

As for PFC's DC 110V input compliance, I got a comment that it is possible to set the starting voltage low for DC 110V input by changing the detection resistance dividing ratio of UCC28056_ZCD / CS pin.

So we changed the R5 constant of the EVM, evaluated the operation at DC 110V, and confirmed that it can be started up with DC 85V.

As a result of confirming the operation at AC 100 V again under that condition, waveform abnormality occurred near the peak of PFC input current at LLC rated load (about 100 W).

We have confirmed that this is caused by changing the R5 resistance value of EVM from 3.24 MΩ to 1.237 MΩ for DC 110 V input support.

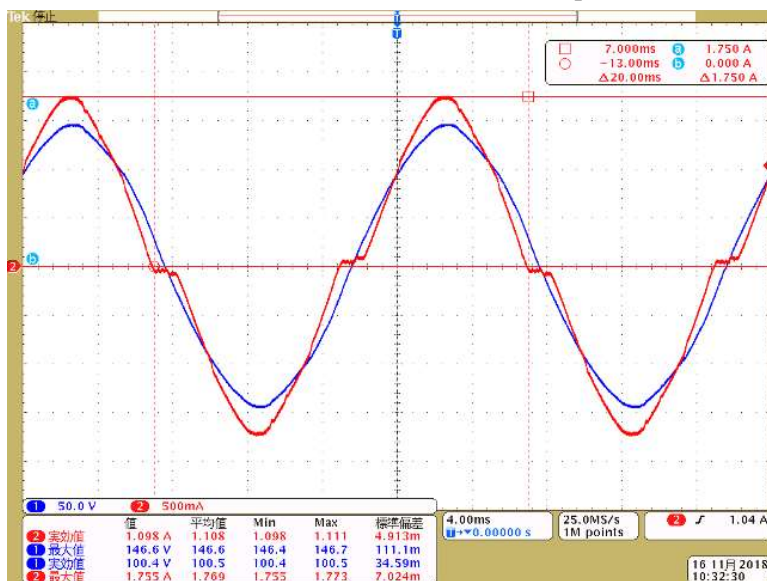
Please tell us about this malfunction, whether current waveform distortion can be improved. The observation results of defect behavior are shown below.

<UCC28056+UCC256302 During rated load operation, failure observation result >

1. Input : AC100V (Comparison test with **autotransformer** AC variable power supply and CVCF 2 inputs)
autotransformer is <https://en.wikipedia.org/wiki/Autotransformer>
2. Output : Removed D1 and D2 of LLC_EVM, jumper wired D1, D2 - K and DC 380 V + of PFC.
3. Test conditions : (LLC_EVM (transformer modified), output setting: 5 V 10 A, 24 V 2 A (rated load))
 Smooth capacitor capacity : PFC_C13 = 110 μF, LLC_C 16 = 120 μF, PFC_C 10 added 1470 pF in parallel.
4. Test results (Vcc_UVLO avoidance), (against malfunction of PFC_OV protection)

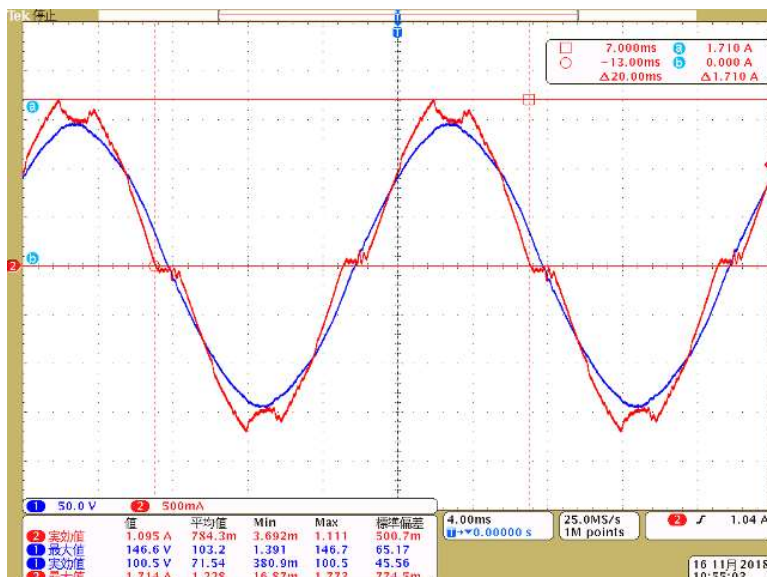
4-1. Input AC 100 V (when using **autotransformer**)

4-1-1. PFC_R 5: 3.24 MΩ (Default state) Input current waveform is normal.



- ① Blue :PFC_Vin [50V/div]
- ② Red :PFC_Iin [0.5A/div]
- H:[4mS/div]

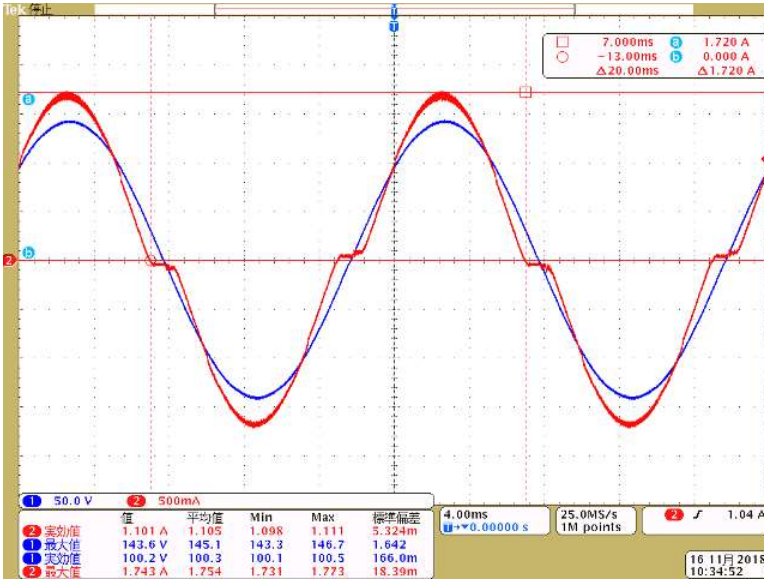
4-1-2. Changing to PFC_R 5: 1.237 MΩ **Abnormality occurs in the peak of the input current waveform.**



- ① Blue :PFC_Vin [50V/div]
- ② Red :PFC_Iin [0.5A/div]
- H:[4mS/div]

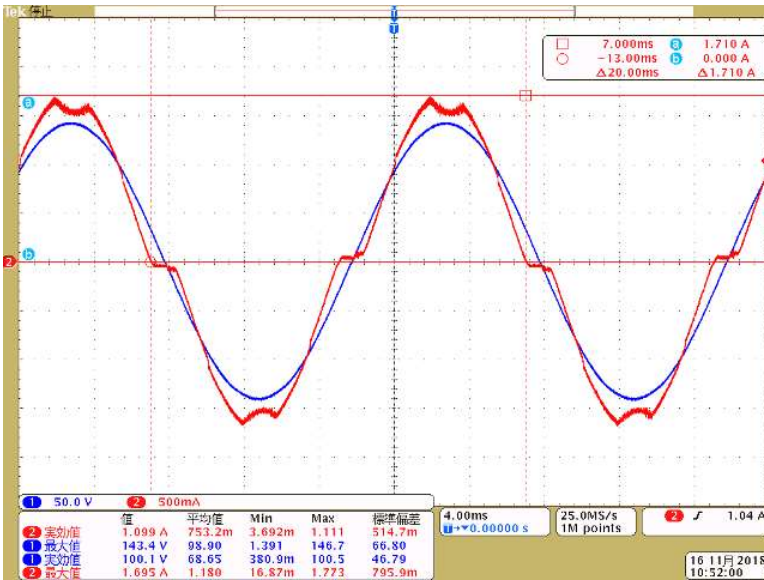
4-2. Input AC 100 V (when using CVCF)

4-2-1. PFC_R 5: 3.24 MΩ (Default state) Input current waveform is normal.



- ① Blue:PFC_Vin [50V/div]
- ② Red :PFC_Iin [0.5A/div]
- H:[4mS/div]

4-2-2. PFC_R 5: Changed to 1.237 MΩ Abnormality occurs in the peak of the input current waveform.



- ① Blue:PFC_Vin [50V/div]
- ② Red :PFC_Iin [0.5A/div]
- H:[4mS/div]