

Table 1 Design parameters of the fast kicker power supply.

Parameters	B Ring extraction Kicker	S Ring injection Kicker
Extraction current	5 000 A	2 270 A/2 610 A
Time length	$\geq 1\ 000\ \text{ns}$	$= 140\ \text{ns} / 1\ 000\ \text{ns}$
Time error	$< \pm 1\%$	$< \pm 1\%$
Rising time	$< 850\ \text{ns}$	$< 200\ \text{ns}$

## 7 - 9 R&D Progress of HIAF DC Power Supplies for the Beam Lines and Terminals

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To standardize the design and production of the power supply, some typical DC (Direct Current) prototypes have also been developed for the beam lines and terminals. The DC power supply adopts a modular digital high frequency switching scheme. All the DC power supply prototypes have been completed successfully. Figure 1 shows the output voltage ripple of the 100 A/17 V power supply. The ripples reach  $1.8 \times 10^{-5}$  in a 100 kHz switching frequency situation and  $1.12 \times 10^{-5}$  in a 145 kHz switching frequency situation. Nowadays, the DC power supplies have been completed craft review and batch bidding. They are currently in production and assembly. Figure 2 shows the physical image of the DC power supplies when they are assembled.

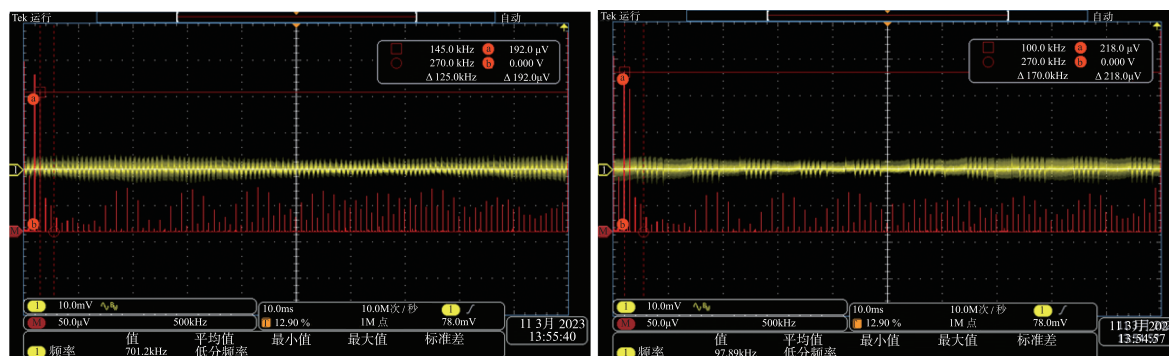


Fig. 1 (color online) The output voltage ripple result of the 100 A/17 V power supply. The left panel is the voltage ripples reach  $1.8 \times 10^{-5}$  in a 100 kHz switching frequency situation. The right panel is the voltage ripple reaches  $1.12 \times 10^{-5}$  in a 145 kHz switching frequency situation.



Fig. 2 (color online) The picture of the DC power supply after assembly.