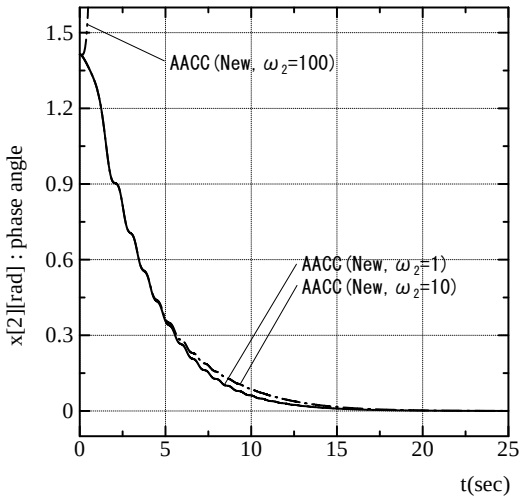

Fig. 12 Responses of AACC
$(x^T(0) = [0, 1.414, 0])$

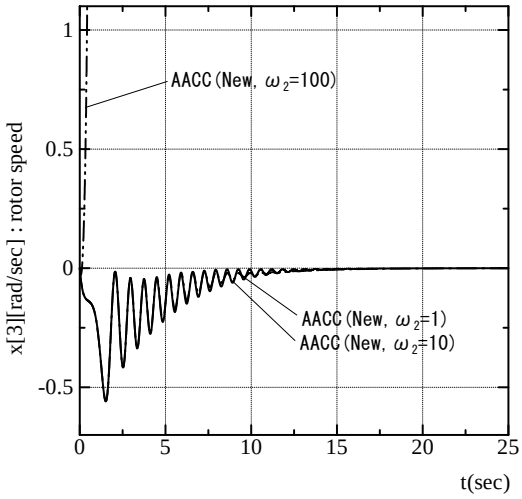

Fig. 13 Responses of AACC
$(x^T(0) = [0, 1.414, 0])$

Figs. 5, 6 and 7 show the responses in the case of $x^T(0) = [0, 1.3, 0]$. Figs. 8, 9 and 10 show the responses in the case of $x^T(0) = [0, 1.35, 0]$. Figs. 11, 12 and 13 show the responses in the case of $x^T(0) = [0, 1.414, 0]$. These results indicate that the stable region of the new AACC is better than the old AACC and the LOC.

5 Conclusions

We have studied an augmented automatic choosing control designed by extremizing a combination of the Hamiltonian and Lyapunov functions using the weighted gradient optimization automatic choosing functions for nonlinear systems. This approach was applied to a field excitation control problem of power system to demonstrate the usefulness of the AACC. Simulation results have shown that this controller could improve the performance remarkably.

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