

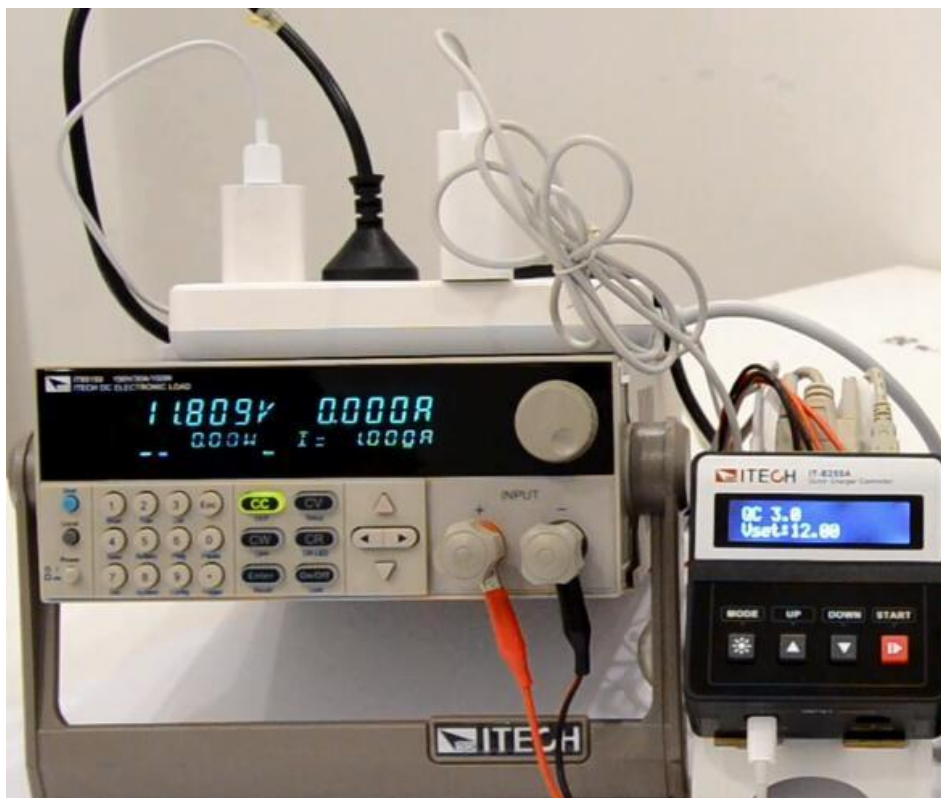
The Test and Evaluation of MI USB-C Power Supply Adaptor

This year, we saw fast development of USB Power Delivery. Interface TYPE-C which supports the protocol of USB PD for charging is used in more and more consumer electronics ranging from smart phones, tablets, laptops, etc.

To evaluate the performance of a quick charger, first of all, we need to test its compatibility of quick charger protocols, and then the loading performance. We purchased a MI USB-C adaptor which assert itself to be compatible to QC2.0, QC3.0 and USB PD protocols. We know that most electronic loads in the market don't support quick charge protocol, but we found that ITECH's new arrival product IT-E255A, quick charger controller, can perfectly do the job. The box supports QC2.0/QC3.0/PE/PE2.0/USB PD, and more importantly, it can communicate with electronic load (such as ITECH IT8500+). We can set loading mode and value on it. Here I'd like to show you the test procedure for one power supply adaptor which is very popular in the market, MI USB-C adaptor.

1. Preparation

There are two input interface on IT-E255A, Mini-USB and TYPE-C which connect to the DUT. After connecting IT-E255A to an electronic load, the test begins.



Connection of MI Adaptor, ITECH IT-E255A and IT85150

- a) IT-E255A can be adapted to the charging protocol automatically. Type-C supports USB PD2.0, QC3.0 and QC2.0 protocols.
- b) The display showed that the charging PD protocol version of MI adaptor is USB PD 2.0, which can support 5V/3A, 9V/3A, 12V/3A, 15V/3A and 20V/2.25A output.
- c) Load maximum current under the five PD positions: 5V/3A, 9V/3A, 12V/3A, 15V/3A, 20V/2.25A and test the output voltage and power.



USB PD 2.0 POS1 5V/3A



USB PD 2.0 POS2 9V/3A



USB PD 2.0 POS3 12V/3A



USB PD 2.0 POS4 15V/3A



USB PD 2.0 POS5 20V/2.25A

Load maximum current under the five PD positions

2. Press 'Mode' Button and choose QC3.0. Click 'START'. IT-E255A can induce the MI USB-C adaptor to output with 0.2V increasing step starting from 5.0V. The adaptor can output according to settings of the quick charger controller.

Under QC3.0 mode, induce the adaptor to output 6.0V, 7.0V, 8.0V, 9.0V, and CC loading and test the voltage and power by the electronic load.



QC 3.0 6.0V



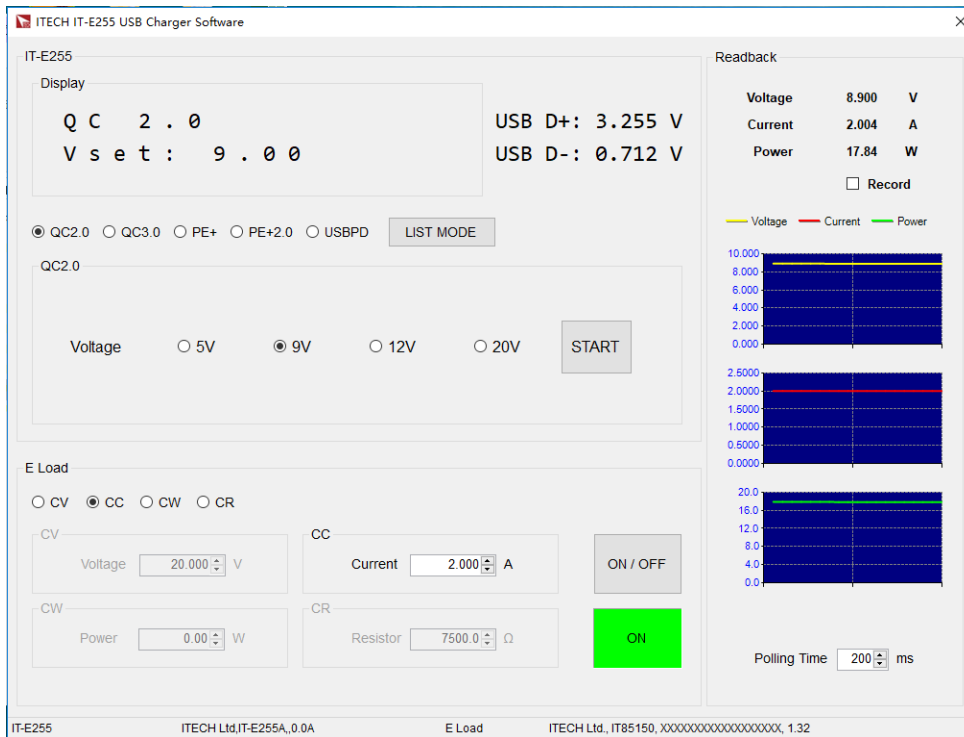
QC 3.0 7.0V



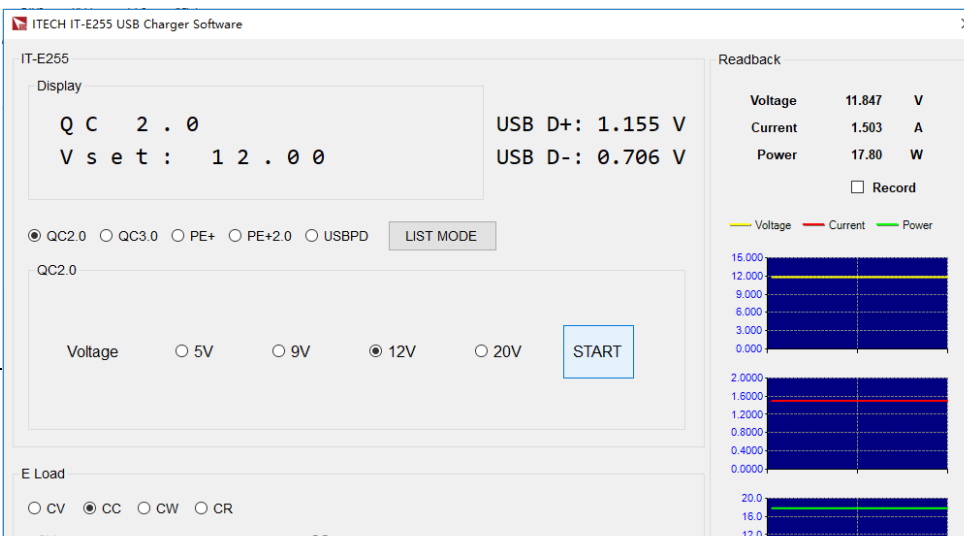
QC 3.0 9.0V

3. If you don't like manual operation, you can remote control it by software. Connect IT-E255A to computer by USB cable. Download the free software and proceed the test. Here shows the two tests I did.

a) Output of QC2.0 9.0V



b) Output of QC2.0 12.0V



Website:



We can see that it is very easy to operate the test with the quick charger controller. The display can show the curves of voltage, current and power. The electronic load can be controlled freely. Besides, it has list automatic loading function and can carry out OCP test, etc. In addition, the data can be downloaded and off-line working without computer which is very convenient.