1 CY4532 EZ-PD™ CCG3PA EVK

The CY4532 EZ-PD™ CCG3PA EVK supports mobile power adapters, PC power adapters, power banks, car chargers, and other applications that primarily charge other devices via a Type-C interface. The kit is intended as an evaluation vehicle for USB host systems that house a Type-C connector. See the CY4532 EZ-PD™ CCG3PA EVK user guide for in-depth information about EVK use cases.

The CY4532 EZ-PD™ CCG3PA EVK consists of a power board and a main board. The CCG3PA device is mounted on the main board, which is connected to the power board to enable the CCG3PA device's Type-C port functionality.

For the CMG2 MTK test setup, the CY4532 EZ-PD™ CCG3PA EVK main board is not discussed further in this section, and only the CY4532 EZ-PD™ CCG3PA EVK power board is covered.

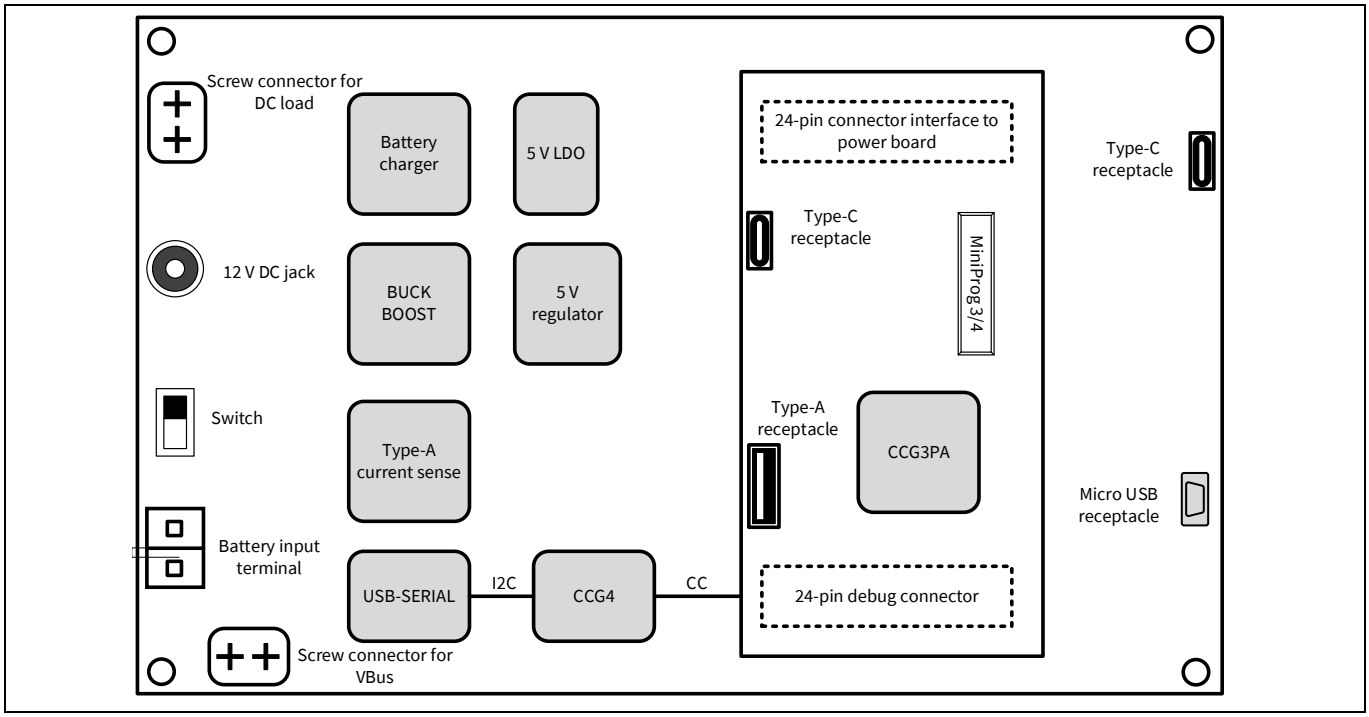


**Figure 3 CY4532 EZ-PD™ CCG3PA EVK architecture block diagram**

The CY4532 EZ-PD™ CCG3PA power board consists of the following:

- DC input terminal
- Battery input terminal
- Micro-B USB interface for the following:
  - Providing a connection from a host PC to Type-C devices (connected to the Type-C receptacle of the power board) via the USB-Serial and CCG4 devices over the CC line
  - Providing a connection from a host PC to the CCG3PA device on the main board for downloading/upgrading firmware
  - Powering the board when the DC input terminal and battery input terminal are not used
- Type-C port (to connect CMG2-based passive EMCA cables for configuration and testing)

- Regulators (to support battery charging and provide power for the Type-C interface; not used in this application)

## 2.2 CMG2 MTK hardware setup

As shown in Figure 4, a PC running the EZ-PD™ Configuration Utility is connected to a CY4532 EZ-PD CCG3PA EVK power board using a Type-A to Type-B Micro-B USB cable. The CMG2-based passive EMCA cable is connected to the Type-C receptacle of the CY4532 EZ-PD™ CCG3PA EVK power board.

The CMG2 MTK utility is included with the EZ-PD™ Configuration Utility. It can configure and test up to 10 CMG2-based passive EMCA cables in parallel. In cases where it is required to configure and test more than one CMG2-based passive EMCA cable at once, a SuperSpeed hub must be connected, as shown in Figure 5.

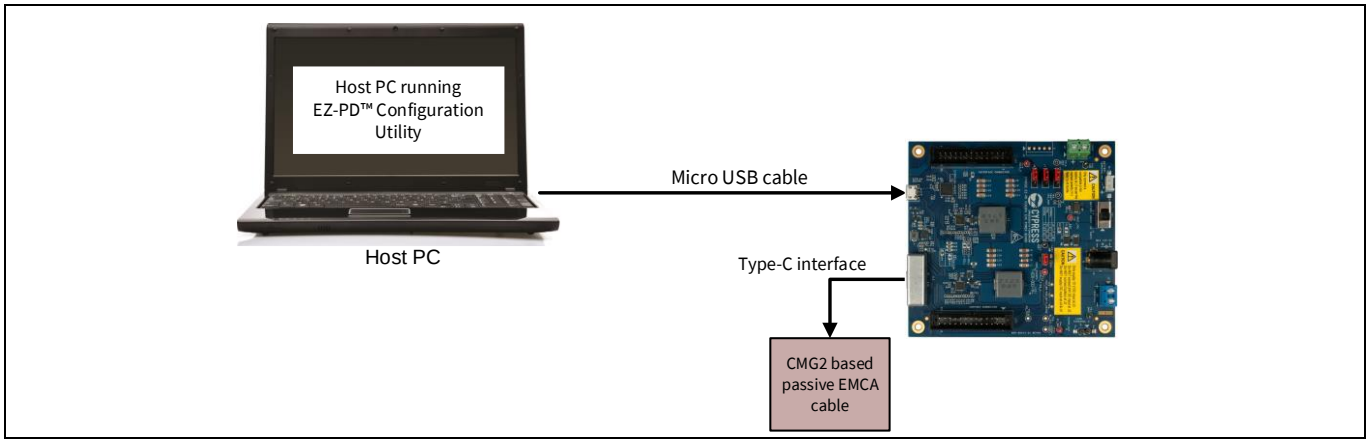


**Figure 4 System-level setup for running the EZ-PD™ Configuration Utility (single CMG2-based passive EMCA cable)**

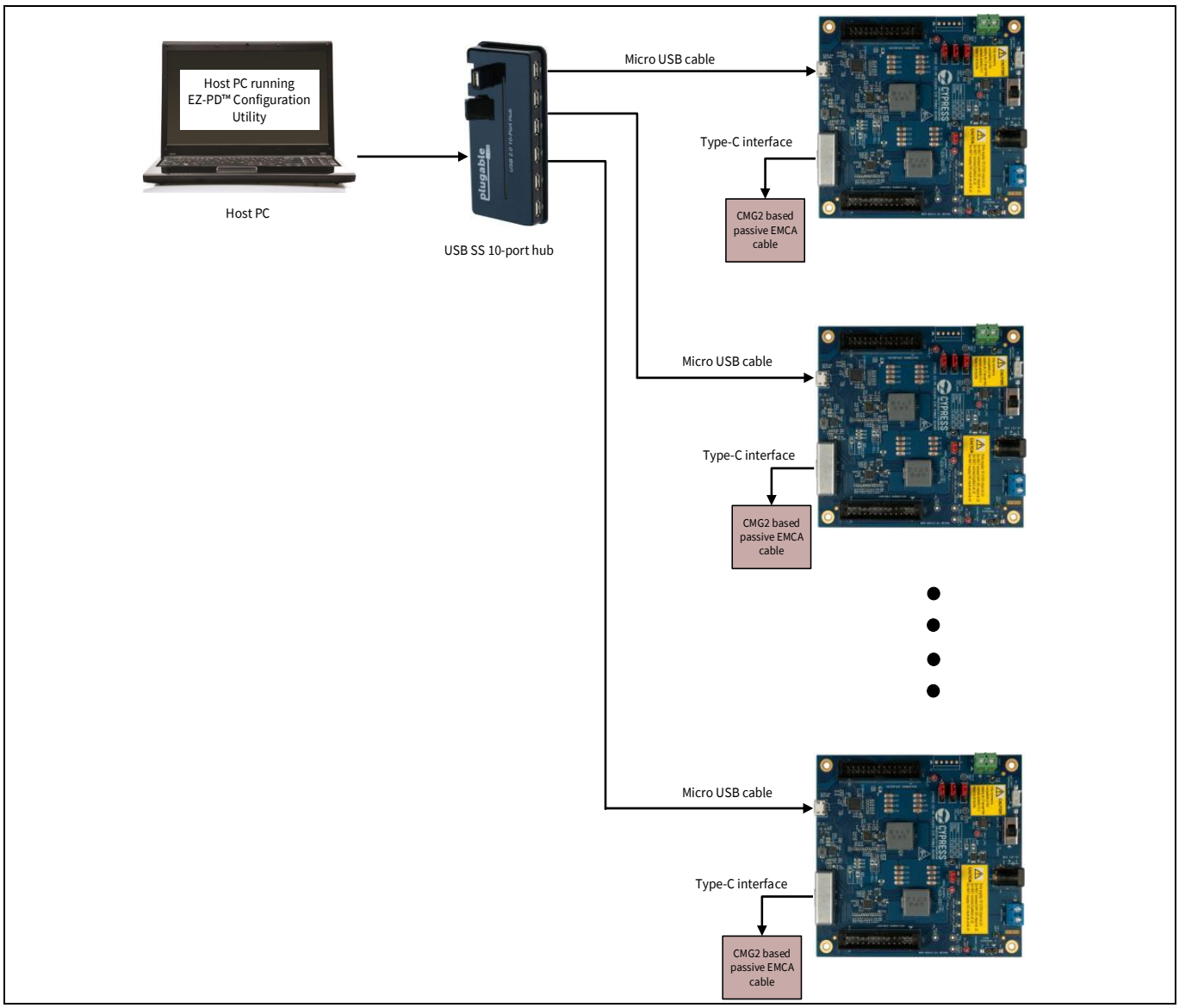


**Figure 5 System-level setup for running the EZ-PD™ Configuration Utility (multiple CMG2-based passive EMCA cables)**

For an overview of the EZ-PD™ Configuration Utility and the EZ-PD™ CMG2 MTK utility included with it, refer to section 4.9 in EZ-PD™ Configuration Utility user manual.

# 3 Software tool for CMG2-based application-specific configuration and testing

This section provides an overview of using the EZ-PD Configuration Utility and the included CMG2 MTK Utility with CMG2 based EMCA cables. CMG2 devices contain 47 bytes of NVL, which is used for storing configuration data. Because no firmware development is necessary (as CMG2 is a ROM-based part), CMG2 devices are not supported in any other Infineon tools such as PSoC™ Creator or PSoC™ Programming Solutions.

## 3.1 EZ-PD™ Configuration Utility and CMG2 MTK utility

The EZ-PD™ Configuration Utility is a Windows application that configures parameters stored in the configuration table areas of the internal flash memory of a CCGx device. Version 1.4.0 (or later) integrates and supports the CMG2 MTK utility. Vendor-specific and cable-specific parameters can be set using the EZ-PD™ Configuration Utility.

After setting the parameters, use the CMG2 MTK utility to configure and test CMG2-based passive EMCA cables. The CMG2 MTK utility is accompanied by a CMG2 MTK-specific firmware solution intended for the CCG4 device present on the CY4532 EZ-PD™ CCG3PA EVK power board. A high-level block diagram of how the CMG2 MTK utility communicates with the CMG2-based passive EMCA cable is shown in Figure 6.

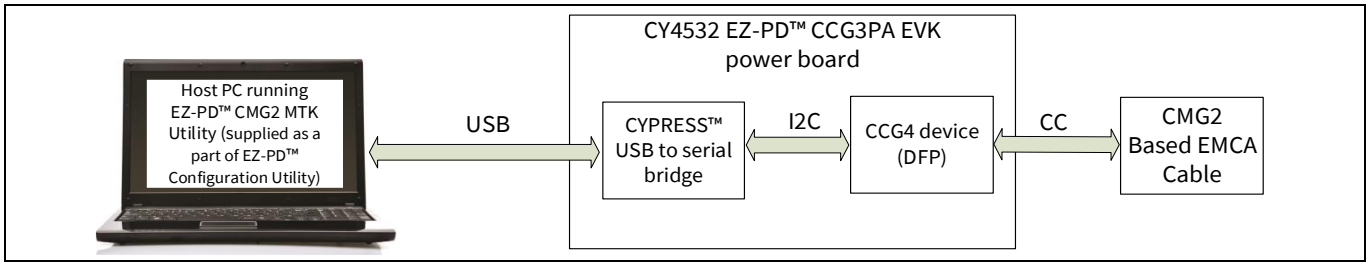


**Figure 6 CMG2 MTK utility block diagram**

The CCG4 device-based CMG2 MTK-specific firmware implements a unique application ID for the EZ-PD™ Configuration Utility to run the MTK-based firmware. It allows the CMG2 MTK utility to detect connected CMG2-based passive EMCA cables once it receives MTK configuring initiation commands.

You can download and install the EZ-PD™ Configuration Utility containing the CMG2 MTK utility from the USB EZ-PD™ Configuration Utility page. Figure 7 shows the start page of the utility.

## Software tool for CMG2-based application-specific configuration and testing

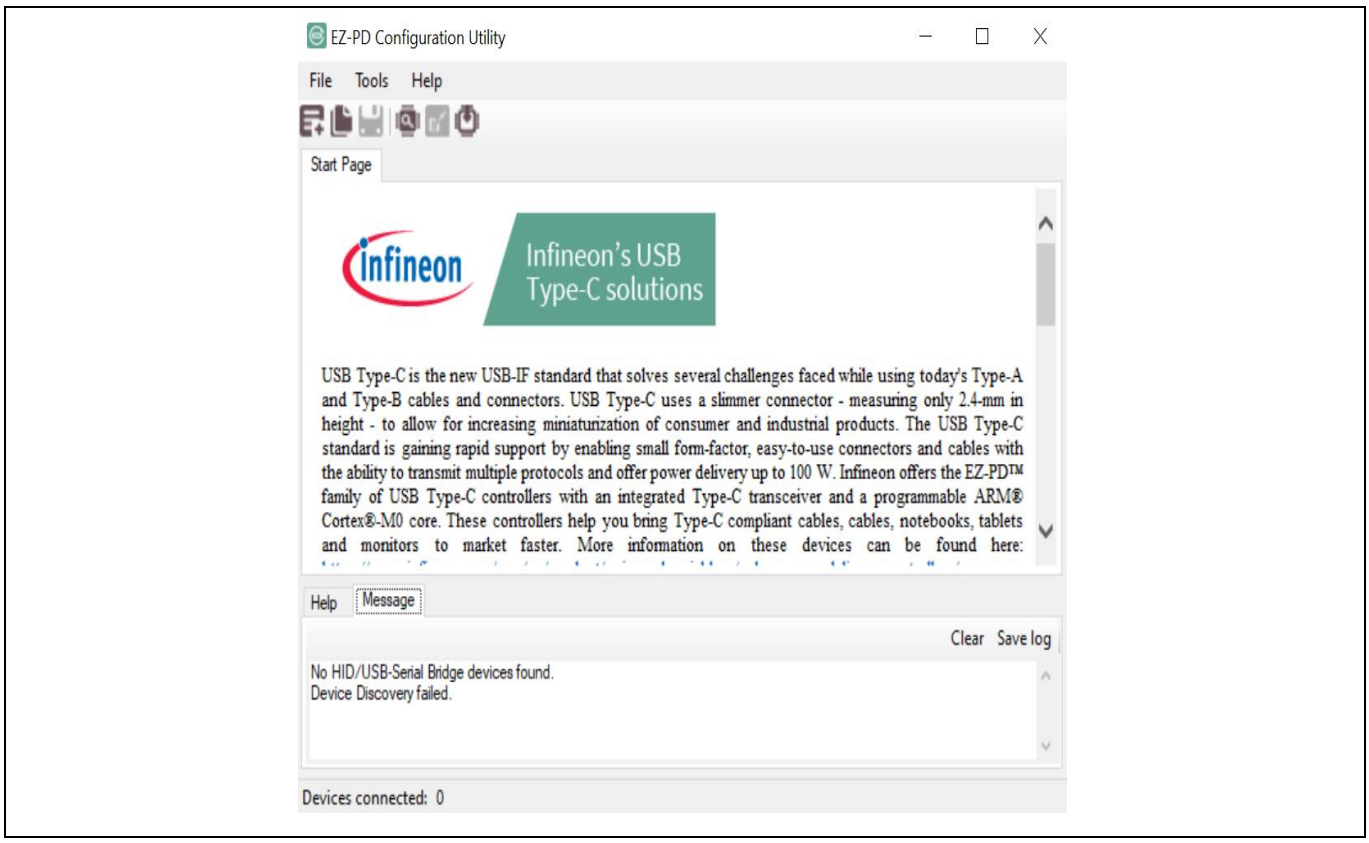


**Figure 7 EZ-PD™ Configuration Utility start page**

Use the CMG2 MTK utility supplied as a part of the EZ-PD™ Configuration Utility to do the following:

1. Configure CMG2-based EMCA cables. Cable configuration information can be saved in the form of an XML file.
2. Test CMG2-based EMCA cables.
3. Detect and communicate with up to 10 CMG2-based EMCA cables. Configure and test the attached CMG2-based passive EMCA cables independently in parallel.
4. Start and stop tests.
5. Report status of individually connected CMG2-based EMCA cables.
6. Provide a consolidated test report.
7. Test 10 CMG2-based EMCA cables in parallel within a timeframe of 10 s.

See Chapter 4 (section 4.9) of the EZ-PD™ Configuration Utility user manual for more details on how to configure and test CMG2-based passive EMCA cables.

# 4 Example showing the configuration and test of a CMG2-based passive EMCA cable

Configuring and testing CMG2-based EMCA cables using the CMG2 MTK utility involves four steps:

1. Update the firmware of the CCG4 device (MTK firmware path is available in Section 4.1.1 step 8) on the CY4532 EZ-PD™ CCG3PA EVK power board and configure an MTK tester ID (perform this step only once in the complete process of configuring the CMG2-based EMCA cables).
2. Connect the CMG2-based passive EMCA cable with the necessary hardware (CY4532 EZ-PD™ CCG3PA EVK power board) and a PC running the EZ-PD™ Configuration Utility.
3. Create and save a configuration file (CYACD format) for the connected CMG2-based passive EMCA cable using the EZ-PD™ Configuration Utility.
4. Configure and test the connected CMG2-based passive EMCA cable using the CMG2 MTK utility.

## 4.1 Update the firmware of the CCG4 device on CY4532 EZ-PD™ CCG3PA EVK and configure MTK tester ID

Updating the firmware of the CCG4 device enables the EZ-PD™ Configuration Utility running on the host PC to communicate with a CMG2-based passive EMCA cable connected to the CY4532 power boards; see Figure 6. You also need to set up a unique MTK tester ID for the CCG4 device to help identify each MTK hardware uniquely.

### 4.1.1 Updating the firmware of the CCG4 device

1. Download and install EZ-PD™ Configuration Utility (v1.4.0 or later) that supports the CMG2 MTK utility.
2. On the CY4532 EZ-PD™ CCG3PA EVK, carefully unmount the CCG3PA main board from the power board.
3. Remove the shunts on jumpers J6, J7, and J9 of the CY4532 EZ-PD™ CCG3PA EVK power board as follows:

**Table 2 Jumper settings for updating the firmware of the CCG4 device on the CY4532 EZ-PD™ CCG3PA EVK power board**

| Jumper header | Status |
|---|---|
| J6 | Open |
| J7 | Open |
| J9 | Open |
| J14 | N/A (the power LED is powered only when power is provided via the DC input terminal) |

*Note: The position of the input power selection switch (**SW1**) does not matter because power will be provided by the host PC over the Micro-B USB cable.*

4. Connect a USB Type-A to Micro-B cable from a host PC to connector J12 on the power board, as shown in Figure 8.

### Example showing the configuration and test of a CMG2-based passive EMCA cable

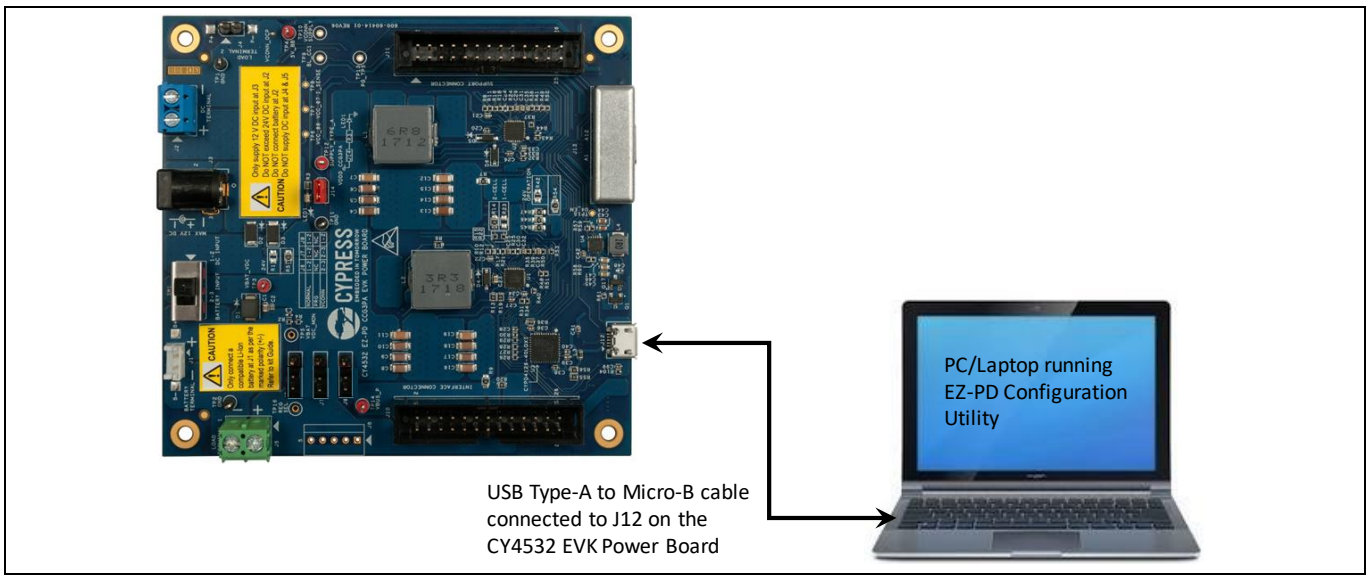


**Figure 8 Updating the firmware of the CCG4 device on the CY4532 EZ-PD™ CCG3PA EVK power board**

5. Launch the EZ-PD™ Configuration Utility, as shown in Figure 9.

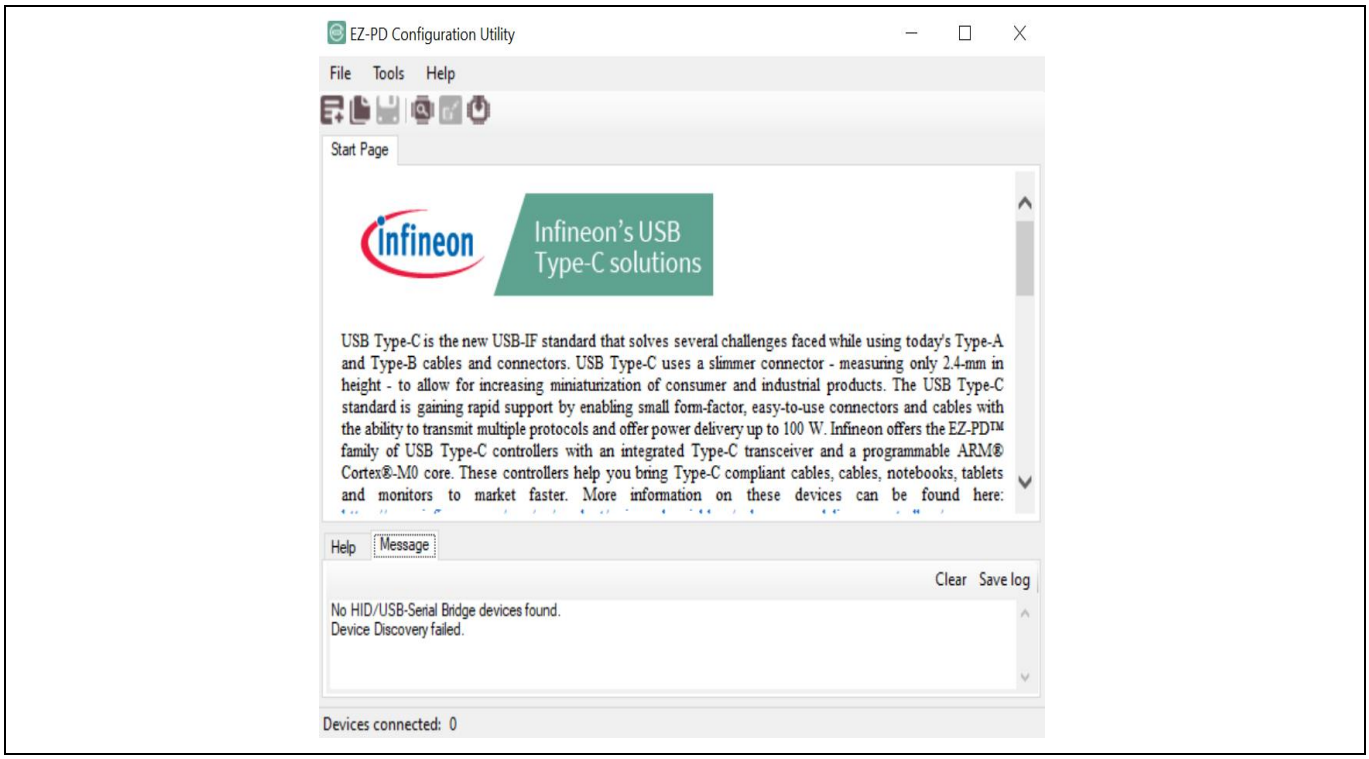


**Figure 9 EZ-PD™ Configuration Utility**

6. Select **Tools** > **Firmware** Update to update the firmware of the CCG4 device, as shown in Figure 10. For more details, see the EZ-PD™ Configuration Utility user manual.

## Example showing the configuration and test of a CMG2-based passive EMCA cable

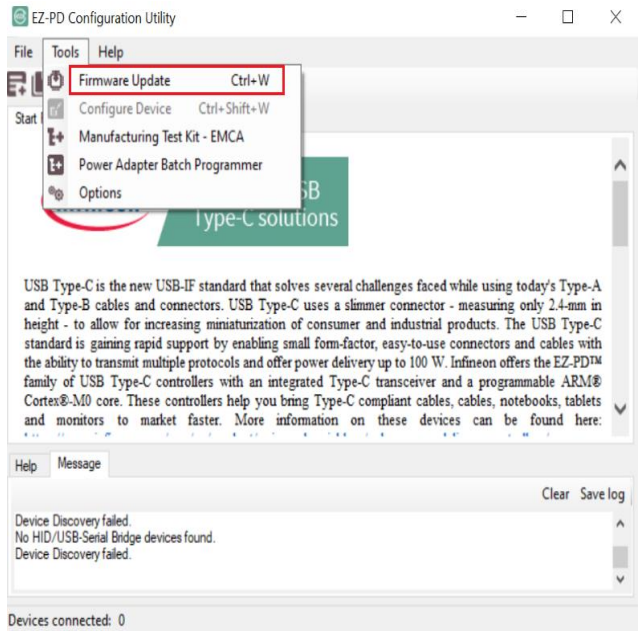


**Figure 10 Firmware update using EZ-PD™ Configuration Utility**

7. In the new window that pops up, provide the file location of the firmware that needs to be programmed in the CCG4 device. If the folder selected in step 1 was the default location of "C:\Infineon", then the required firmware is in the following local directory: "*C:\Infineon\Tools\EZ-PD Configuration Utility\Firmware\MTK*"
8. Select **NOTEBOOK** from the target list shown in Figure 11, click **Browse** next to the **Firmware path 1** text field, and browse to the local directory where EZ-PD™ Configuration Utility was installed. Next, double-click the *CYPD4126-40LQXI_mtk_1.CYACD* file to select it. Similarly, select the *CYPD4126-40LQXI_mtk_2.CYACD* file for **Firmware path 2**.

*Note:* Two CYACD files are required for programming the CCG4 device because the CCG4 device flash is organized in two 64-KB banks each with a separate copy of the firmware.

## Example showing the configuration and test of a CMG2-based passive EMCA cable

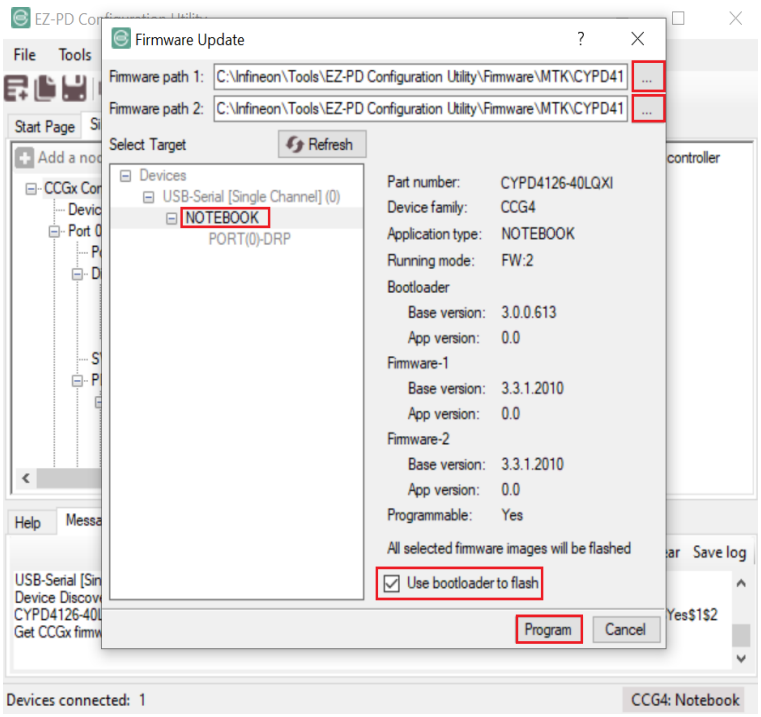


**Figure 11 Updating the CCG4 device's firmware using EZ-PD™ Configuration Utility**

9. Select **Use bootloader to flash**. Click **Program** after ensuring that all settings are correct.
   This firmware update process can take up to six minutes to complete. The flash of the CCG4 device's first flash bank is updated first, followed by an update of the second bank.
   **Warning:** Do not disconnect the CY4532 EZ-PD™ CCG3PA EVK power board while the firmware update is in progress.

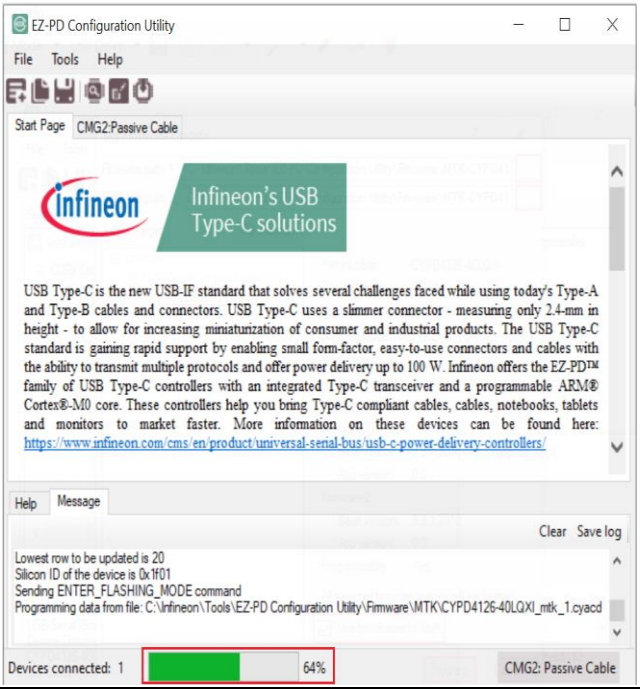


**Figure 12 Status bar showing firmware update progress**

10. If the firmware update process is successful, a window with the message “Flash updated successfully” is displayed as shown in Figure 13. Click **OK**.

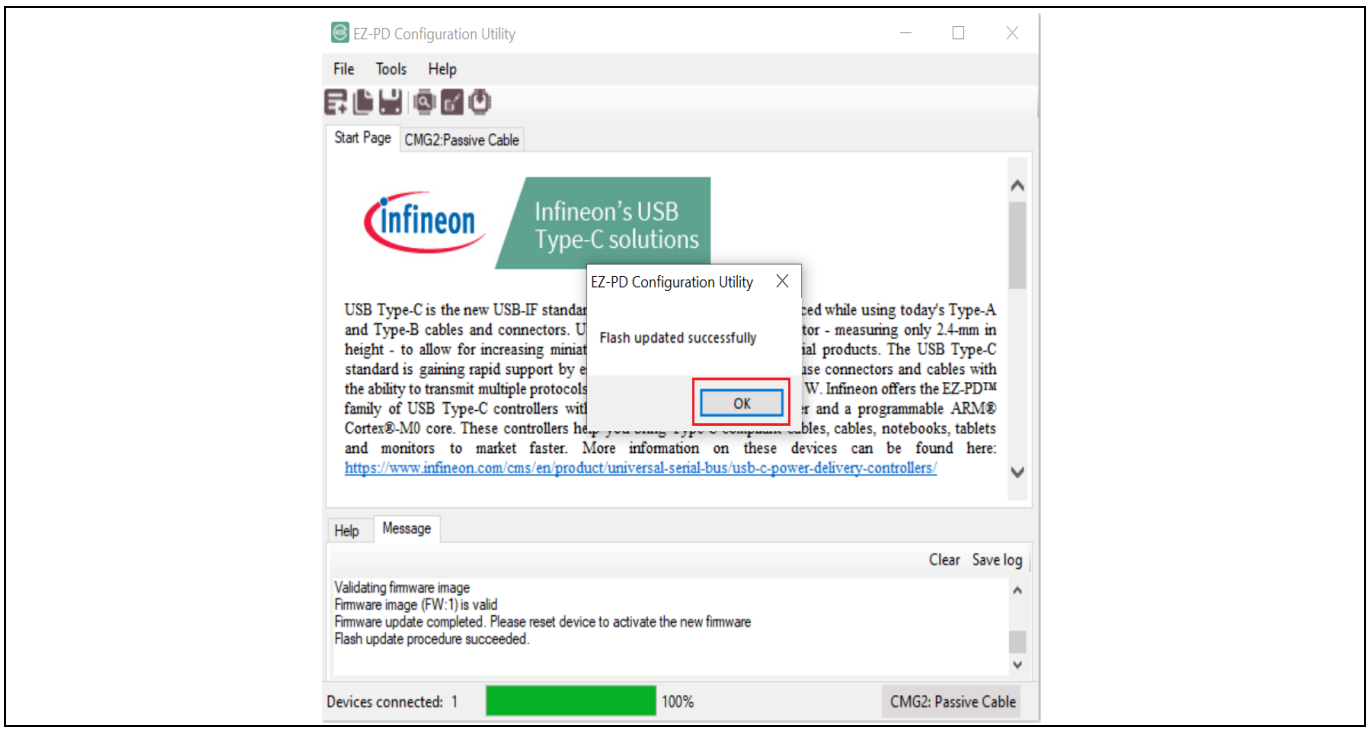


**Figure 13 Completion of firmware update process**

11. Recycle power to the CY4532 EZ-PD™ CCG3PA EVK power board by disconnecting and reconnecting the Micro-B USB cable from connector J12 of the power board. Do not close the EZ-PD™ Configuration Utility window to allow the setting up of the MTK tester ID.

### 4.1.2 Configuring the MTK tester ID for the CCG4 device on the CY4532 EZ-PD™ CCG3PA EVK

1. As a continuation of the previous section, select **File** > **Read from Device** to read the CCG4 device’s configuration parameters, as shown in Figure 14.

## Example showing the configuration and test of a CMG2-based passive EMCA cable

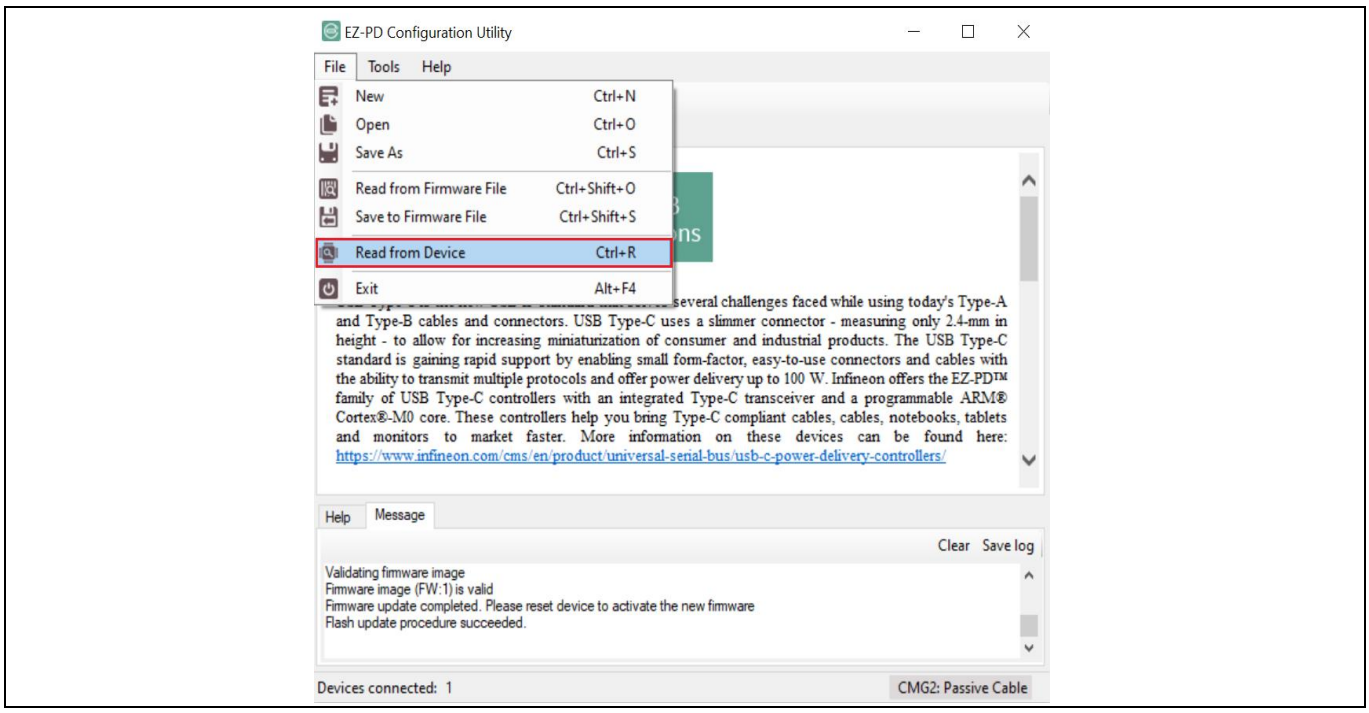


**Figure 14 Read configuration parameters of the CCG4 device**

2. In the **Read from Device** pop-up window, observe that the application type of the CCG4 device is updated to **MTK**. Select **MTK** from the target list as shown in Figure 15, and select the option **Use bootloader to read**. Click **Read** after ensuring all settings are correct.

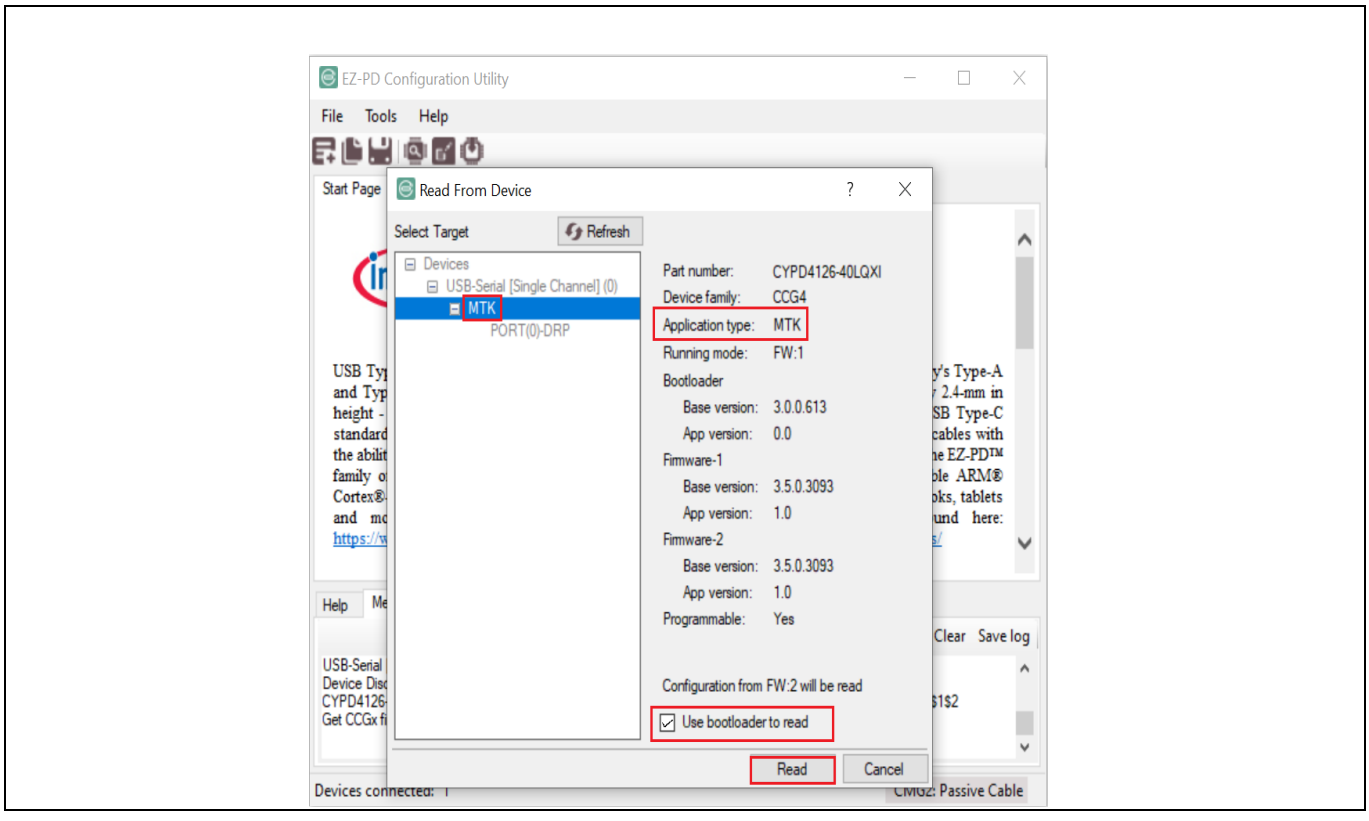


**Figure 15 Reading the CCG4 device's configuration parameters**

**Example showing the configuration and test of a CMG2-based passive EMCA cable**

3. The existing configuration parameters will now be read and displayed in the EZ-PD™ Configuration Utility under **CCGx Configuration** in the left-hand panel. Device configuration parameters are sub-classified into *Device Parameters*, *Port Parameters*, and *User Parameters*. Scroll down to the bottom of the left-hand panel and select **User Parameters**, as shown in Figure 16.

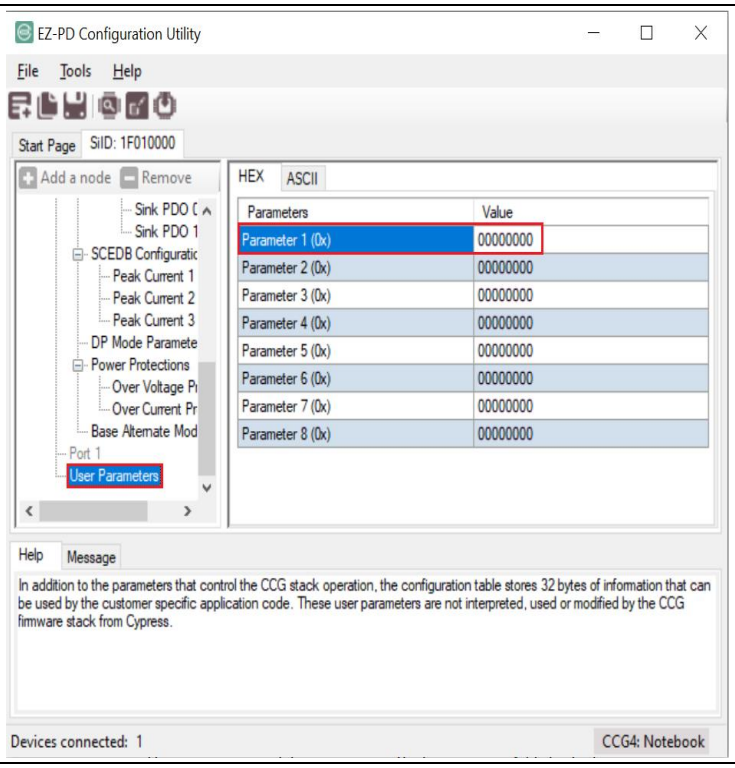


**Figure 16 Reading the User Parameters of the CCG4 device**

4. Update the value of **Parameter 1,** highlighted in Figure 16, with the tester ID.
   Tester IDs must be unique for all CY4532 EZ-PD™ CCG3PA EVK power boards that will be used simultaneously for configuration and testing.
5. Click **File** > **Save As** and save the modified configuration parameters of the CCG4 device as an XML file, as shown in Figure 17. The CYACD and C files are saved at the same location by default.

## Example showing the configuration and test of a CMG2-based passive EMCA cable

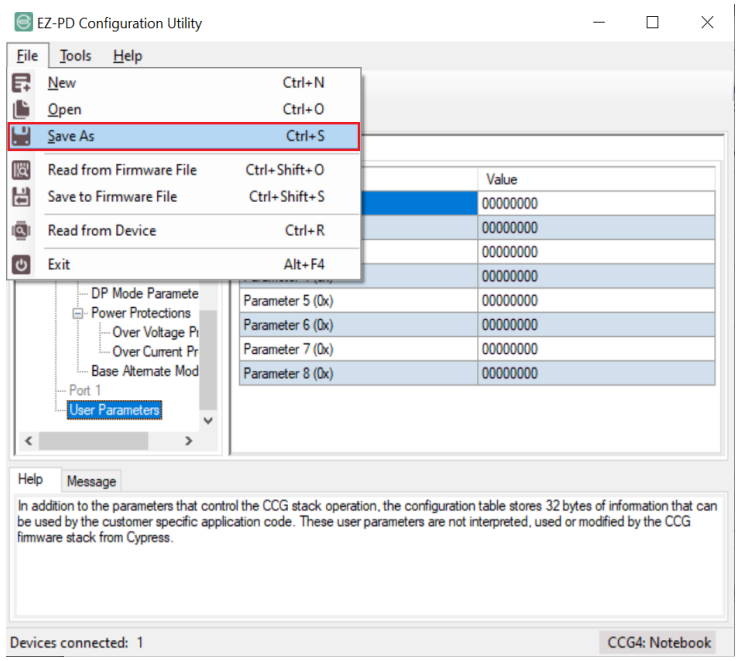


**Figure 17 Saving modified configuration parameters of the CCG4 device**

6. Click **Tools** > **Configure Device** to update the saved parameters in the CCG4 device, as shown in Figure 18. Click **Yes** on the message box if it appears.

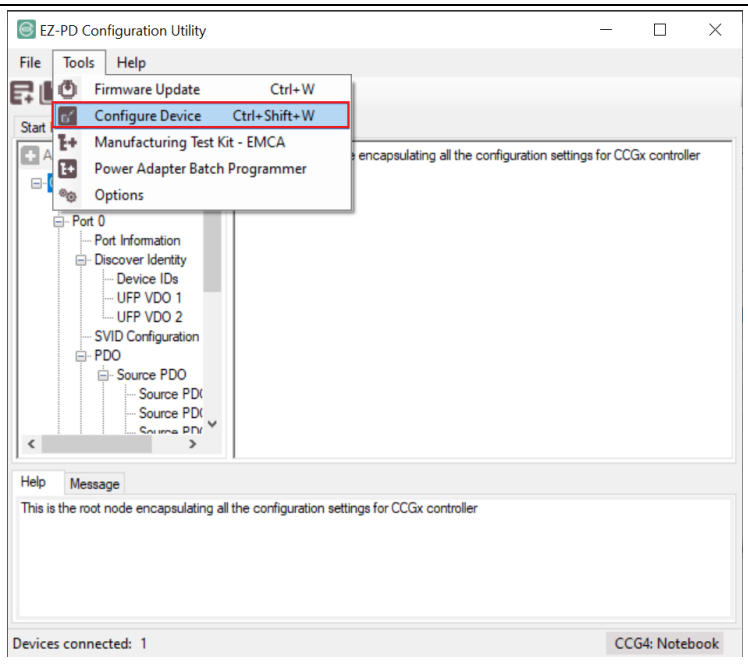


**Figure 18 Configuring the CCG4 device with the modified parameters**

7. Do the following in the **Configure Device** pop-up window (see Figure 19):
   a) Under Select Target, select MTK.
   b) Click **Browse** next to the **Configuration File** text field, select the CYACD file, and double-click the file to select it.
   c) Clear the **Use bootloader to flash** option.
   d) Click **Program**.

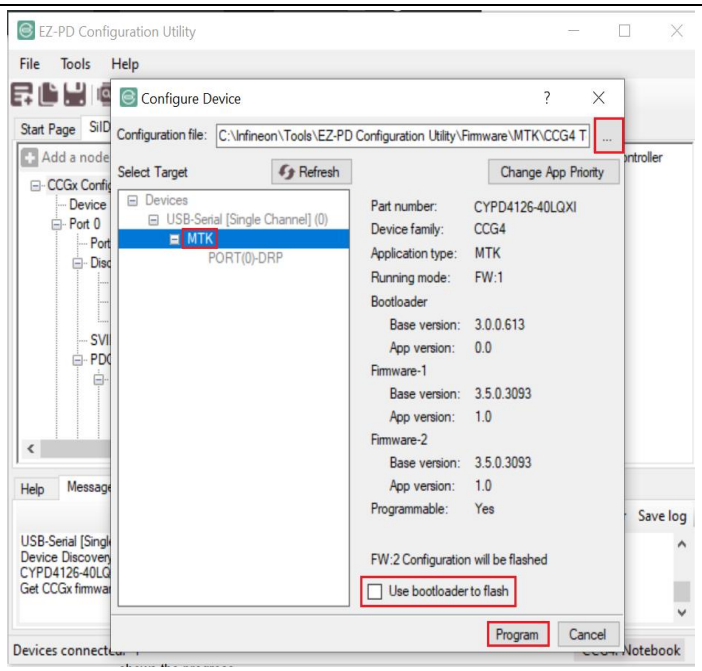


**Figure 19 Configuring the CCG4 device using EZ-PD™ Configuration Utility**

**Warning:** Do not disconnect the CY4532 EZ-PD™ CCG3PA EVK power board while the configuration of the device is in progress.

8. Once configuring the device is completed, a window with the message “Flash updated successfully” is displayed, as shown in Figure 13. Click **OK**.
9. Recycle power to the CY4532 EZ-PD™ CCG3PA EVK power board by disconnecting and reconnecting the Micro-B USB cable from connector J12 of the power board.
10. Repeat steps 1 to 3 to read the CCG4 device’s configuration parameters.
11. Verify that the value of Parameter 1 under “User Parameters” is set to the desired MTK tester ID value set in step 4.

This completes setting up the MTK tester ID value in the CCG4 device on the CY4532 EZ-PD™ CCG3PA EVK power board. Repeat the steps above to set up the MTK tester ID value for other MTK hardware if required. Finally, close the EZ-PD™ Configuration Utility and click **No** when prompted to save the current configuration.

## 4.2 System-level setup for configuration and test of a CMG2-based passive EMCA cable

1. Download and install the latest version of the EZ-PD™ Configuration Utility that supports the CMG2 MTK utility, if not done previously.
2. Carefully unmount the CCG3PA main board from the power board if already mounted. Ensure that the jumper settings on the CY4532 EZ-PD™ CCG3PA EVK power board are, as shown in Figure 20.

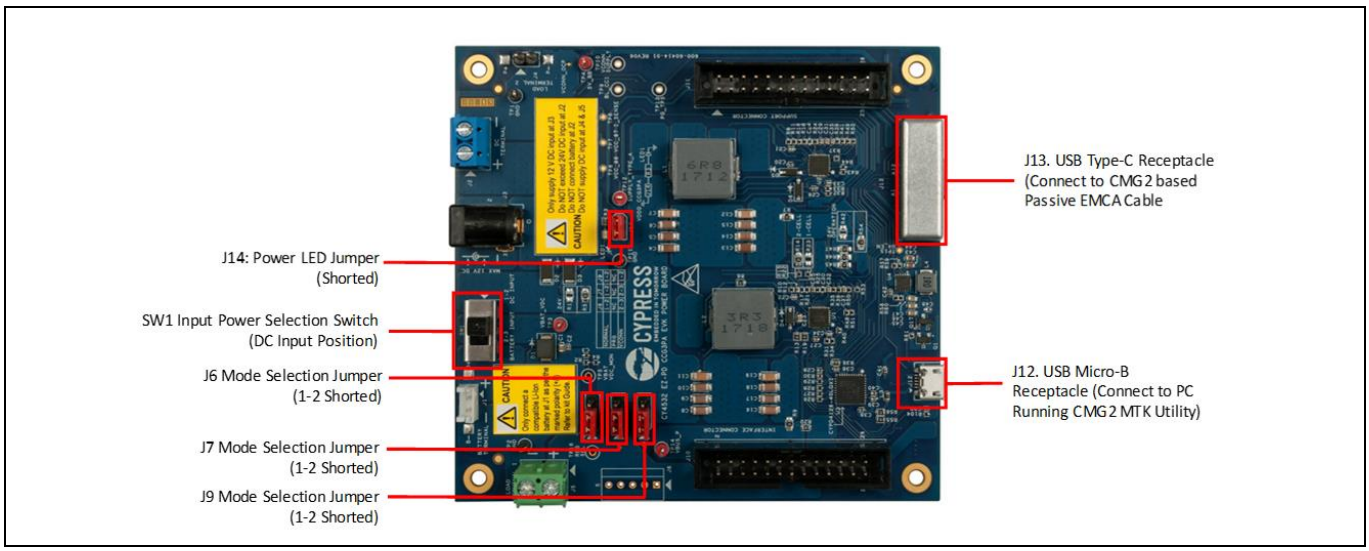


**Figure 20 CY4532 EZ-PD™ CCG3PA EVK power board jumper settings**

It is assumed that the CCG4 device of the CY4532 EZ-PD™ CCG3PA EVK is already updated with the firmware that supports the MTK utility prior to this step. Follow the steps in the previous sections (sections 4.1.1 and 4.1.2) if the firmware is not yet updated or if you are unsure which firmware is currently loaded in the CCG4 device of the CY4532 EZ-PD™ CCG3PA EVK power board. In this example, you will configure and test one CMG2-based EMCA cable.

3. Connect the CMG2-based passive EMCA cable to the CY4532 EZ-PD™ CCG3PA EVK power board, as shown in Figure 4 and repeated in Figure 21.

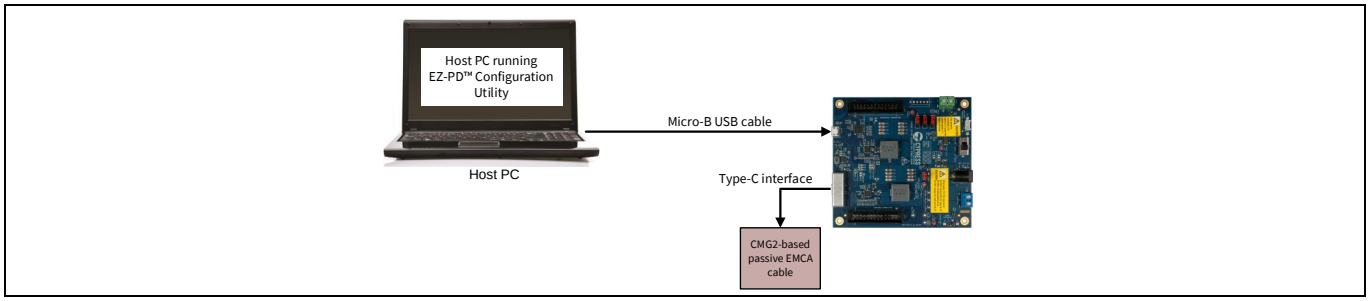


**Figure 21 System-level setup for running the EZ-PD™ Configuration Utility (single CMG2-based passive EMCA cable)**

The system-level setup for configuring and testing one CMG2-based passive EMCA cable is complete. For multiple CMG2-based passive EMCA cables, your setup should look like that shown in Figure 5.

## 4.3 Create and save a configuration file (.CYACD format) using the EZ-PD™ Configuration Utility

The system-level setup that was completed in the previous sections is used as a starting point for this section.

1. Ensure that the system-level setup (as described in sections 4.1 and 4.2) is completed.
2. Launch the EZ-PD™ Configuration Utility.
3. Click **File** > **New**.
   Do the following in the new pop-up window that appears:
   a) Select **CMG2** from the **Device Type** drop-down list.
   b) Select **Passive Cable** as the application type.
   c) Click **Create Project** after ensuring that your selection is in the pop-up window look like the window shown in Figure 22.

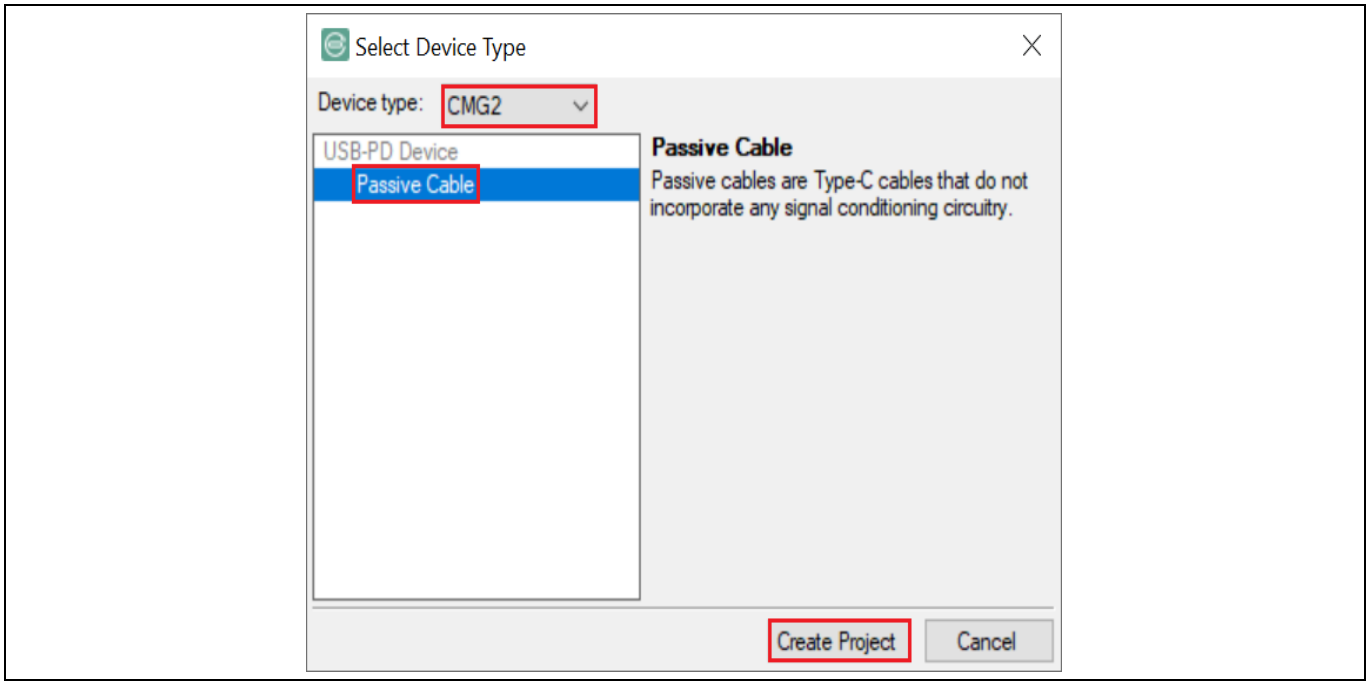


**Figure 22 Creating New Project in EZ-PD Configuration Utility**

4. The new project is created and displayed in a tree under CCGx Configuration in the left-hand panel as shown in Figure 23. A new tab **CMG2: Passive Cable** opens in the right-hand panel of the main window of the EZ-PD™ Configuration Utility. The project title is also highlighted in the bottom right-hand side of the EZ-PD™ Configuration Utility window.

### Example showing the configuration and test of a CMG2-based passive EMCA cable

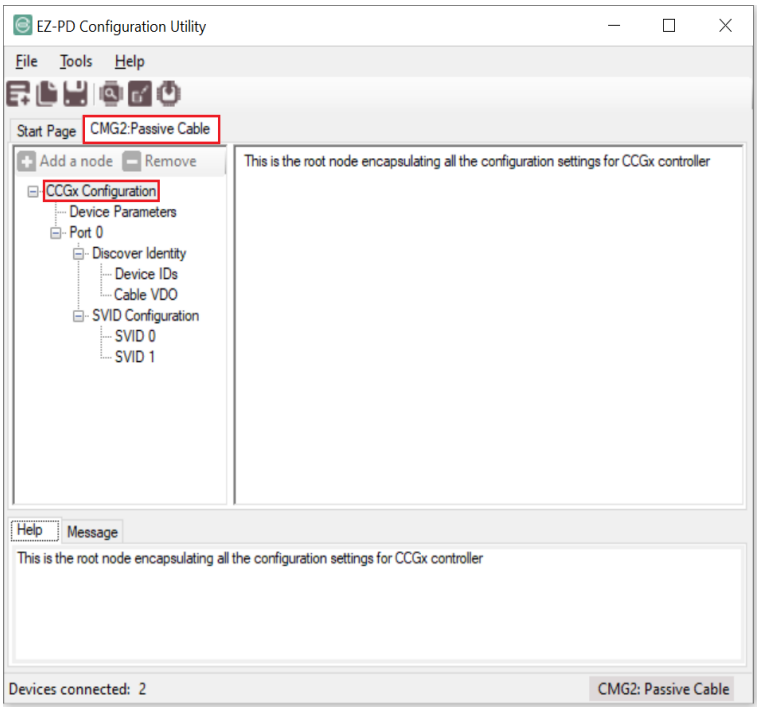


**Figure 23 Creating New CMG2 Passive Cable Project in the EZ-PD Configuration Utility**

5. Select **Device Parameters** in the left-hand panel. The EZ-PD Configuration Utility window will look like the window shown in Figure 24.

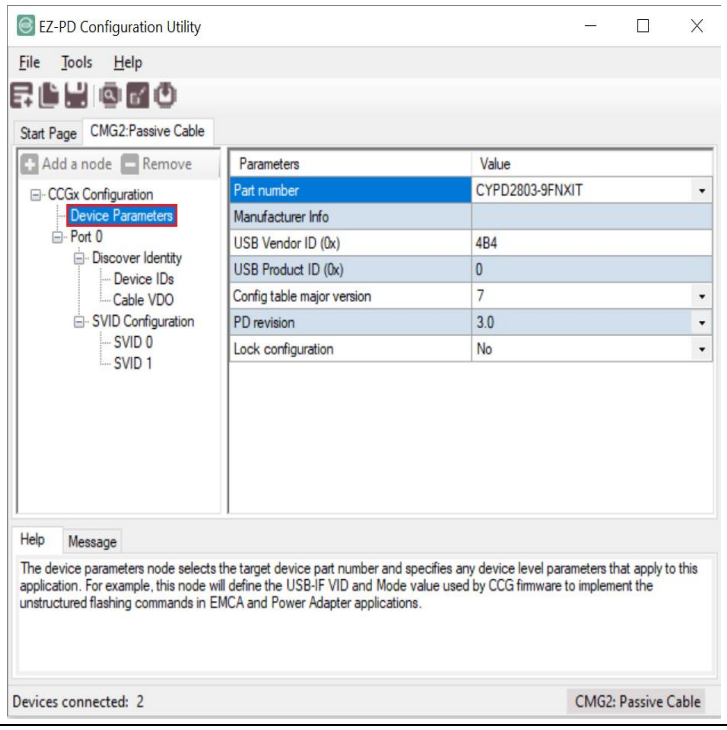


**Figure 24 Setting Device Parameters for a CMG2 Passive Cable Project**

**Example showing the configuration and test of a CMG2-based passive EMCA cable**

Do the following, as appropriate:

- Configure the required parameters using the drop-down menu next to each parameter.
- If creating a configuration file for the final production of CMG2-based passive EMCA cables, set the "Lock Configuration parameter" to **Yes**.

  Note: Enabling the "Lock Configuration" feature freezes all the configuration parameters once the steps for configuration and testing are complete, and those CMG2-based passive EMCA cables cannot be re-configured/tested in the future.

6. Click **Cable VDO** under **Port 0** > **Discover Identity** in the left-hand panel. The EZ-PD Configuration Utility window will look like the one shown in Figure 25. Configure vendor-defined object (VDO) related parameters specific to the cable in the right-hand panel. Parameters like cable hardware and firmware versions, cable type (Type-C to Type-A/Type-B/Type-C), connector type (plug or receptacle), cable termination, and so on can be set using the drop-down menu.

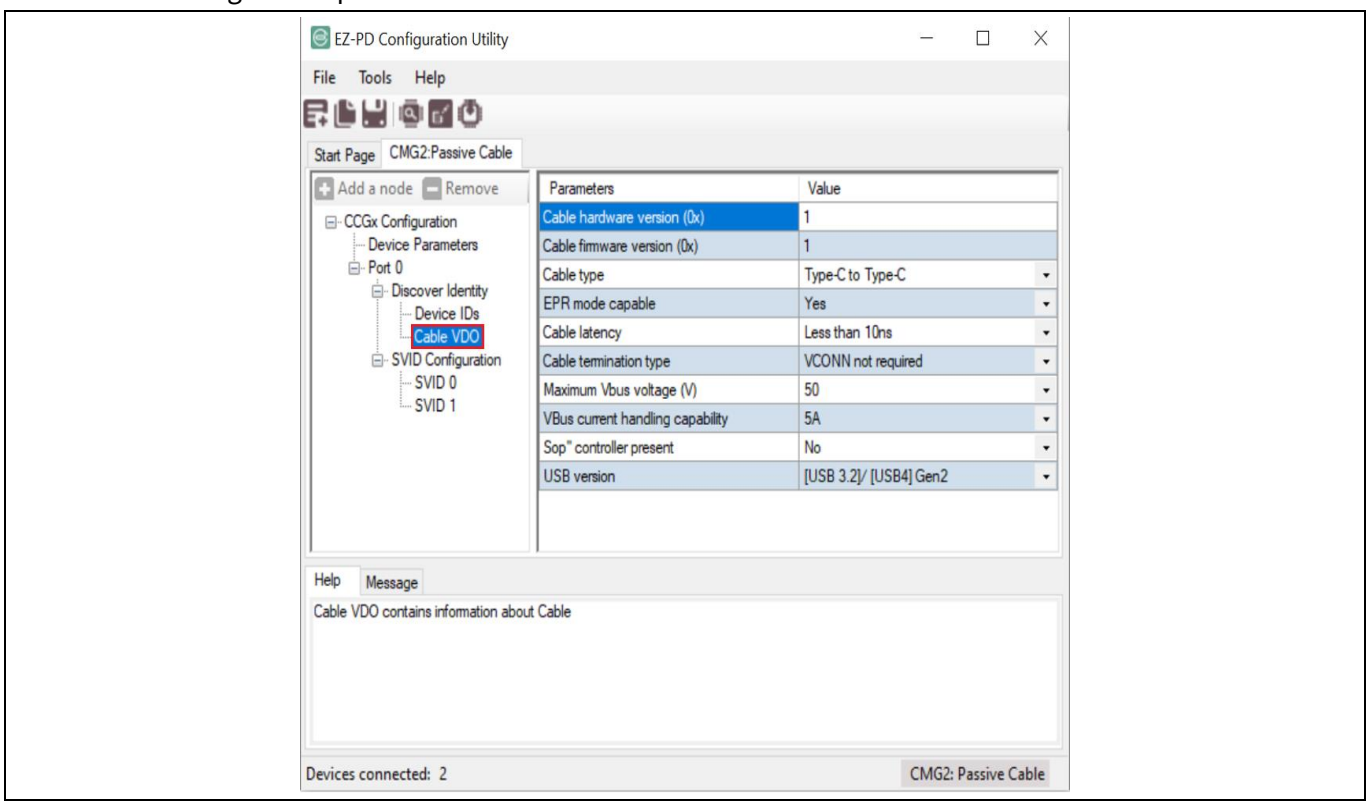


**Figure 25 Setting Cable VDO of CMG2 Passive Cable Project**

7. After setting the configurations of the desired parameters, save the newly created project. Then, click **File** > **Save As** and browse to a local directory to save the configured project, as shown in Figure 26. The updated configuration parameters are saved as an XML file. By default, the .CYACD and the .c files will be saved at the same location.

**Example showing the configuration and test of a CMG2-based passive EMCA cable**

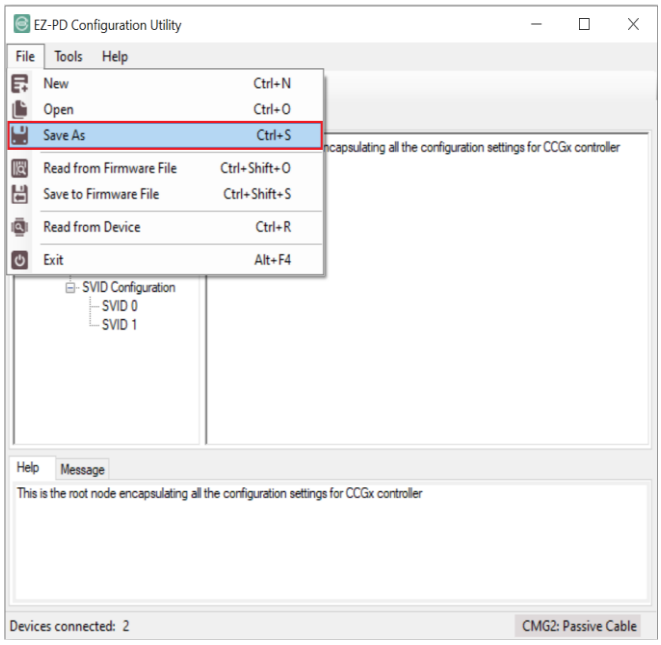


**Figure 26 Saving Configuration of CMG2 Passive Cable Project**

This completes the creation process of the configuration file for a CMG2-based passive EMCA cable.

## 4.4 Configure and test a CMG2-based passive EMCA cable using the MTK inside the EZ-PD™ Configuration Utility

1. Do one of the following:
   - If continuing from the previous section, select **Tools** > **Manufacturing Test Kit Tab**.
   - If re-launching the EZ-PD™ Configuration Utility, click **File** > **Open**, load the previously saved CMG2-based passive EMCA cable configuration file in XML format, and then select **Tools** > **Manufacturing Test Kit Tab** as own in Figure 27.

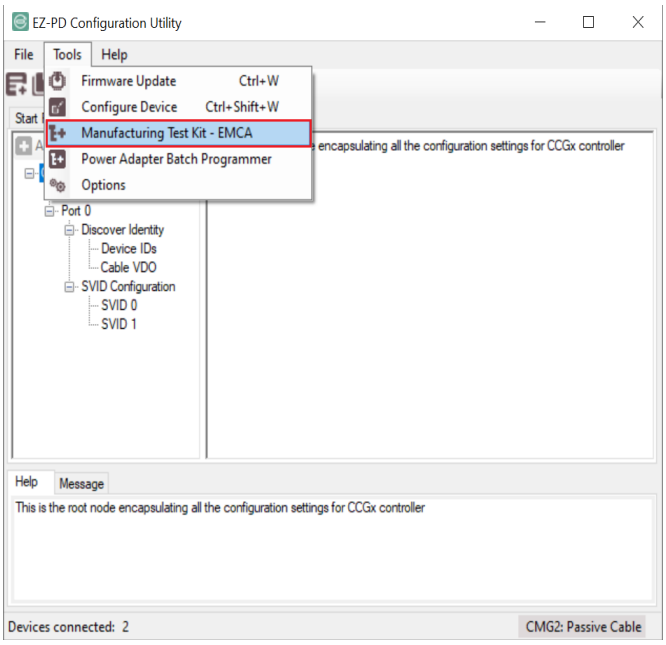


**Figure 27 Opening the Manufacturing Test Kit Tab in EZ-PD Configuration Utility**

### Example showing the configuration and test of a CMG2-based passive EMCA cable

This opens a new Manufacturing Test Kit tab in the main window of the EZ-PD Configuration Utility which will look like the window shown in Figure 28. CMG2 based passive EMCA cables can be configured and tested using this tab.

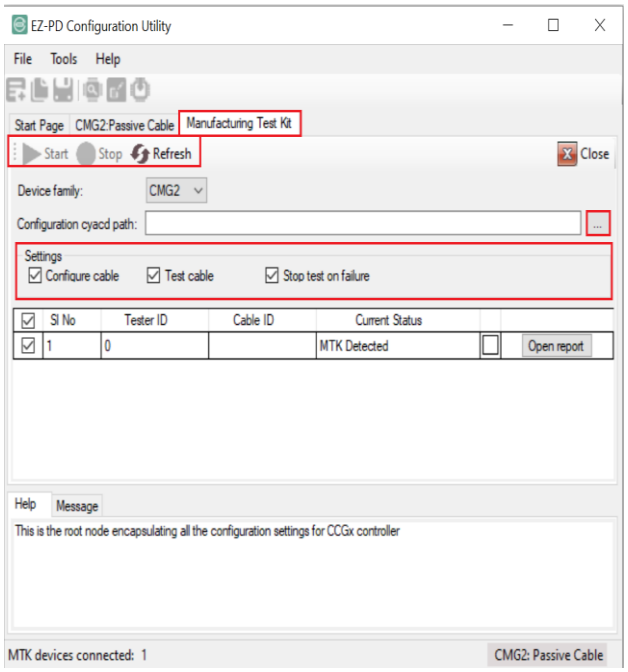


**Figure 28 View of Manufacturing Test Kit Tab in the EZ-PD Configuration Utility**

As highlighted in Figure 28 the input file to this tab is the configuration file of the CMG2-based passive EMCA cable in CYACD format. You can start or stop the configuration of the connected CMG2-based passive EMCA cables. You can also refresh the list of CMG2-based passive EMCA cables connected using Refresh.

2. From the **Settings** options, you can select whether to configure the connected cable(s) or test them. The field also provides the ability to stop an already running test upon failure detection.

   The display window shows a table listing CMG2-based passive EMCA cables connected to the MTK setup. It lists the serial number of the connected MTK hardware, the tester ID of the connected MTK hardware, the cable ID of the connected CMG2-based passive EMCA cable, its current status (Pass/Fail/Configuring/Testing) and corresponding LED color, and "**open report**" to open the report of an already-tested CMG2-based passive EMCA cable. Click **Open report** to view the logs and reports of each completed test that the EZ-PD™ Configuration Utility has saved.

   A message window in the lower half of the EZ-PD™ Configuration Utility displays the progress of the configuration or the test activities.
3. Click **Browse** next to the **Configuration CYACD path** field and browse to the local directory where your saved configuration file in CYACD format is located.
4. Select the options under **Settings** for the desired action to configure and test the CMG2-based passive EMCA cable. Click **Start**.

   Upon clicking Start, the EZ-PD™ Configuration Utility executes the steps selected in the **Settings** fields to configure and/or test the CMG2-based passive EMCA cable connected to the MTK setup. After the configuration and testing are completed, the EZ-PD™ Configuration Utility window will run the MTK test. If multiple CMG2-based passive EMCA cables have been connected, they will also be listed in the display window, and the EZ-PD™ Configuration Utility window running the MTK test will look like the window shown in Figure 29 and Figure 30.

## Example showing the configuration and test of a CMG2-based passive EMCA cable

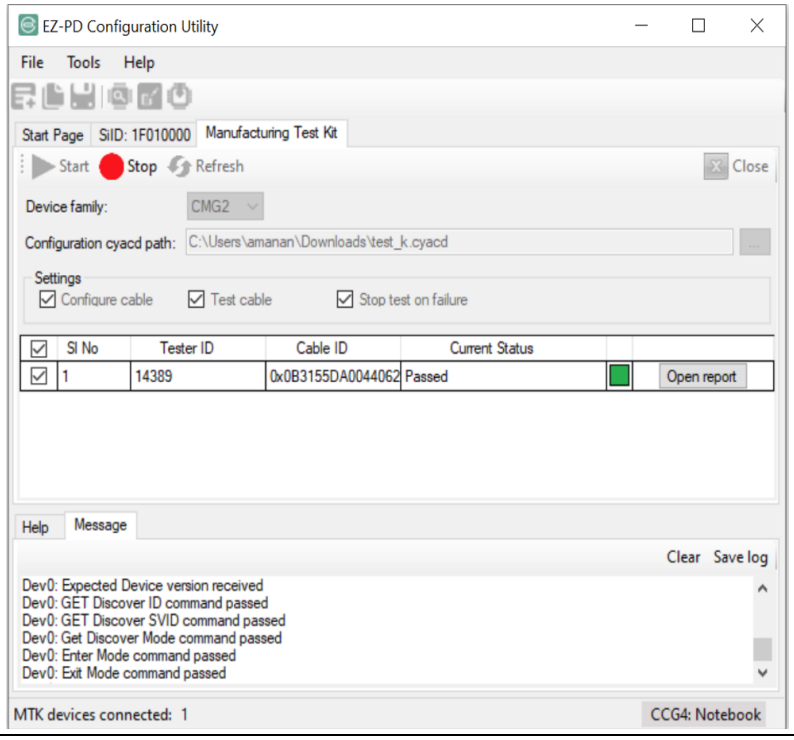


**Figure 29 Completion of Configuration & Testing of a Single CMG2 based Passive EMCA cable**

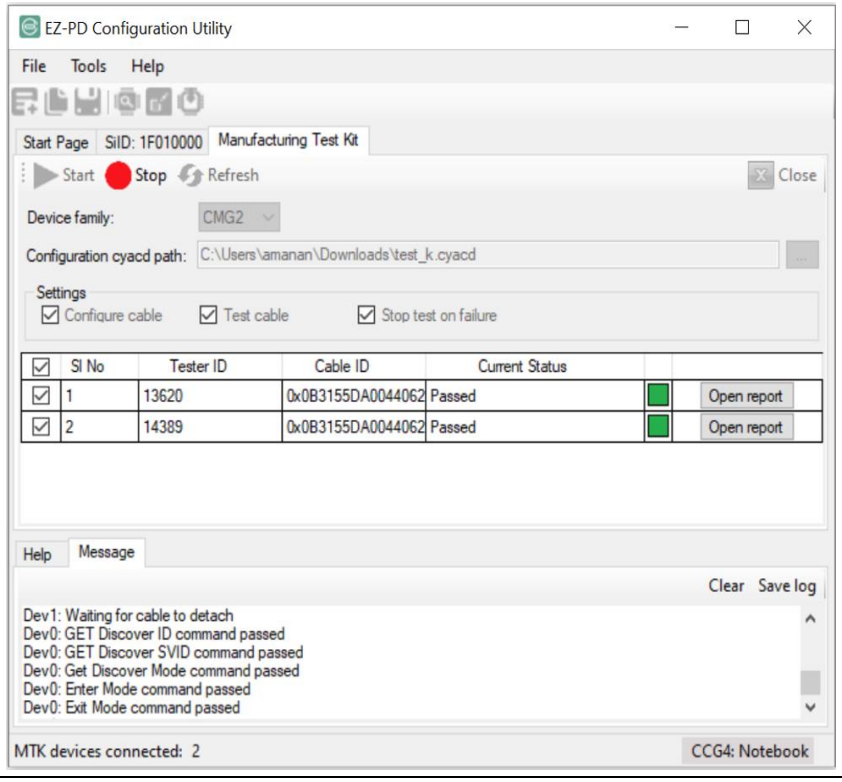


**Figure 30 Completion of Configuration and Testing of Multiple CMG2 based Passive EMCA Cables**

### Example showing the configuration and test of a CMG2-based passive EMCA cable

When the table in the display window is populated with results, the configuration and testing activity of the connected CMG2-based passive EMCA cable is complete. Then, the CMG2 MTK utility enters a wait state, waiting for the configured cable to be detached and a new cable to be attached. This feature is beneficial if there are CY4532 EZ-PD™ CCG3PA EVK power boards and several CMG2-based passive EMCA cables to configure and test.

Use one of the following options:

- **Option 1**: Retain the current settings and configure/ test another cable
  a) Without clicking any button or changing any setting on the **Manufacturing Test Kit** tab that is already open, detach the already-configured CMG2-based passive EMCA cable and connect the next CMG2-based passive EMCA cable.
  b) After configuring and testing all CMG2-based passive EMCA cables, click **Stop** to end the process.
  c) View the Message window to observe the progress of the completed configuration and test of the connected CMG2-based passive EMCA cables.
  d) Click **Close** at the top right-hand corner to close the **Manufacturing Test Kit** tab.
- **Option 2**: End the configuration and test process. This is for a scenario where you need to configure and test a single CMG2-based passive EMCA cable.

See Chapter 4 (section 4.9) of the EZ-PD™ Configuration Utility user manual to learn more about the CMG2 MTK utility. You can also select the menu item **Help > User Manual** in the EZ-PD™ Configuration Utility to access this user manual.

## Revision history

| Document revision | Date | Description of changes |
|---|---|---|
| ** | 2022-11-03 | Initial release. |
| *A | 2023-05-08 | 1. Updated Figure 11 to Figure 19.<br>2. Added Figure 22 to Figure 30.<br>3. Updated EZ-PD™ Configuration Utility tool version number to 1.4.0 throughout the document.<br>4. Added EZ-PD™ Configuration Utility user manual's section numbers for MTK details throughout the document.<br>5. Updated Figure 2, 7, 9, 10.<br>6. Updated section 1.4 details.<br>7. Added "CCG4 MTK firmware" path in section 4.1.1. |

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