**Case1: a 8.8 Hz self-excited mode caused by deliberately detuned IBR current loop: DEF is effective**

A screenshot of a graph

Description automatically generated

**A screenshot of a computer

Description automatically generated**

**Case 2: a 1.5 Hz self-excited mode caused by high power output of IBR with low system strength: DEF fails**

**A screenshot of a graph

Description automatically generated**

A screenshot of a computer screen

Description automatically generated

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**Case 3： a 7-bus system with 1 SG (bus 5) and 5 IBR( bus 3,4,5,6,7). 18.76Hz Oscillation caused by badly tuned voltage control of A4 and A7 (A7 worst)**

A screenshot of a graph

Description automatically generated



A screenshot of a computer

Description automatically generated

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