

LAMPIRAN A

Lampiran A-1 File Parameter Motor Induksi 3 Fasa

```
clc;
close all;
% ===== Parameter Pengendalian =====%

% ----- Parameter Motor Induksi ----- %
Rs = 1.405;           % Resistansi stator (Ohm)
Rr = 1.395;           % Resistansi rotor (Ohm)
Lls = 0.005839;       % Induktansi sendiri stator (H)
Llr = 0.005839;       % Induktansi sendiri rotor (H)
Lm = 0.1722;          % Induktansi magnetisasi (H)
J = 0.0131;           % Momen inersia rotor (kg·m^2)
B = 0.002985;         % Nilai koefisien gesek
p = 2;                % Jumlah pole pasangan

% ----- Perhitungan Induktansi Total ----- %
Ls = Lls + Lm;         % Induktansi total stator (H)
Lr = Llr + Lm;         % Induktansi total rotor (H)
sigma = 1 - (Lm^2)/(Ls*Lr); % Parameter kopling
Tr = Lr/Rr;            % Konstanta waktu rotor

% ----- Parameter Inverter & HBPWM ----- %
hb = 0.25; % Lebar pita histeresis (Hysteresis Band)

% Parameter V/F%
f_ref = 47.75;         % Frekuensi referensi Metode V/F

% ----- Nilai Beban Mekanik ----- %
Tm =15;                % Variasi nilai beban mekanik
```

INSTITUT TEKNOLOGI
KALIMANTAN



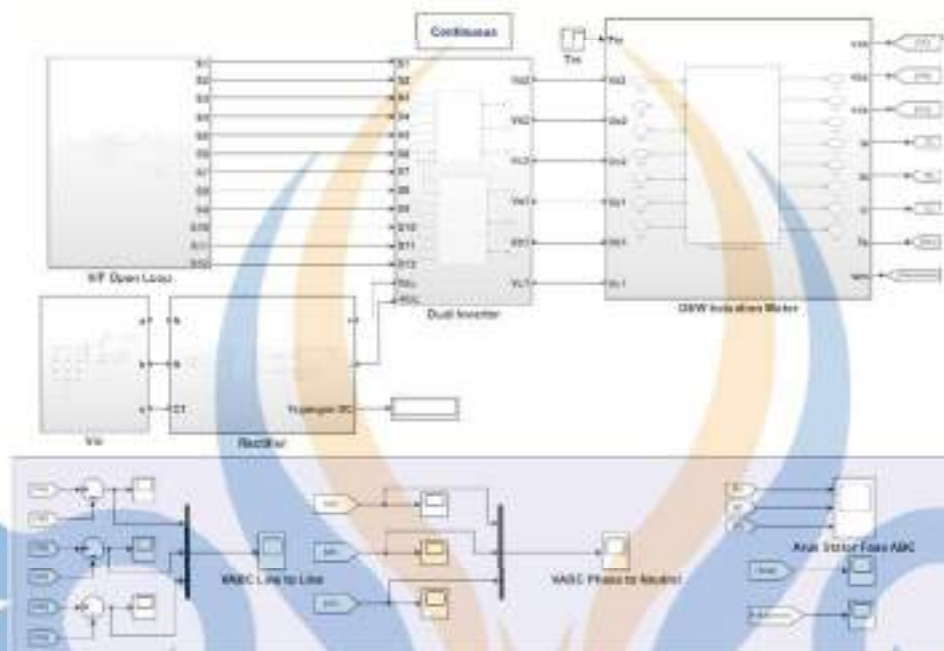
Halaman ini sengaja dikosongkan

INSTITUT TEKNOLOGI
KALIMANTAN

Lampiran B-1 Simulasi Pengendalian Metode V/F Single Inverter

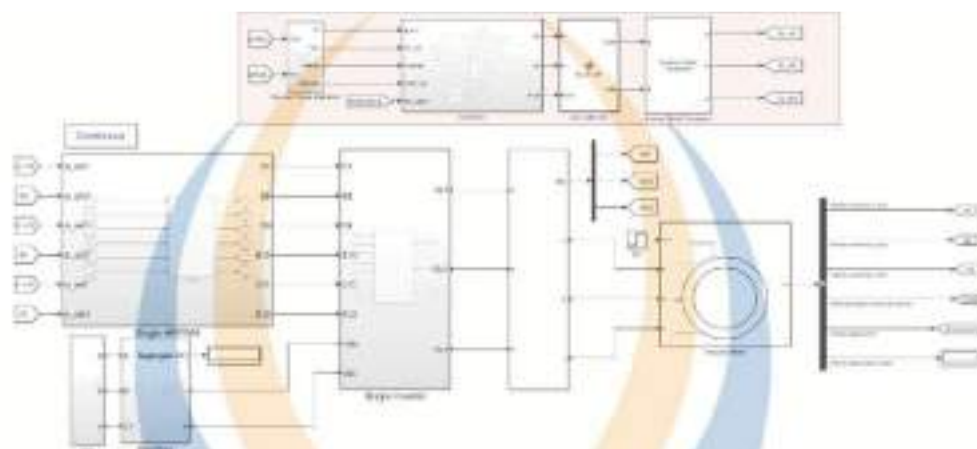
INSTITUT TEKNOLOGI
KALIMANTAN

Lampiran B-2 Simulasi Pengendalian Metode V/F *Dual Inverter*



INSTITUT TEKNOLOGI
KALIMANTAN

Lampiran B-3 Simulasi Pengendalian Metode DTC-HBPWM dengan *Single Inverter*



INSTITUT TEKNOLOGI
KALIMANTAN

Lampiran B-4 Simulasi Pengendalian Metode DTC-HBPWM dengan *Dual Inverter*



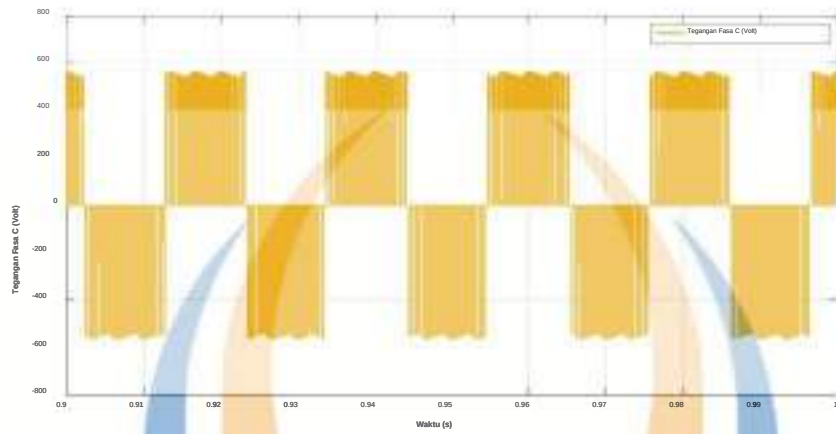
INSTITUT TEKNOLOGI
KALIMANTAN

LAMPIRAN C

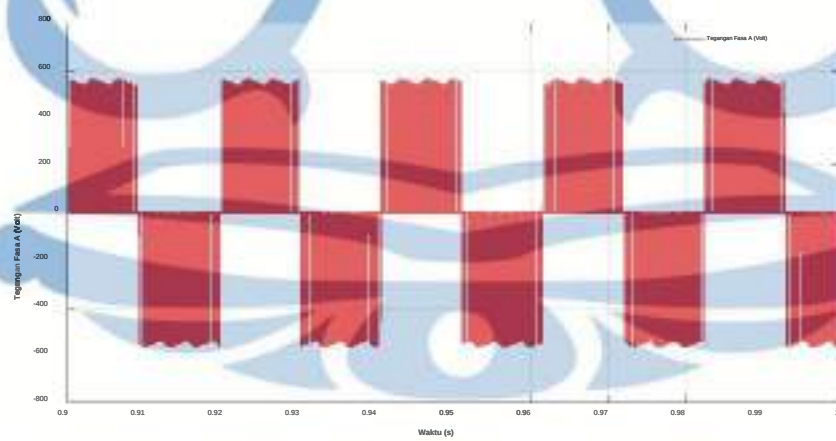
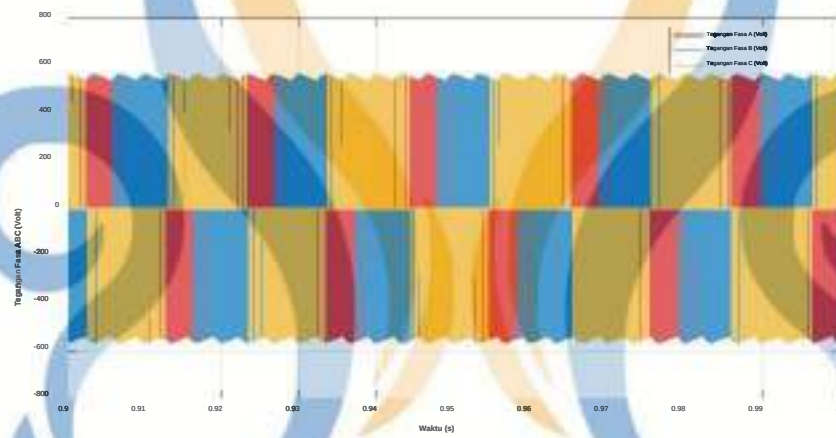
Lampiran C-1. Tegangan V/F Open Loop Single Inverter (Beban 0, 5, 10, 15 Nm, 20 Nm, 25 Nm dan 26.71 Nm)

Beban 0 Nm

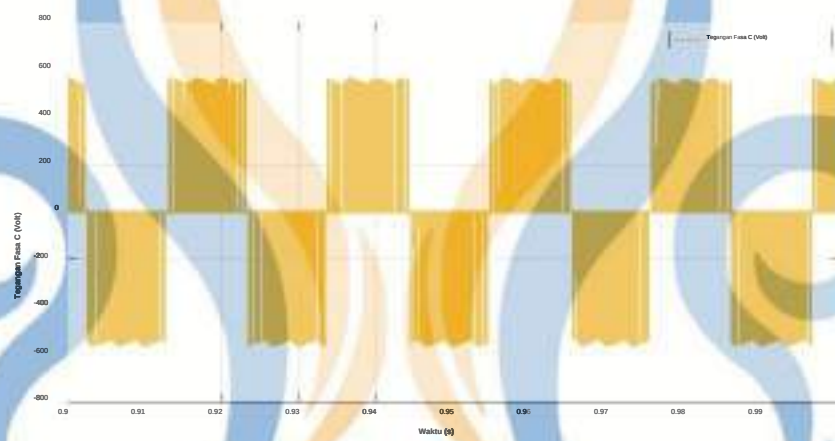
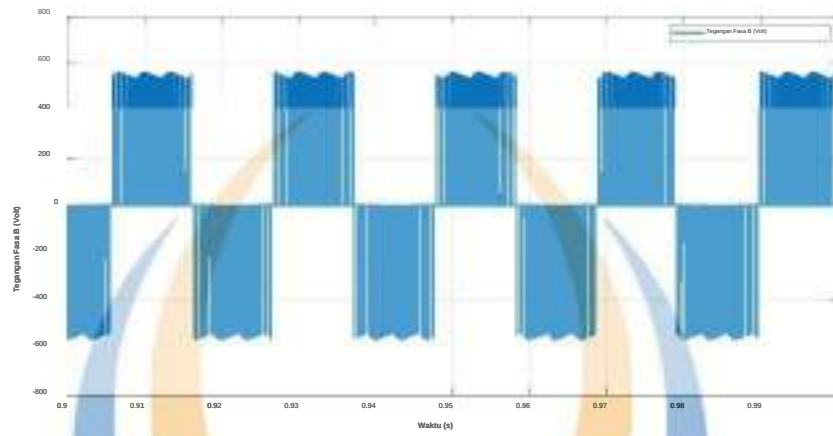




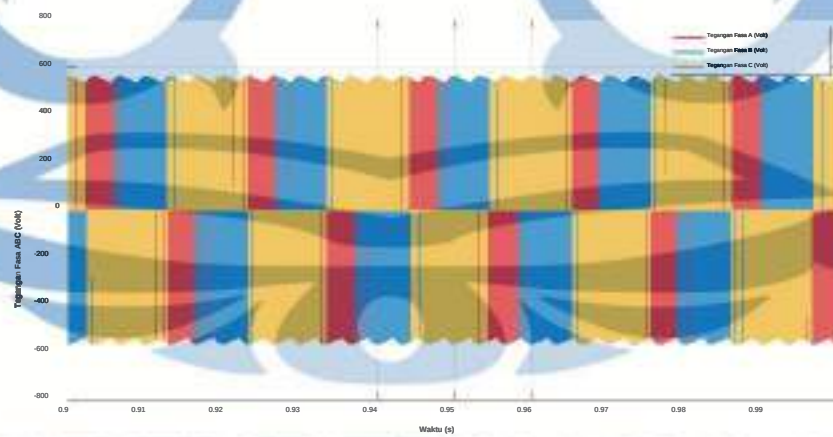
Beban 5 Nm



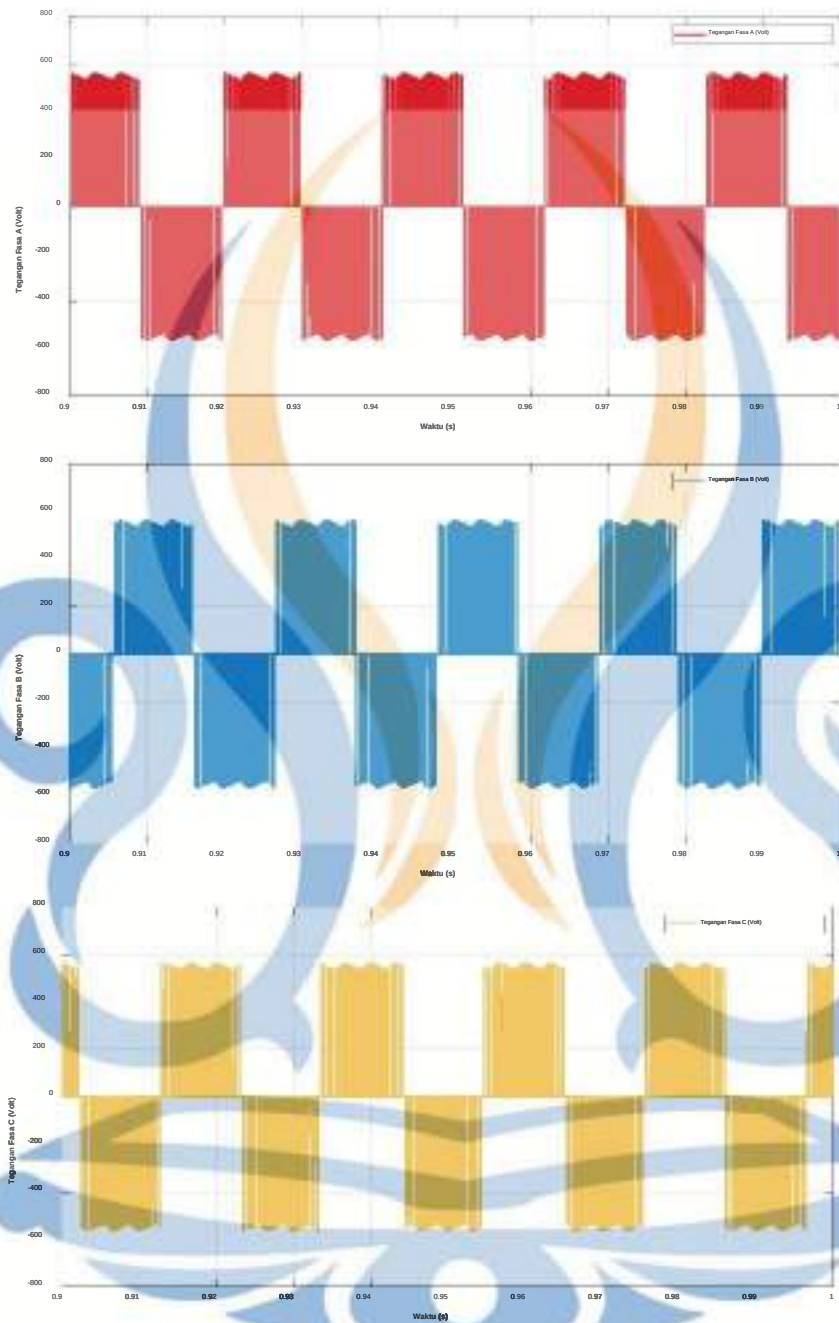
INSTITUT TEKNOLOGI
KALIMANTAN



Beban 10 Nm



INSTITUT TEKNOLOGI
KALIMANTAN

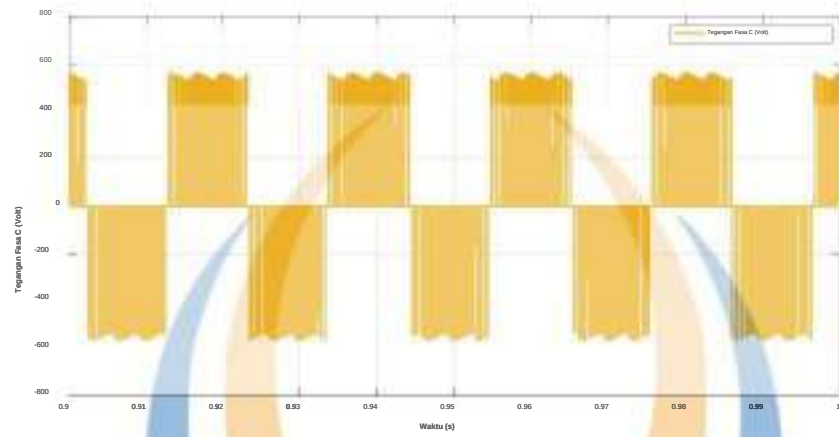


INSTITUT TEKNOLOGI
KALIMANTAN

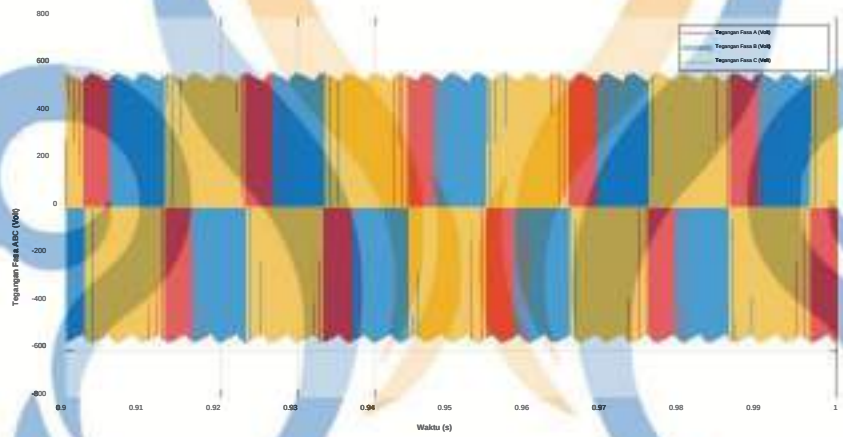
Beban 15 Nm



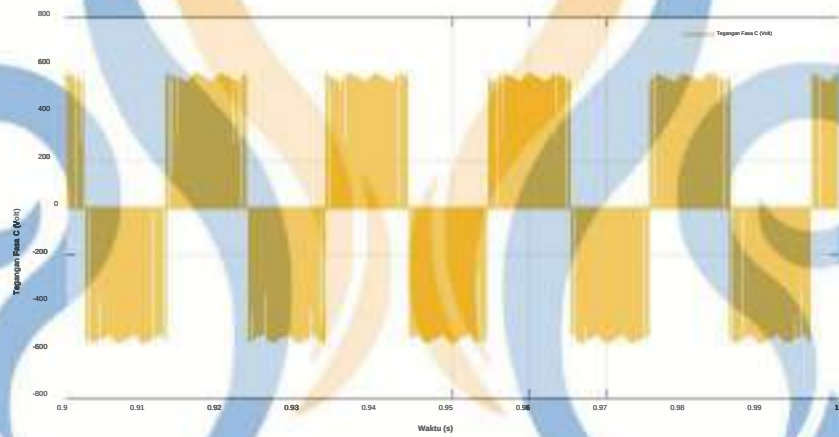
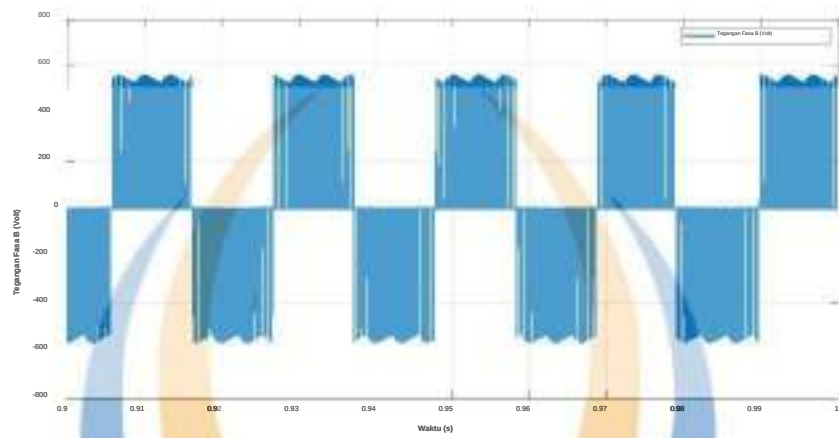
INSTITUT TEKNOLOGI
KALIMANTAN



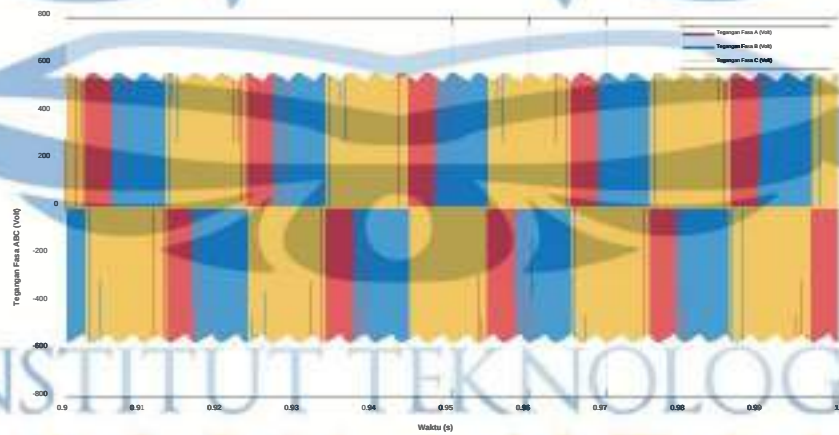
Beban 20 Nm



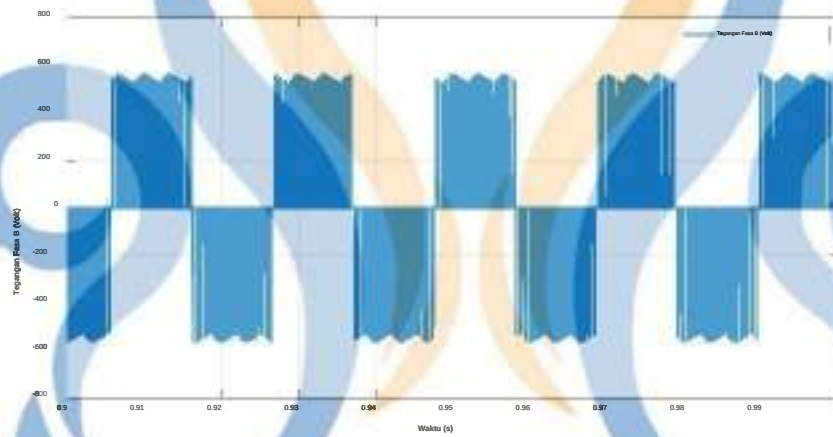
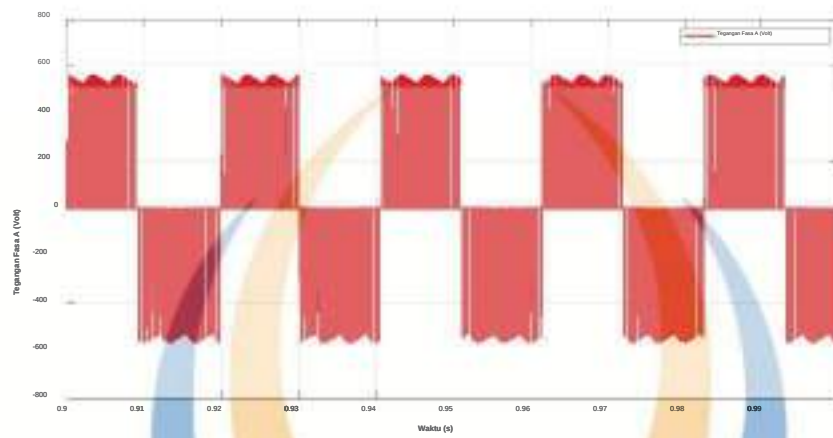
INSTITUT TEKNOLOGI
KALIMANTAN



Beban 25 Nm

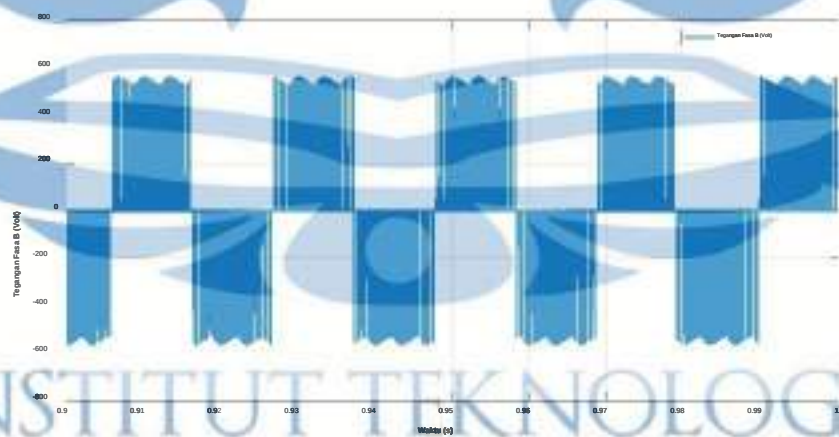
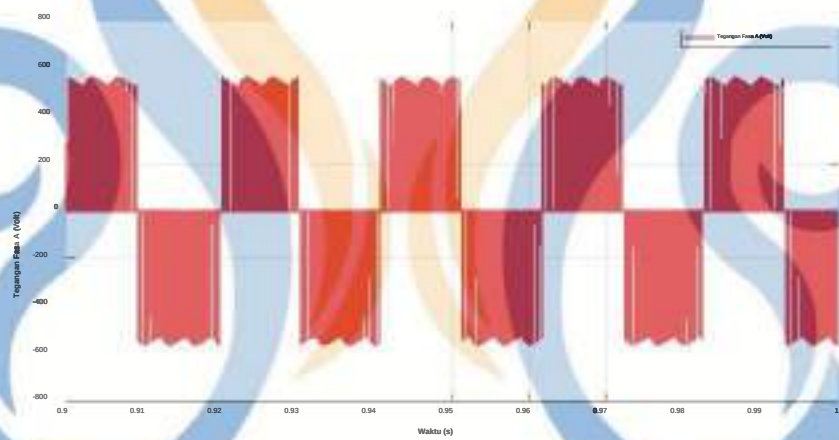
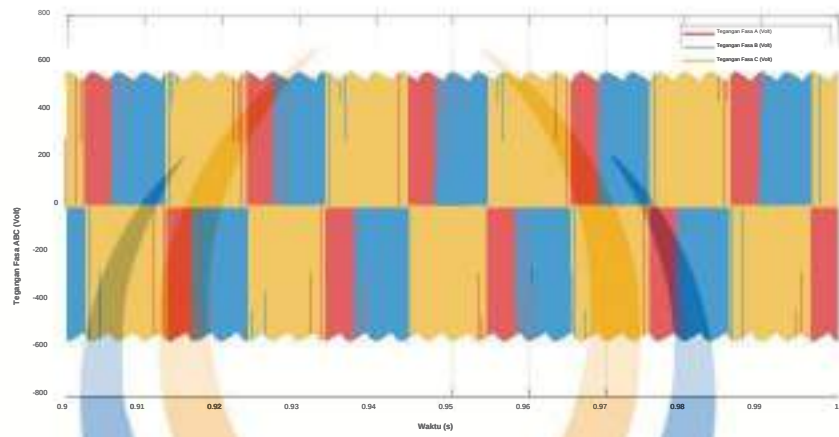


INSTITUT TEKNOLOGI
KALIMANTAN

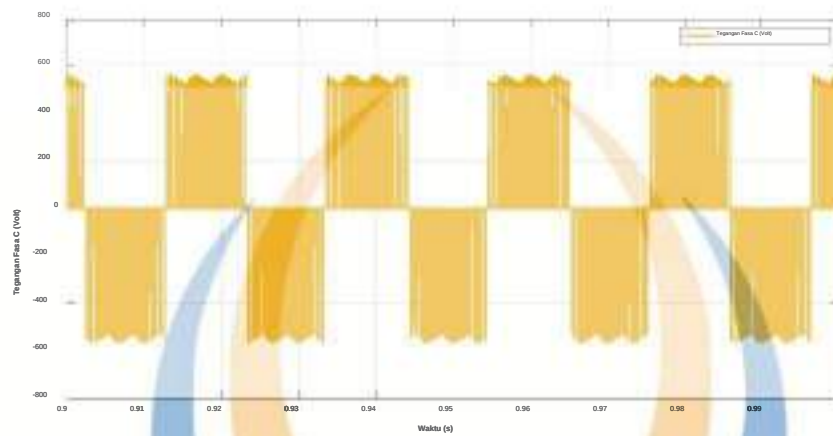


INSTITUT TEKNOLOGI
KALIMANTAN

Beban 26.71 Nm

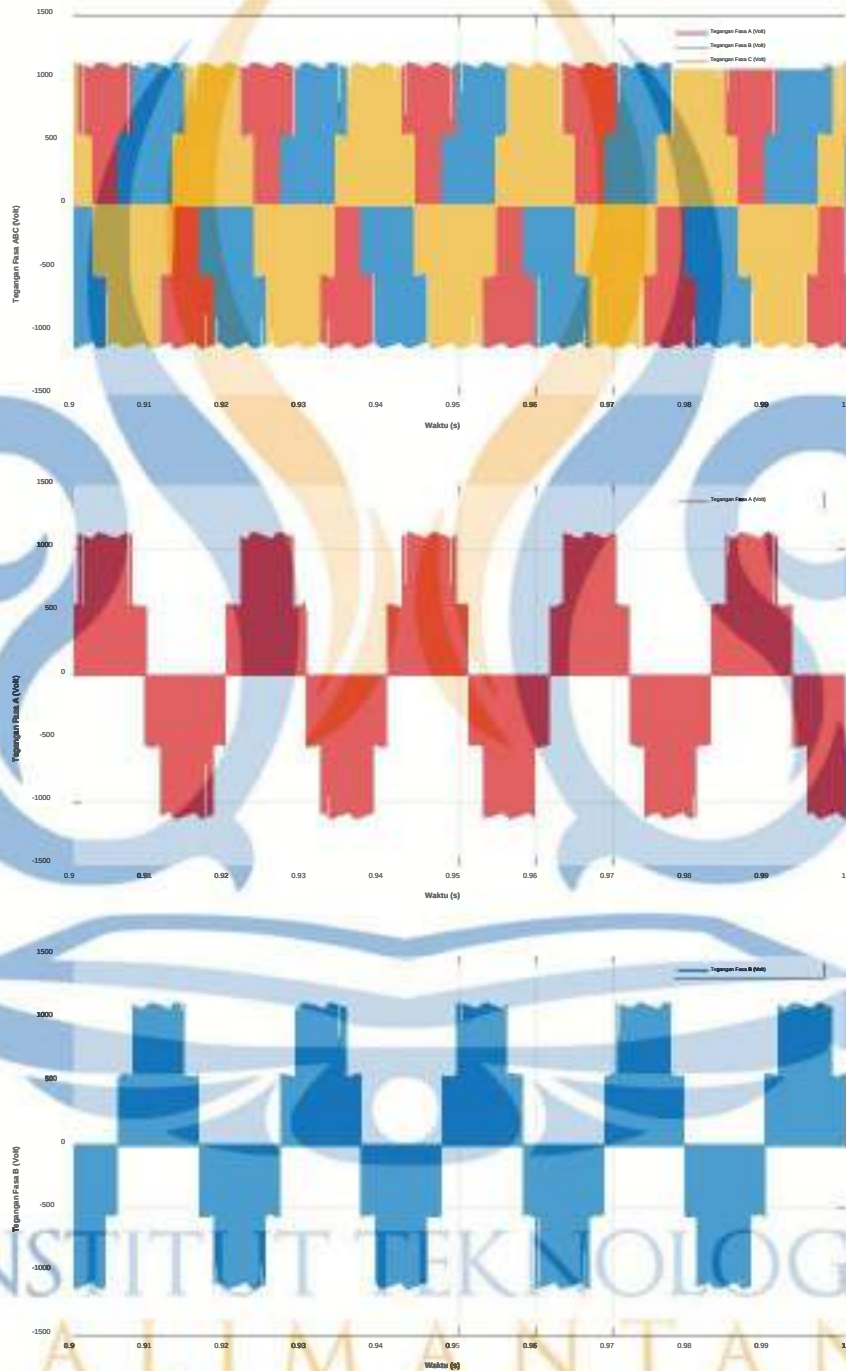


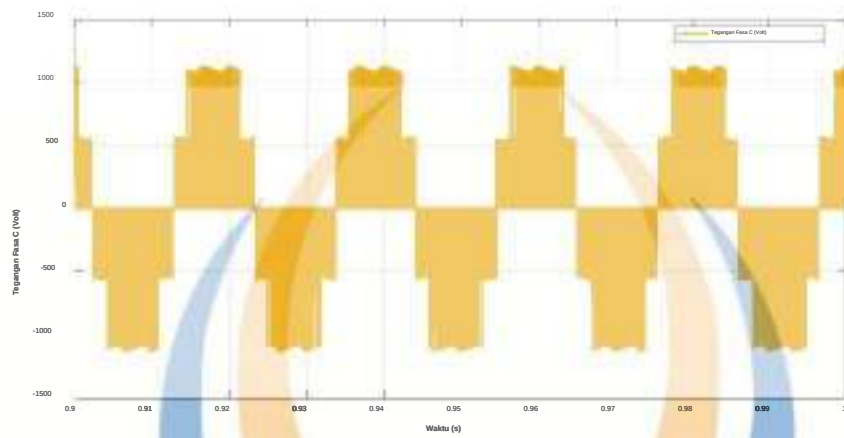
INSTITUT TEKNOLOGI
KALIMANTAN



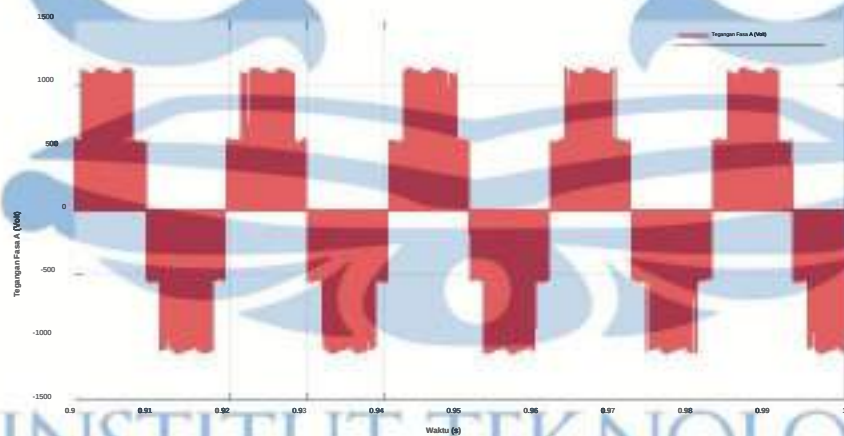
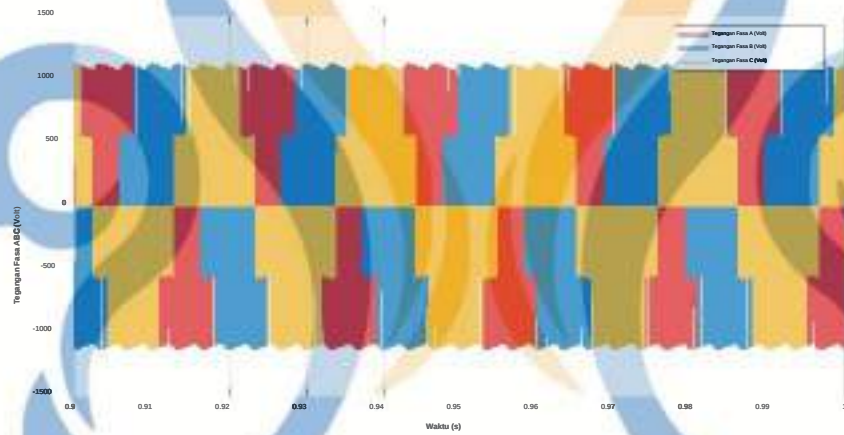
Lampiran C-2 Tegangan V/F *Open Loop Dual Inverter* (Beban 0, 5, 10, 15 Nm, 20 Nm, 25 Nm dan 26.71 Nm)

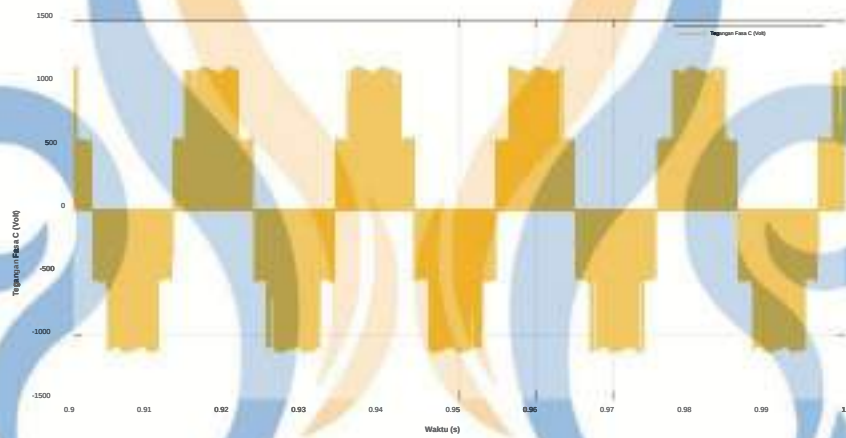
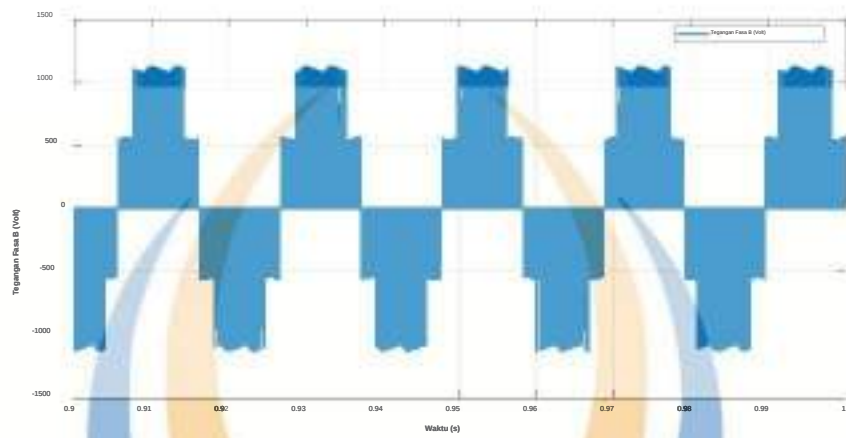
Beban 0 Nm



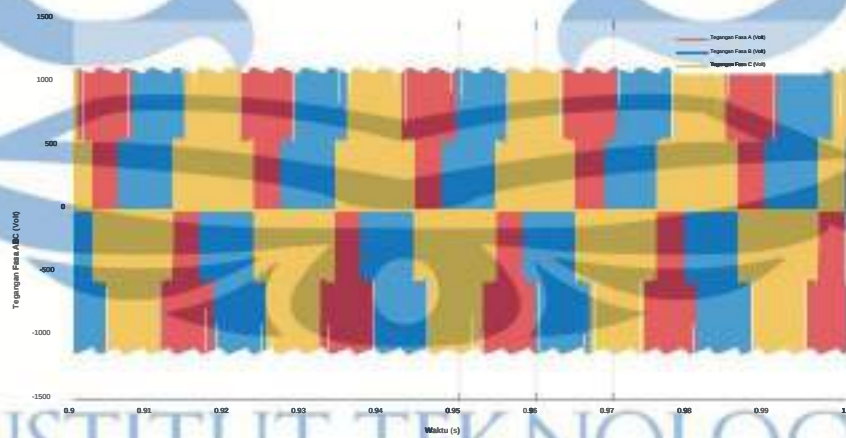


Beban 5 Nm

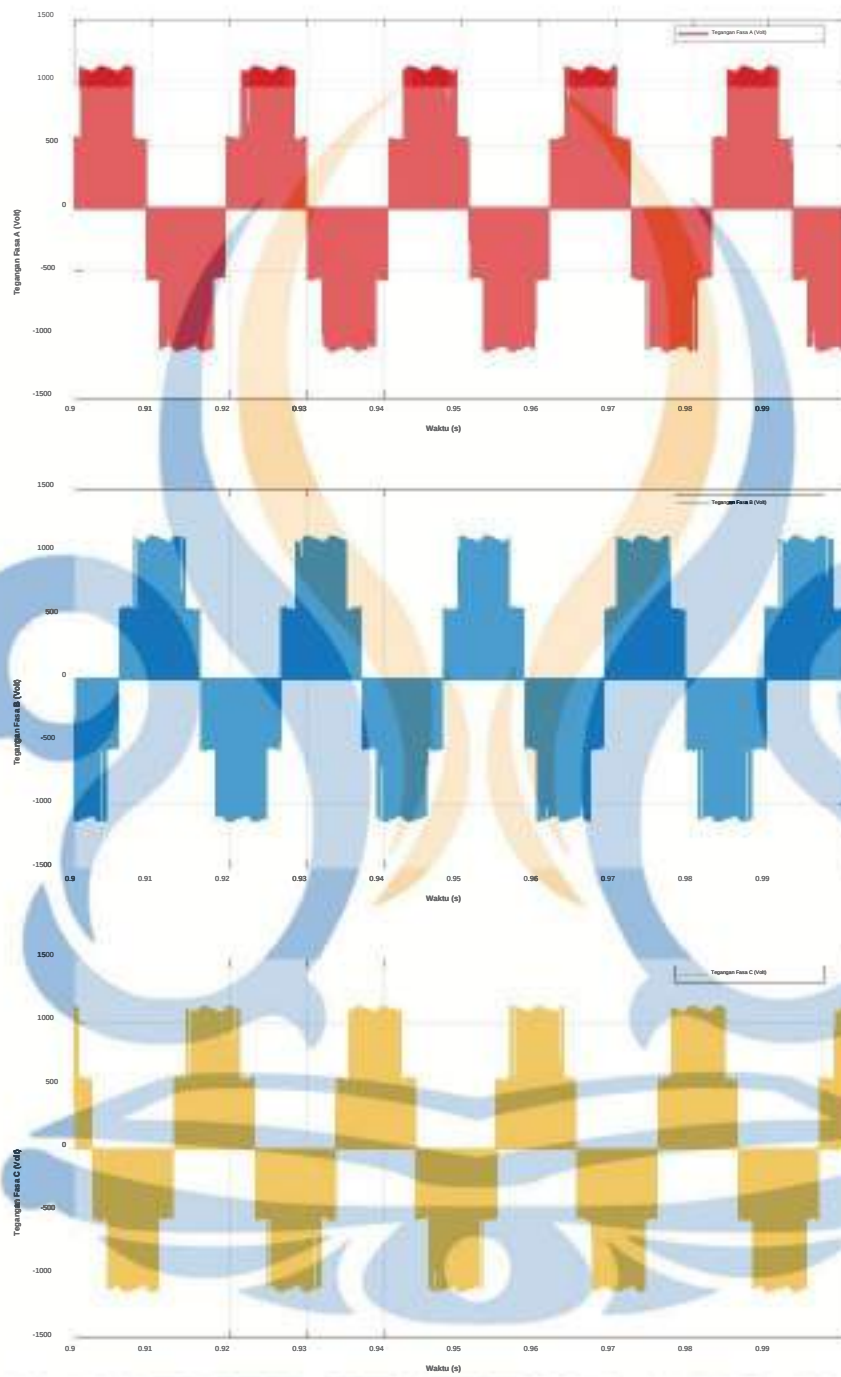




Beban 10 Nm

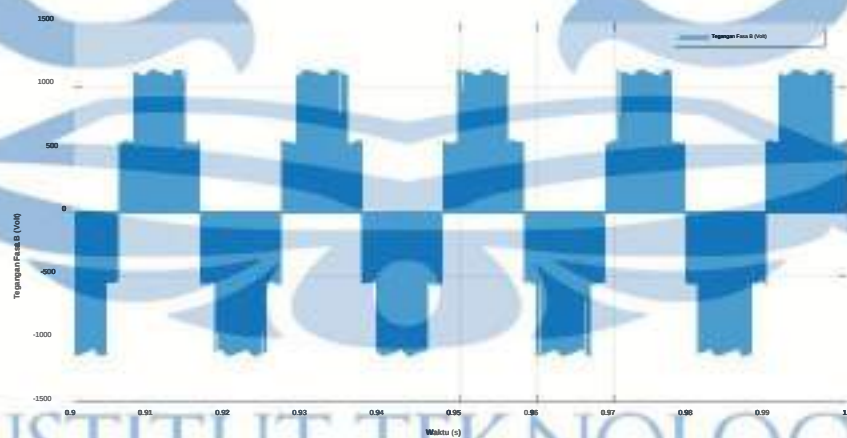
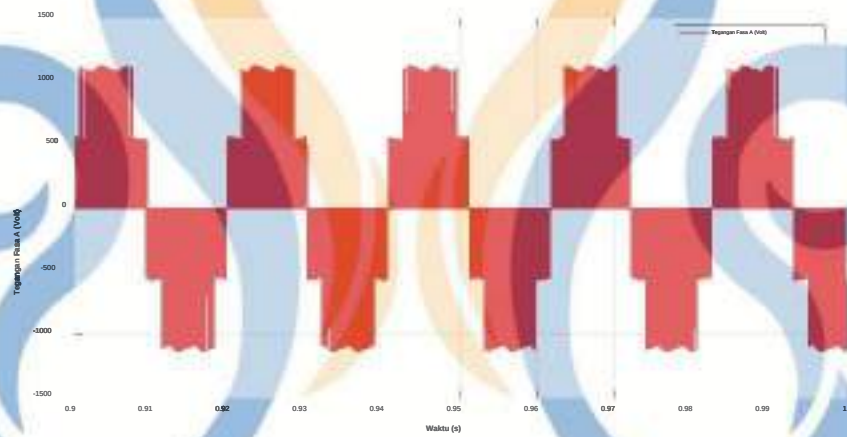
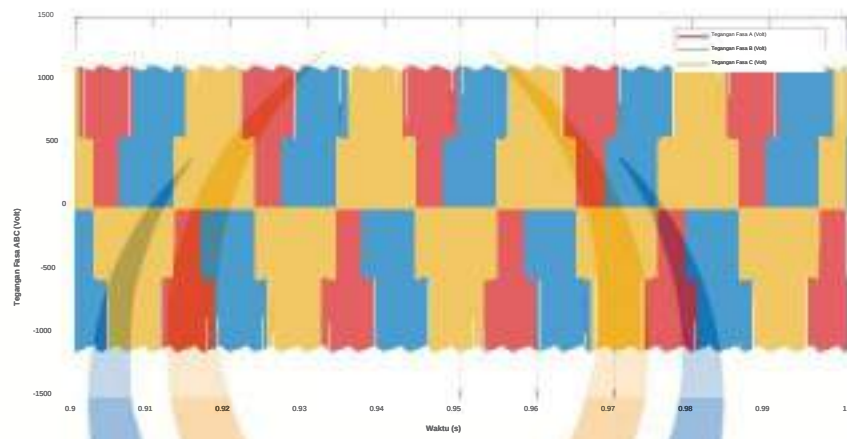


INSTITUT TEKNOLOGI
KALIMANTAN

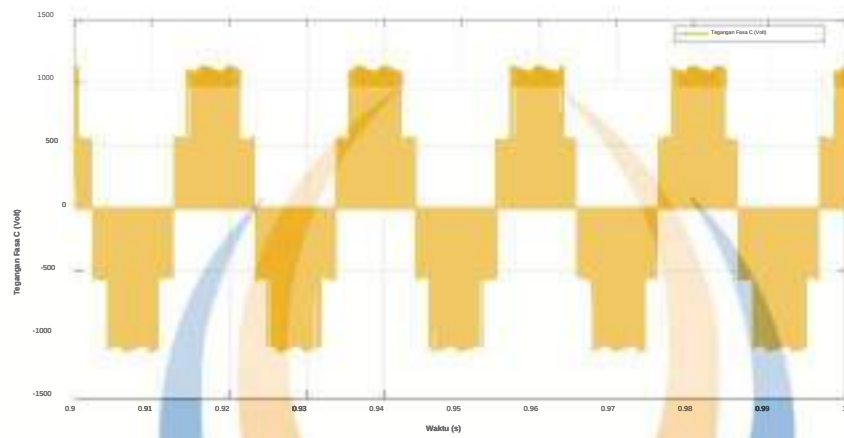


INSTITUT TEKNOLOGI
KALIMANTAN

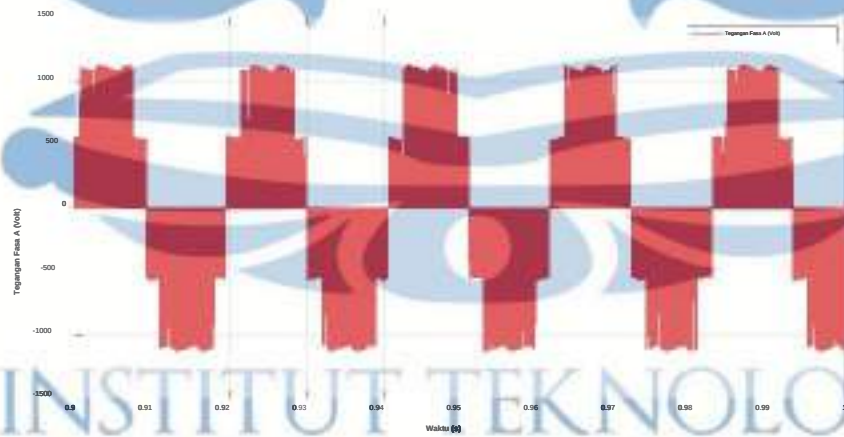
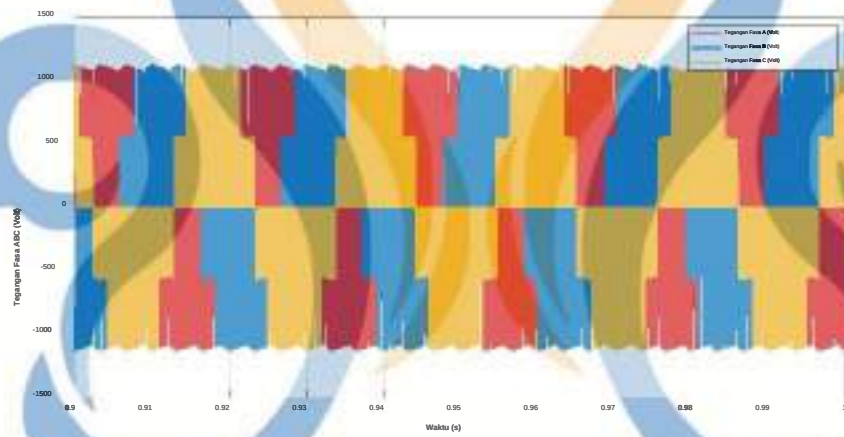
Beban 15 Nm



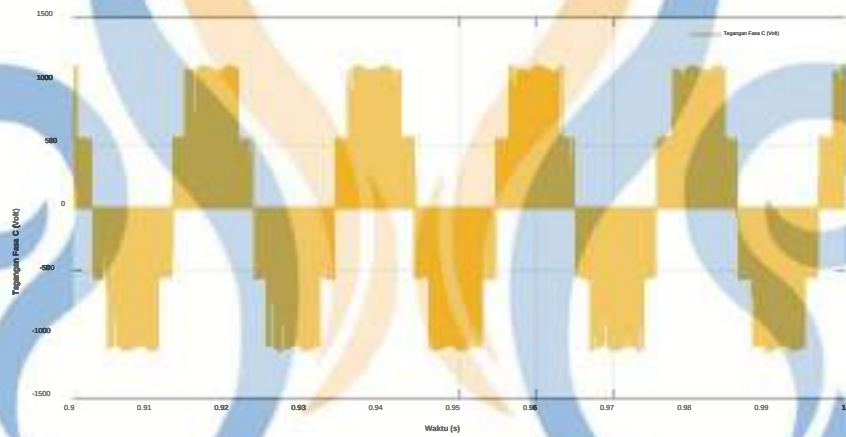
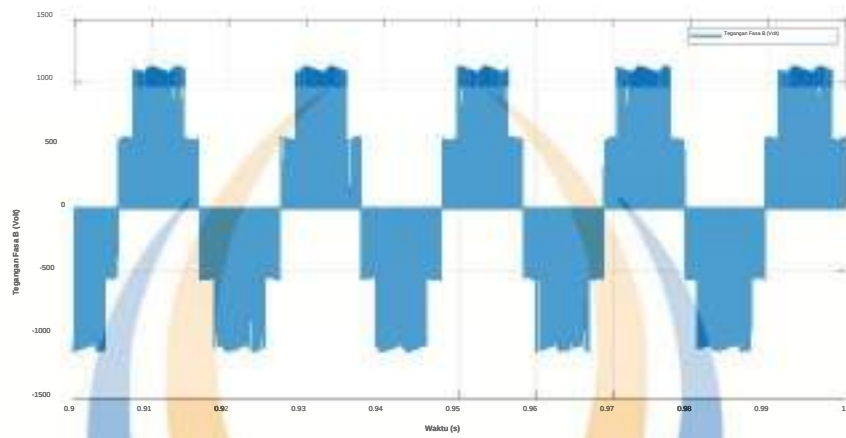
INSTITUT TEKNOLOGI
KALIMANTAN



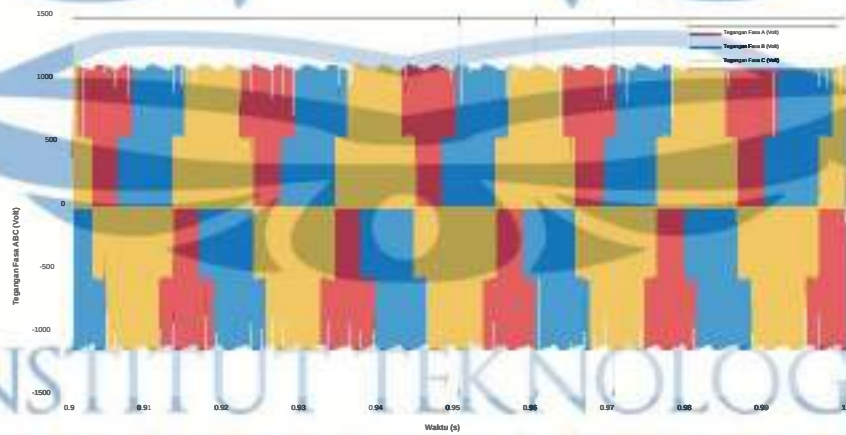
Beban 20 Nm

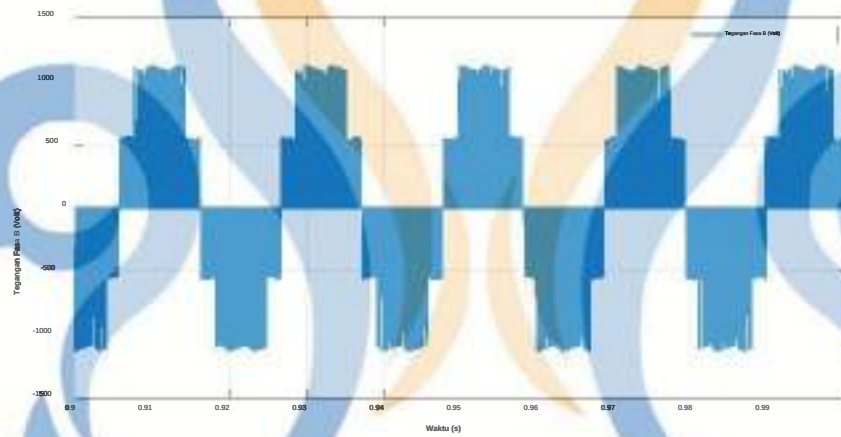
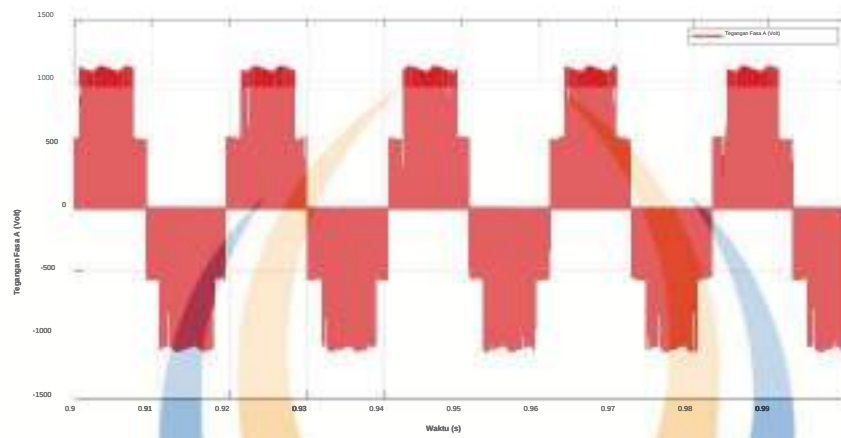


INSTITUT TEKNOLOGI
KALIMANTAN



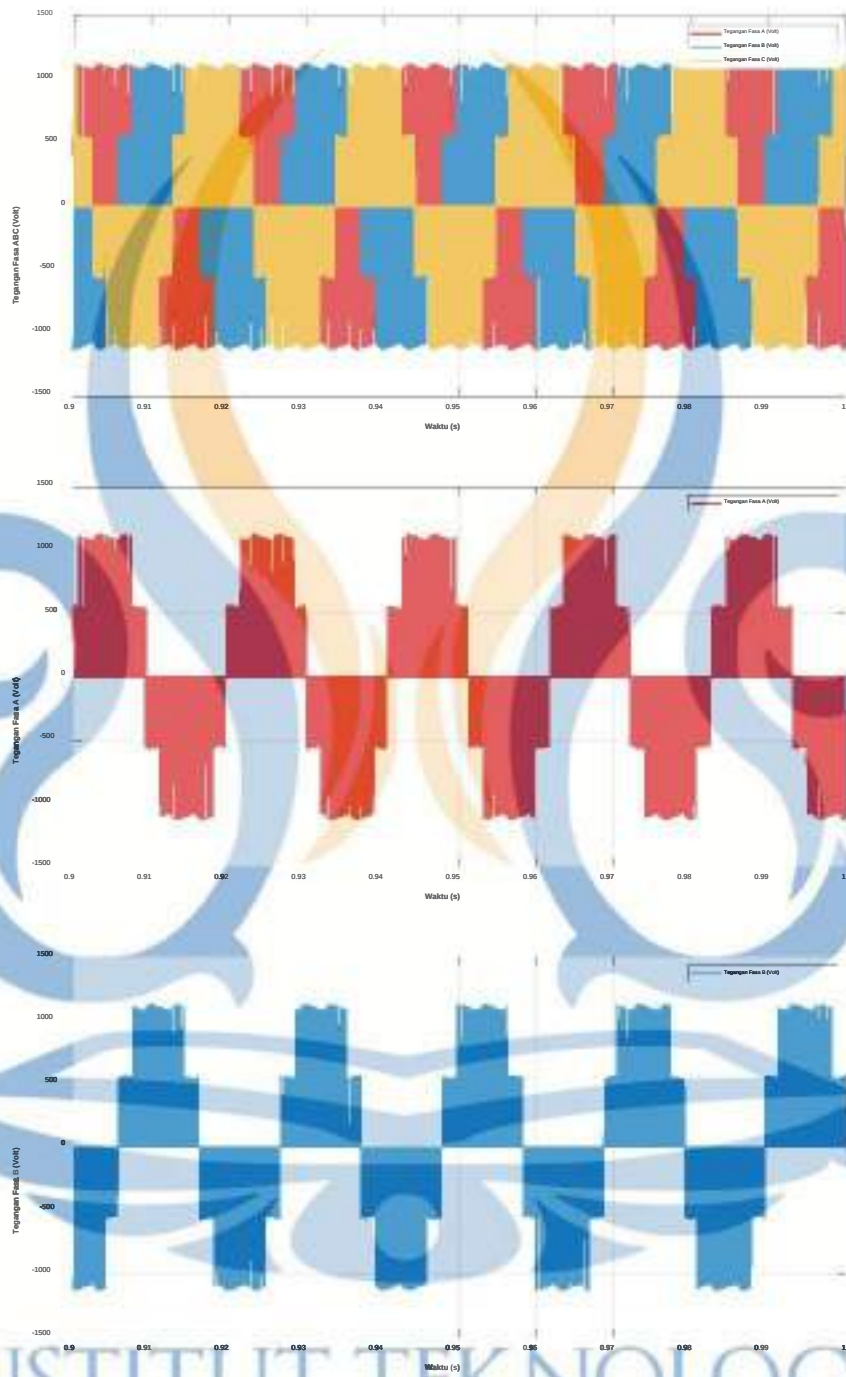
Beban 25 Nm



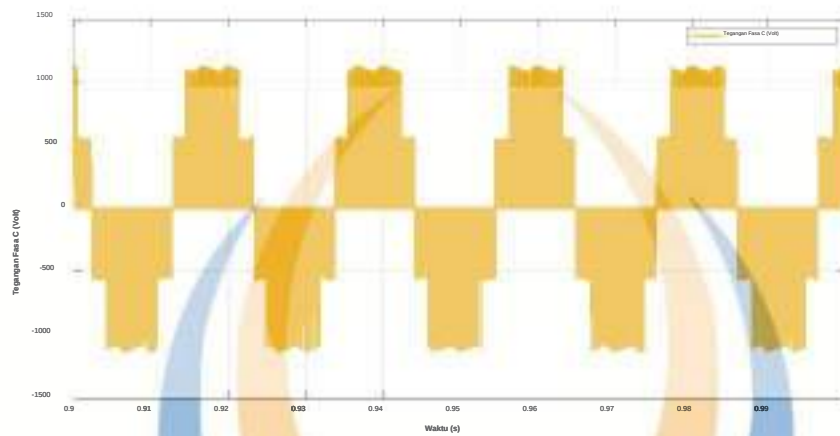


INSTITUT TEKNOLOGI
KALIMANTAN

Beban 26.71 Nm



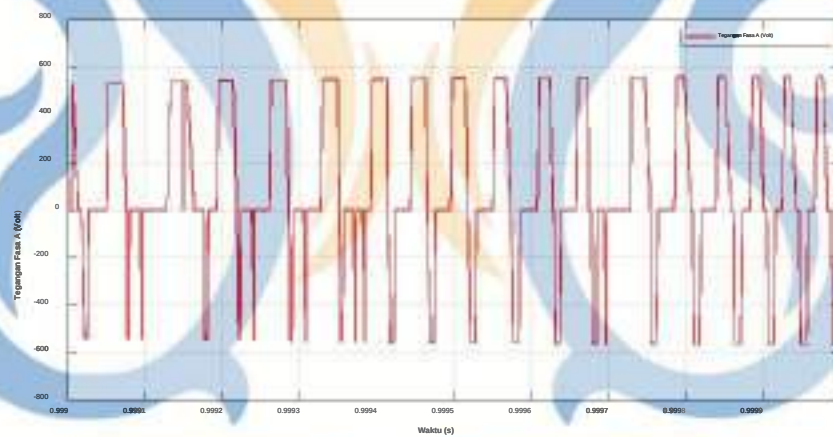
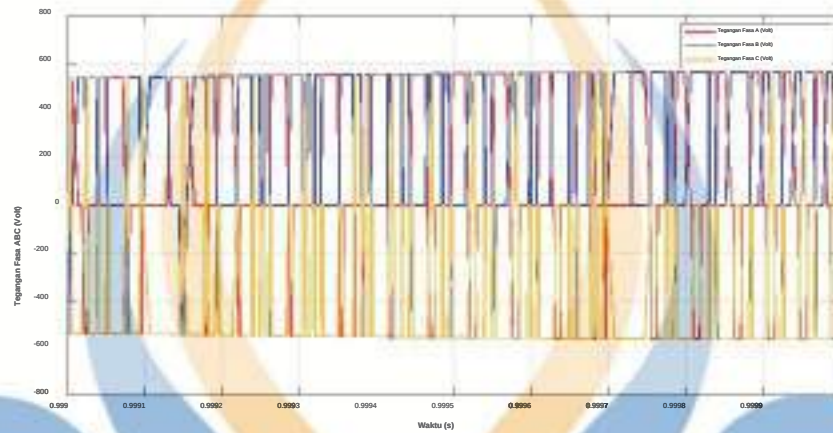
INSTITUT TEKNOLOGI
KALIMANTAN

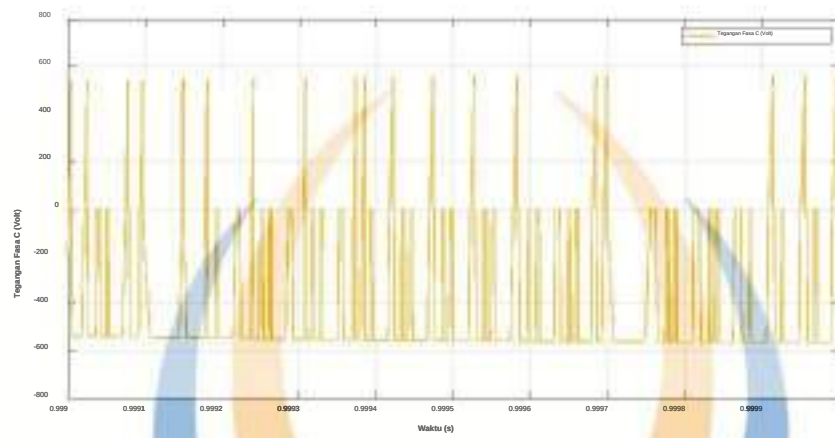


INSTITUT TEKNOLOGI
KALIMANTAN

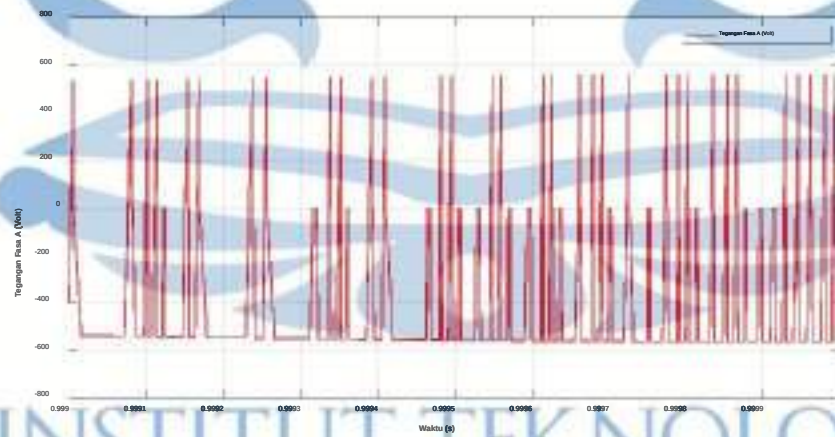
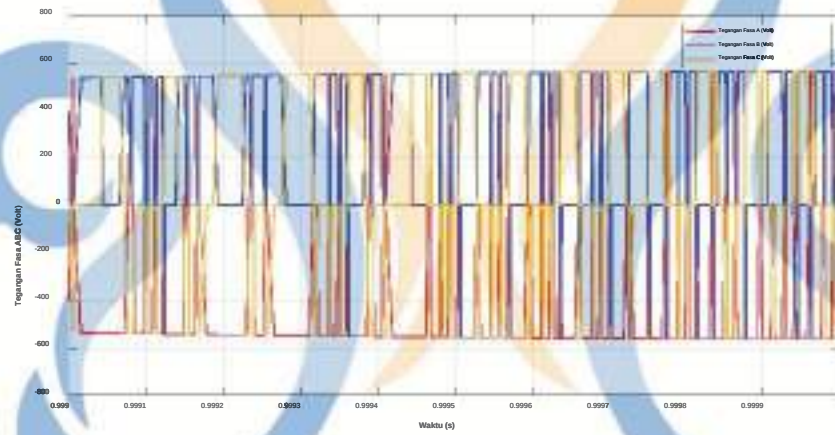
Lampiran C-3 Tegangan DTC-HBPWM *Single Inverter* (Beban 0, 5, 10, 15 Nm, 20 Nm, 25 Nm dan 26.71 Nm)

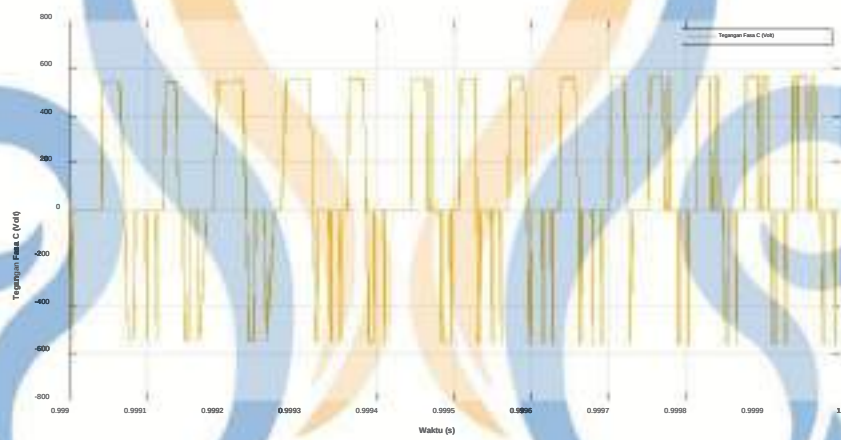
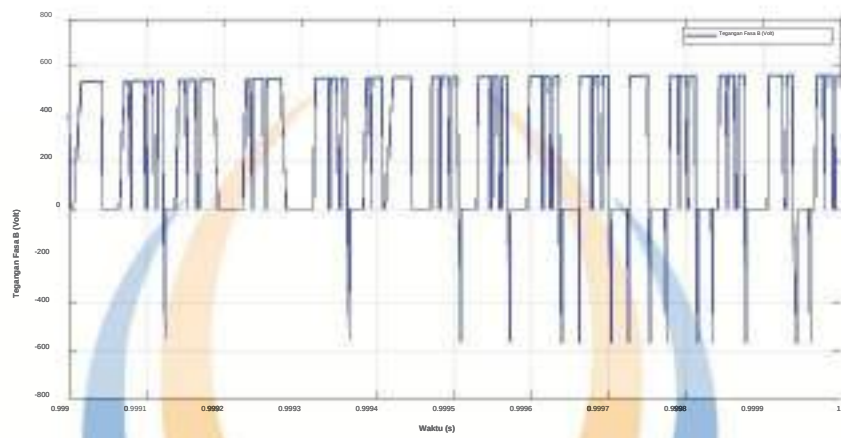
Beban 0 Nm



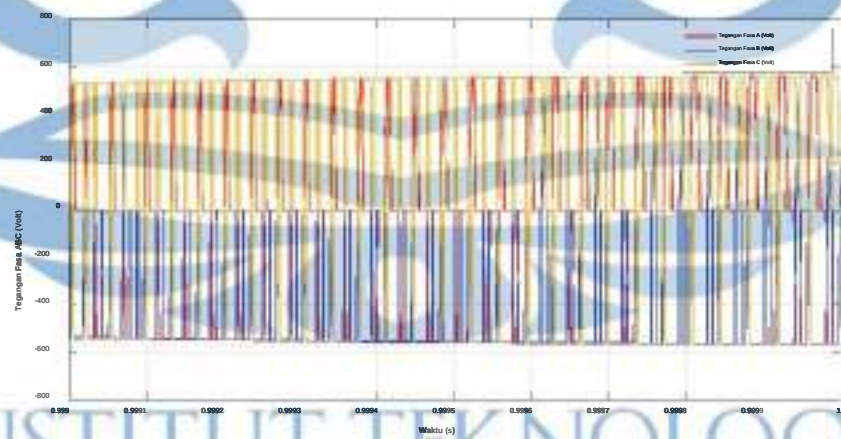


Beban 5 Nm

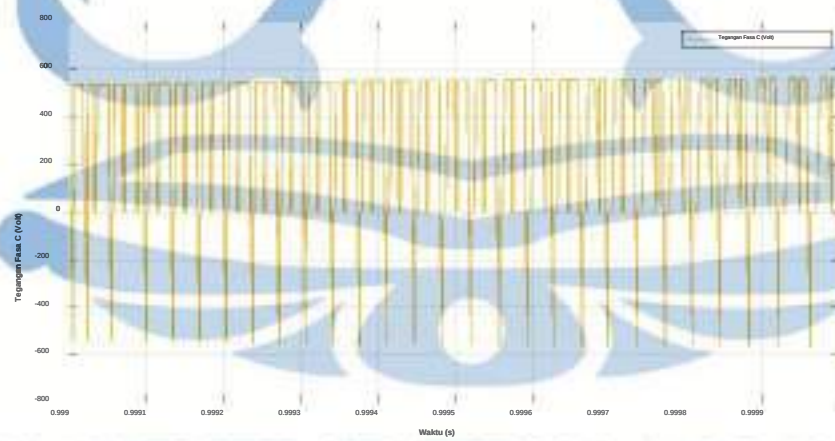
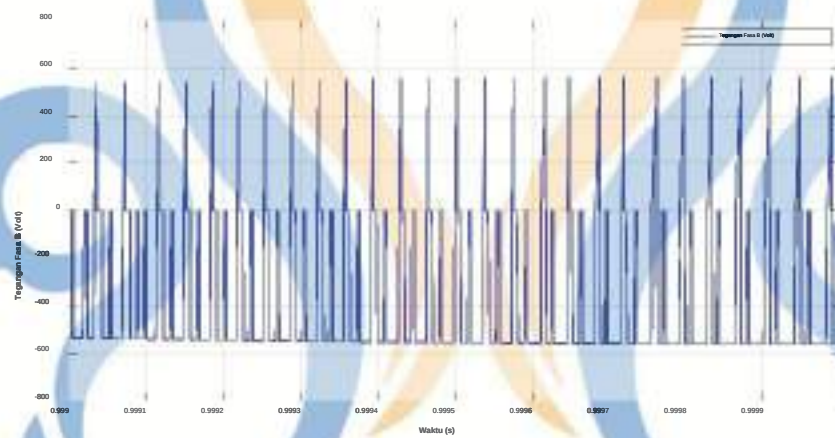
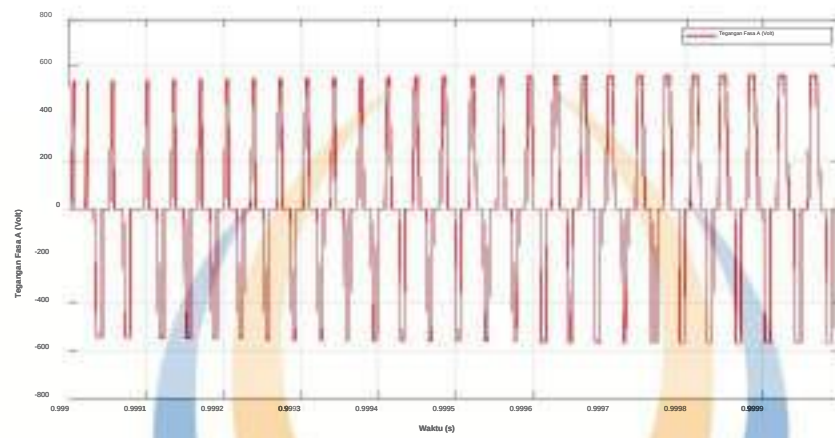




Beban 10 Nm

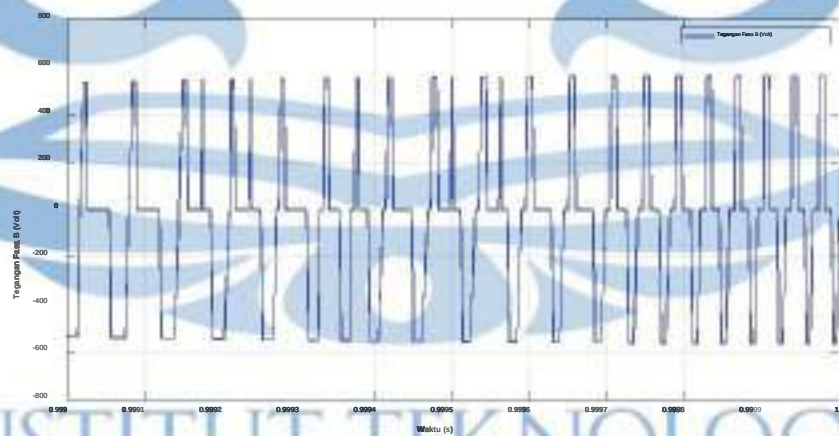
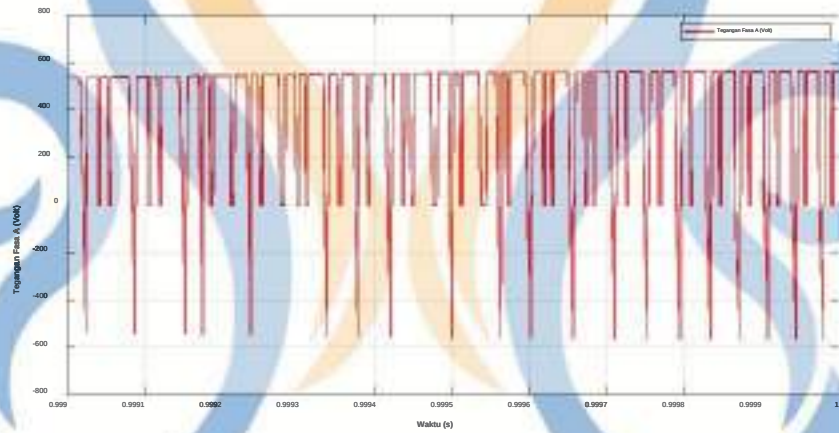
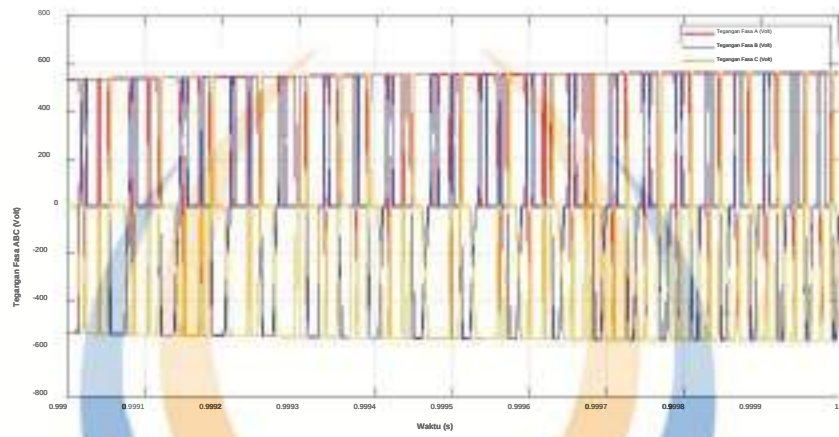


INSTITUT TEKNOLOGI
KALIMANTAN

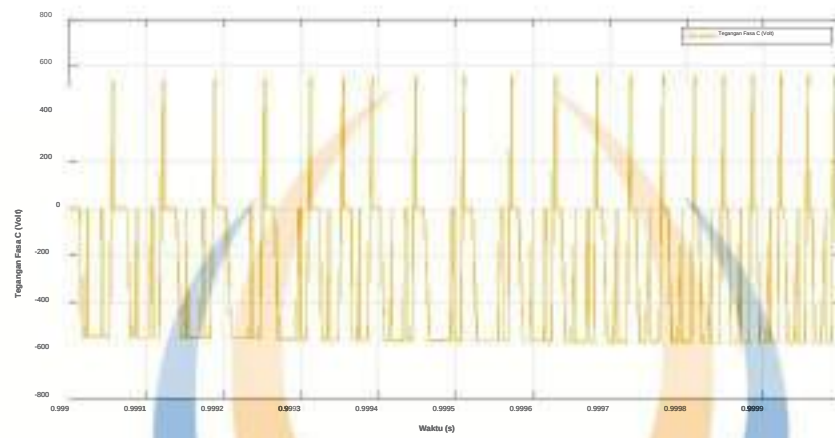


INSTITUT TEKNOLOGI
KALIMANTAN

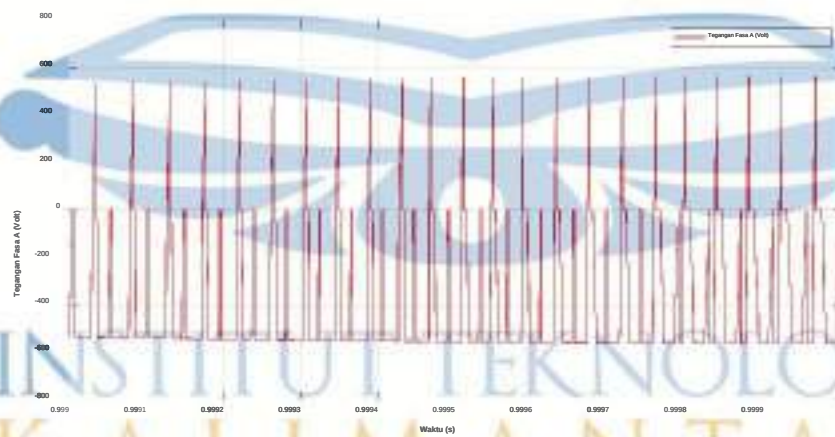
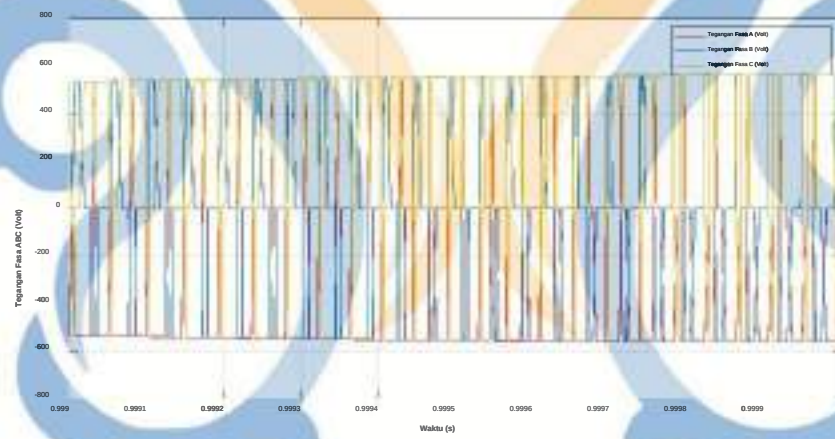
Beban 15 Nm

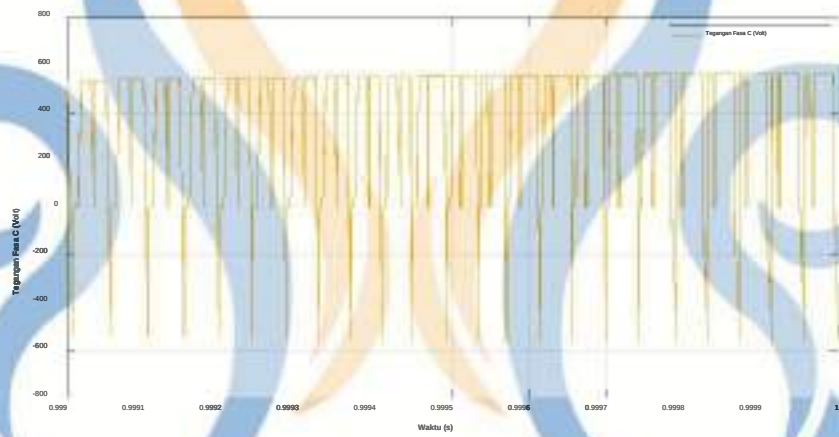
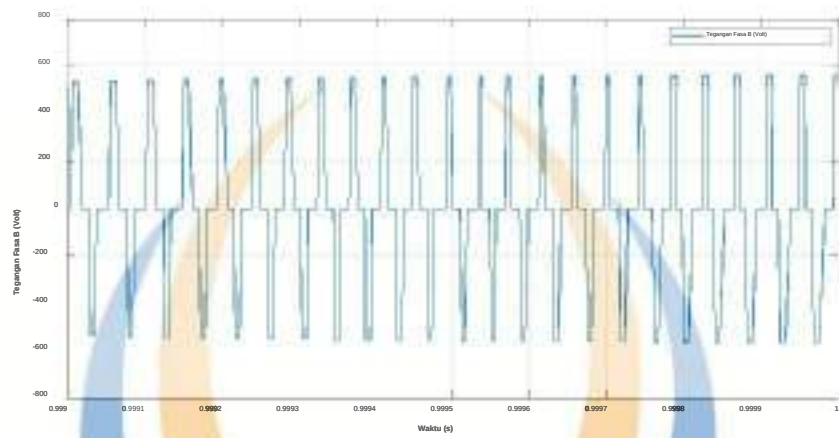


INSTITUT TEKNOLOGI
KALIMANTAN

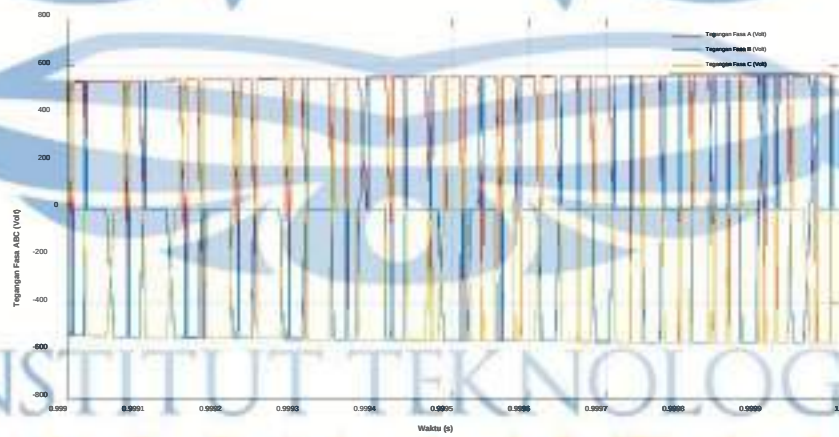


Beban 20 Nm

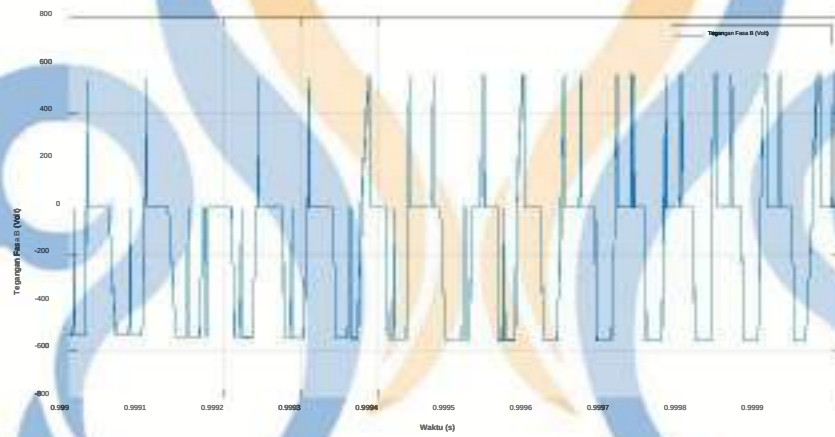
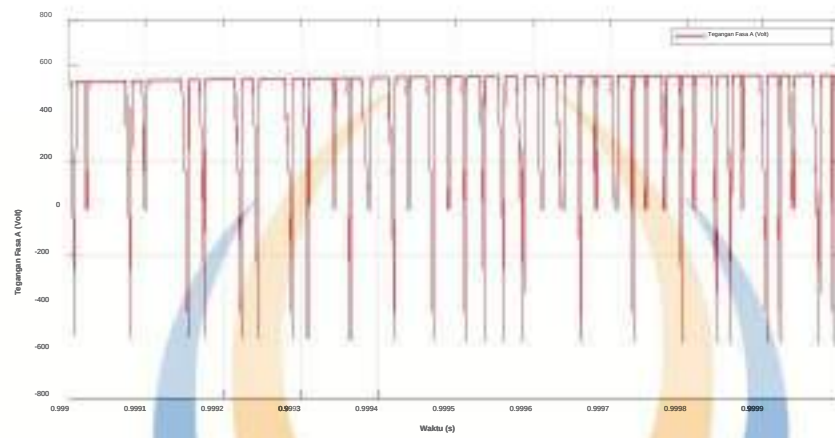




Beban 25 Nm

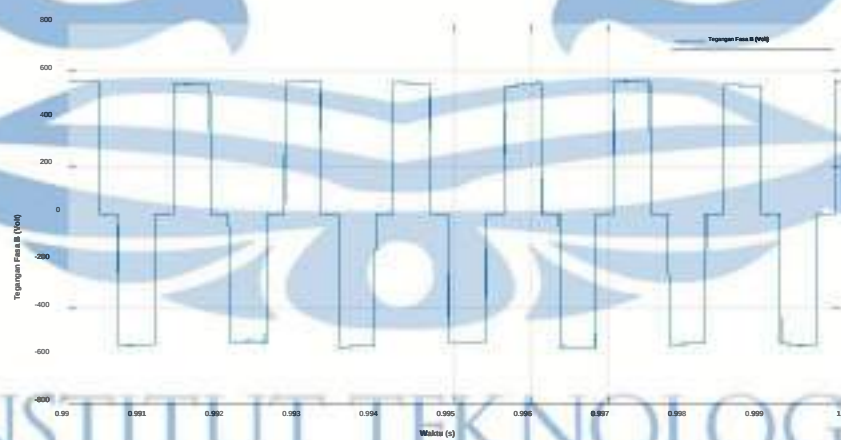
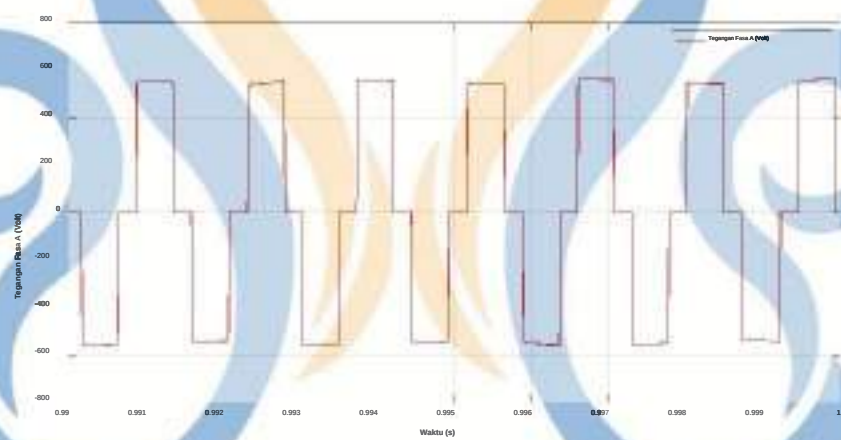
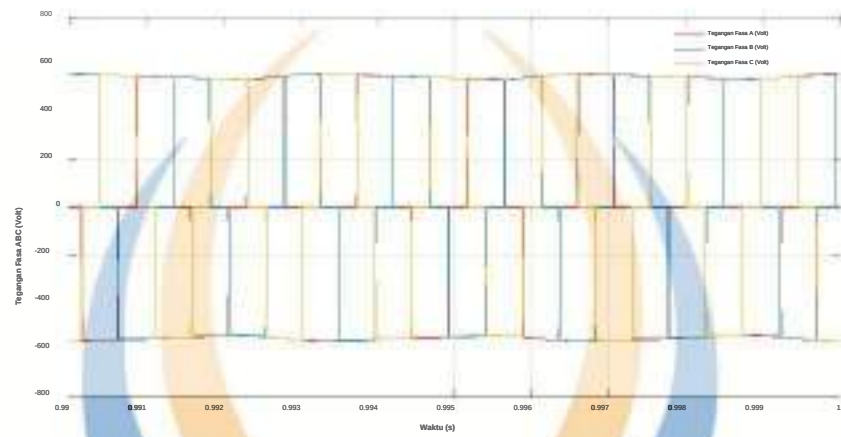


INSTITUT TEKNOLOGI
KALIMANTAN

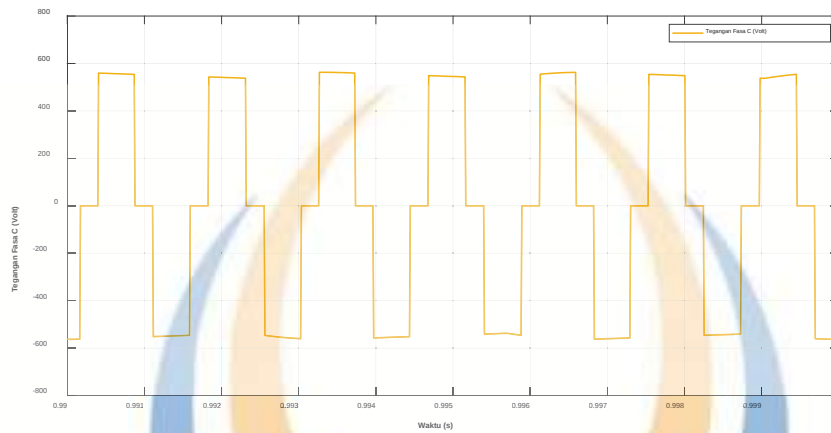


INSTITUT TEKNOLOGI
KALIMANTAN

Beban 26.71 Nm



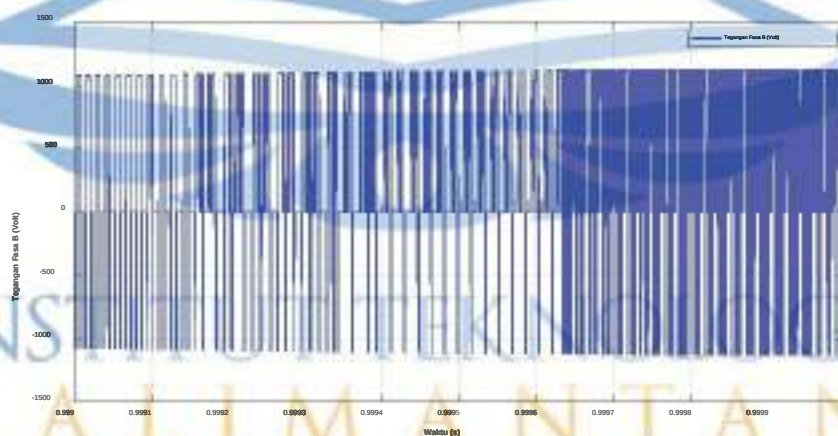
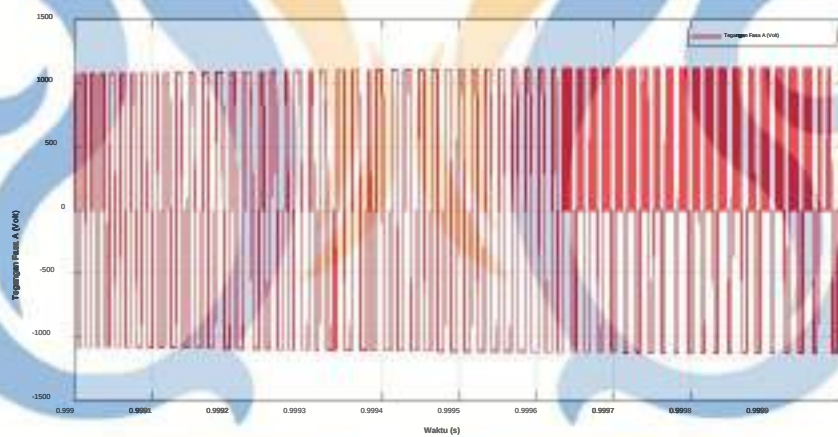
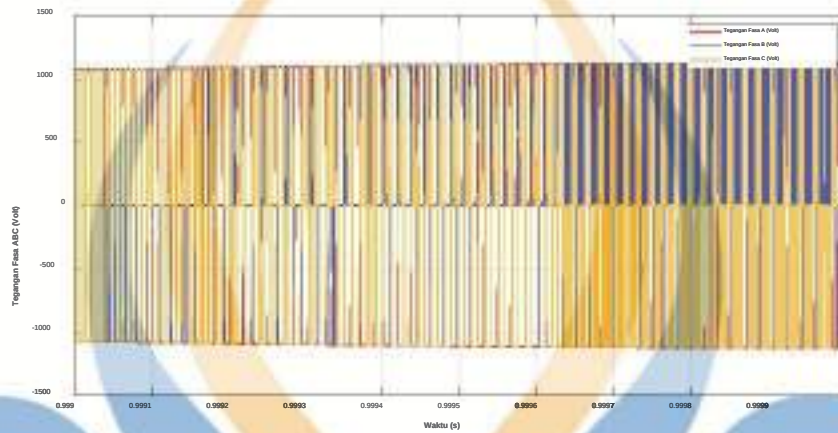
INSTITUT TEKNOLOGI
KALIMANTAN

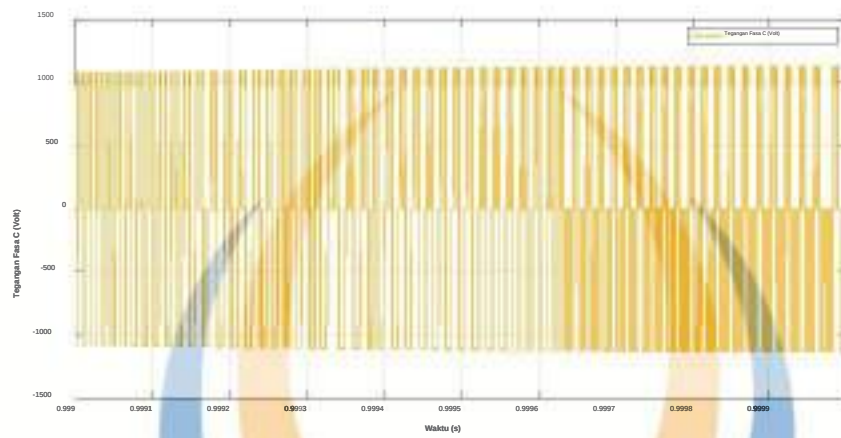


INSTITUT TEKNOLOGI
KALIMANTAN

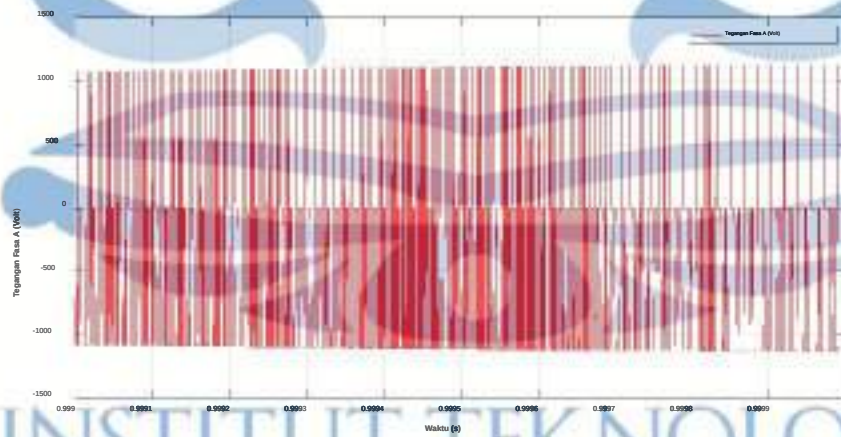
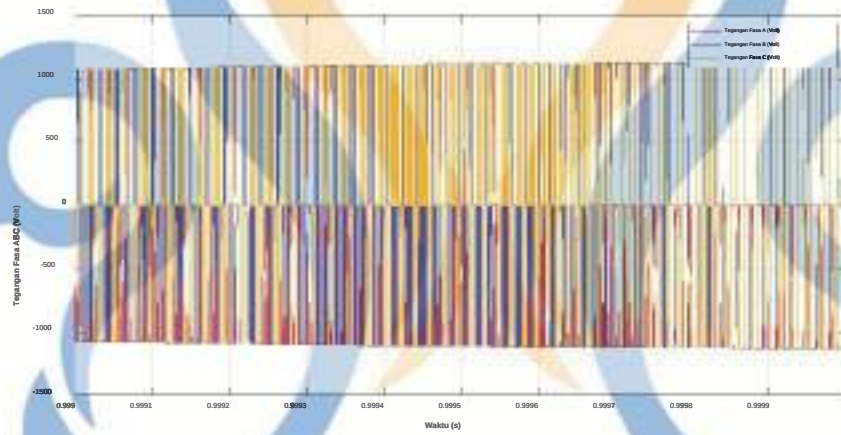
Lampiran C-4 Tegangan DTC-HBPWM *Dual Inverter* (Beban 0, 5, 10, 15 Nm, 20 Nm, 25 Nm dan 26.71 Nm)

Beban 0 Nm

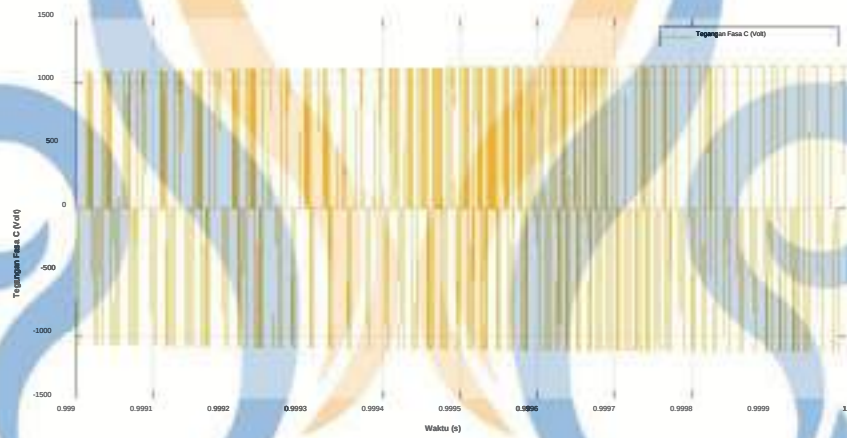
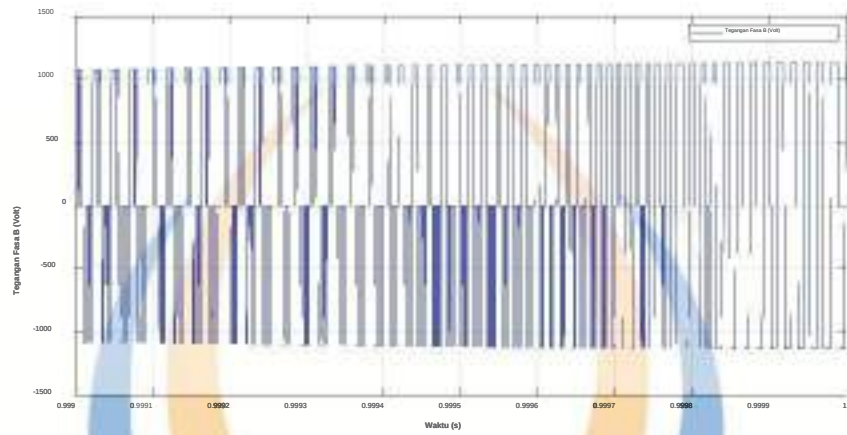




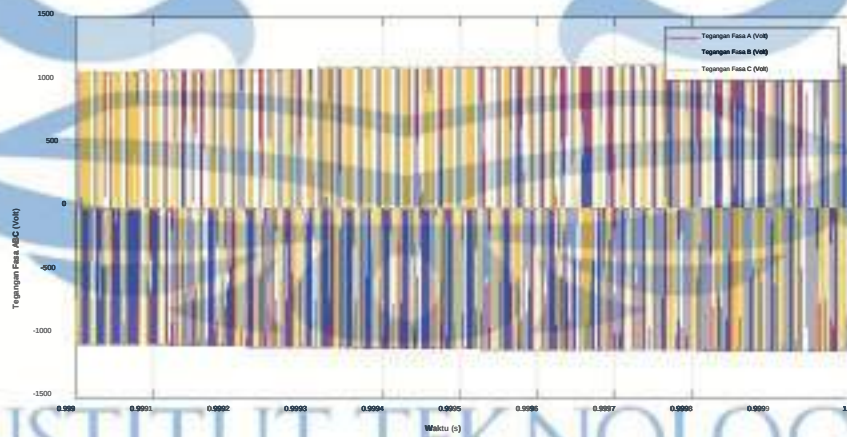
Beban 5 Nm



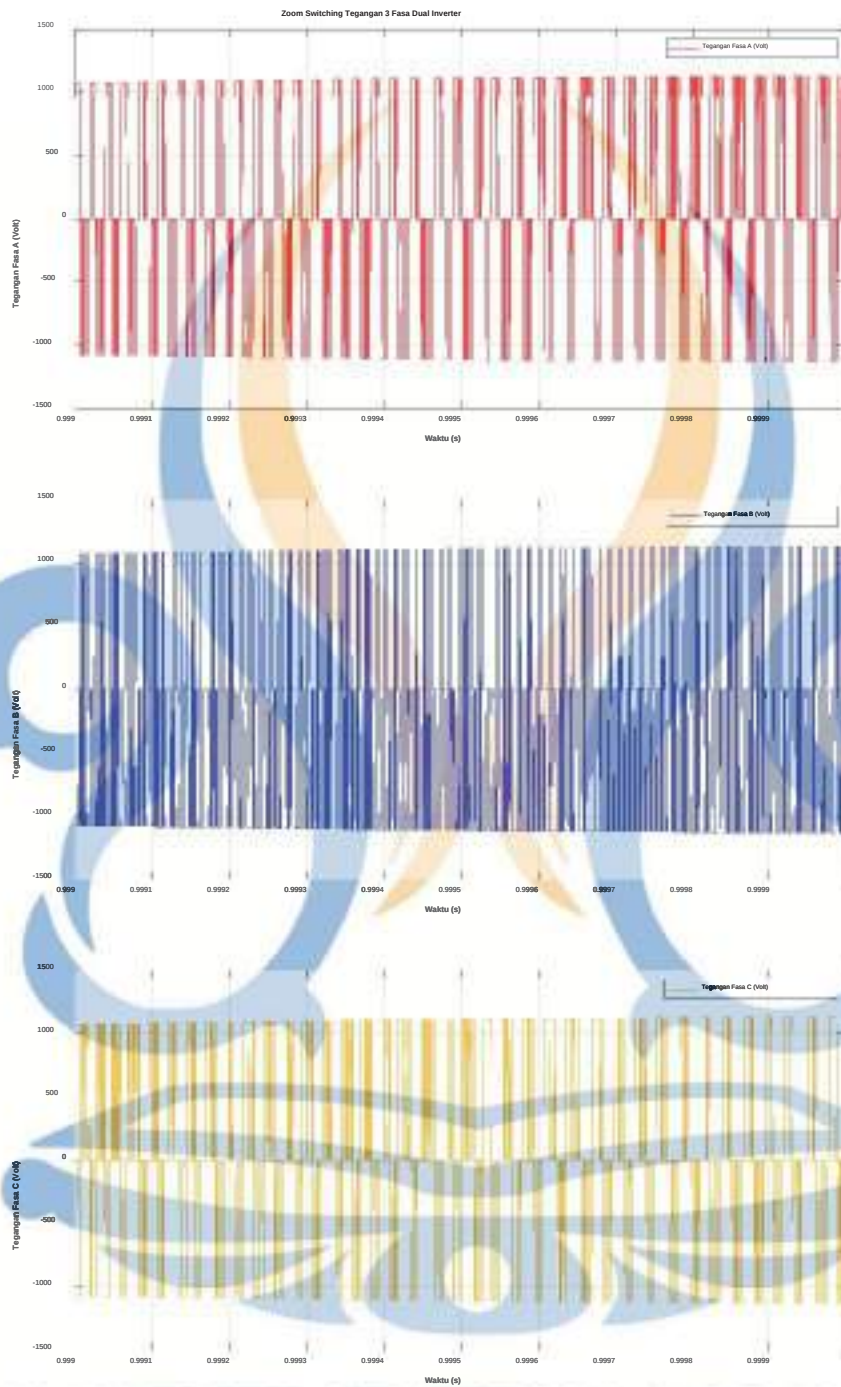
INSTITUT TEKNOLOGI
KALIMANTAN



Beban 10 Nm

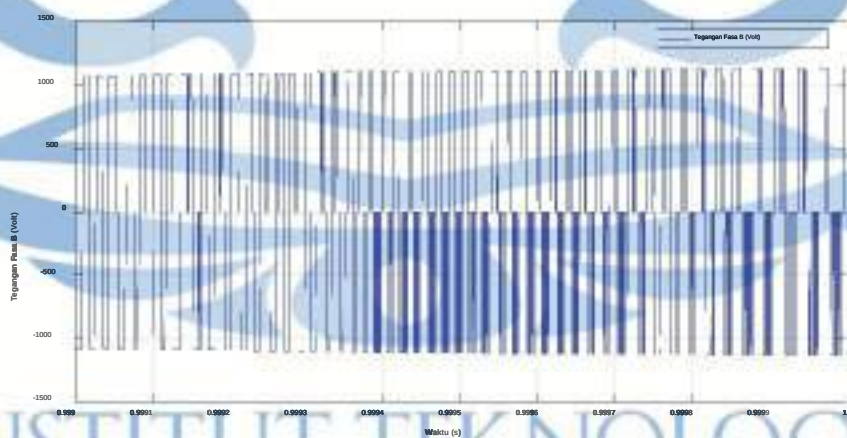
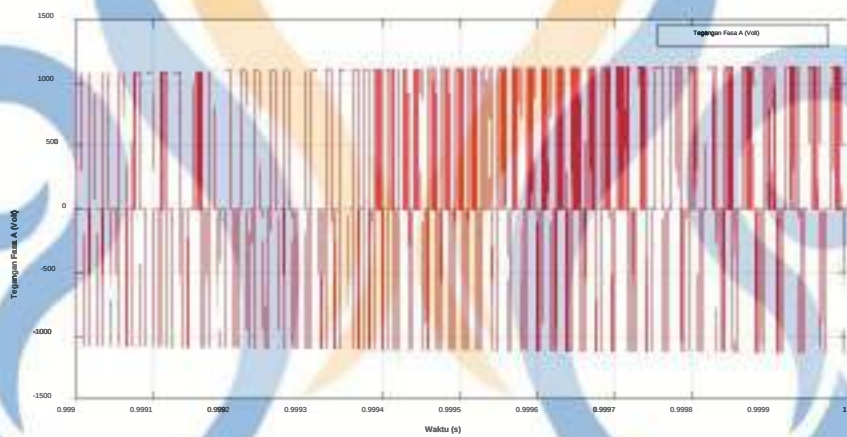
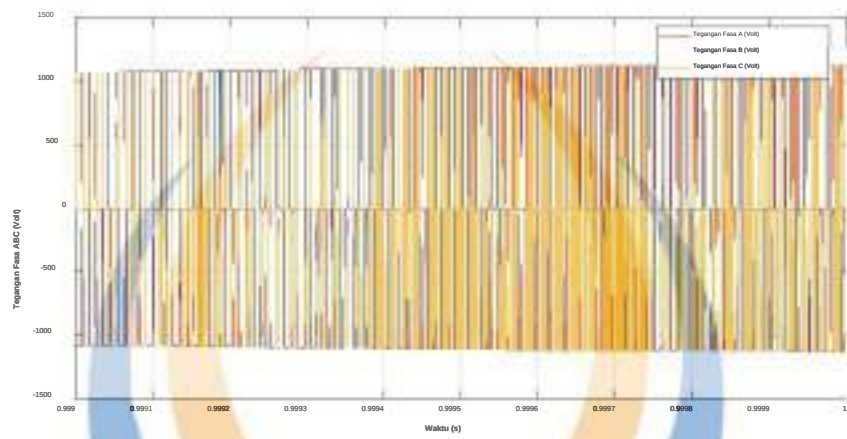


INSTITUT TEKNOLOGI
KALIMANTAN

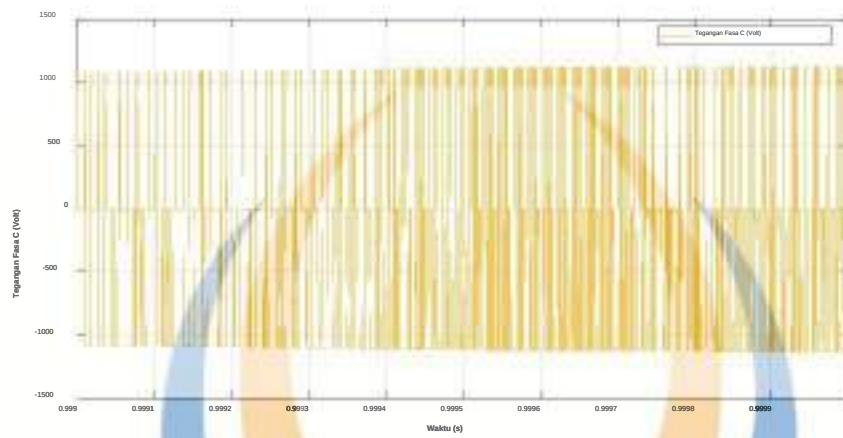


INSTITUT TEKNOLOGI
KALIMANTAN

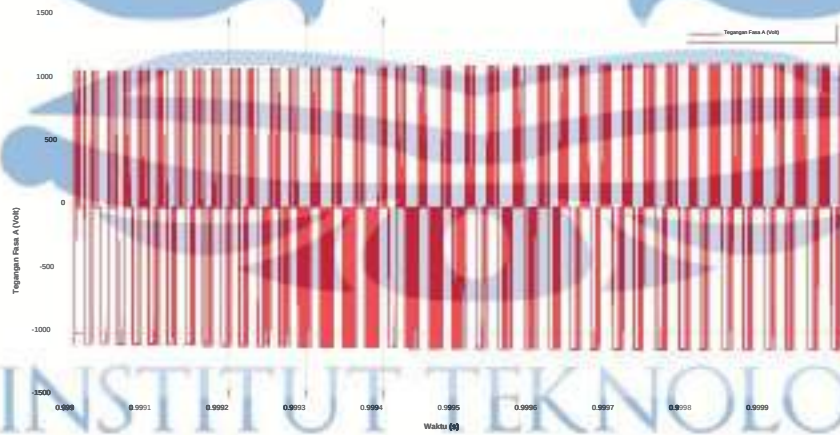
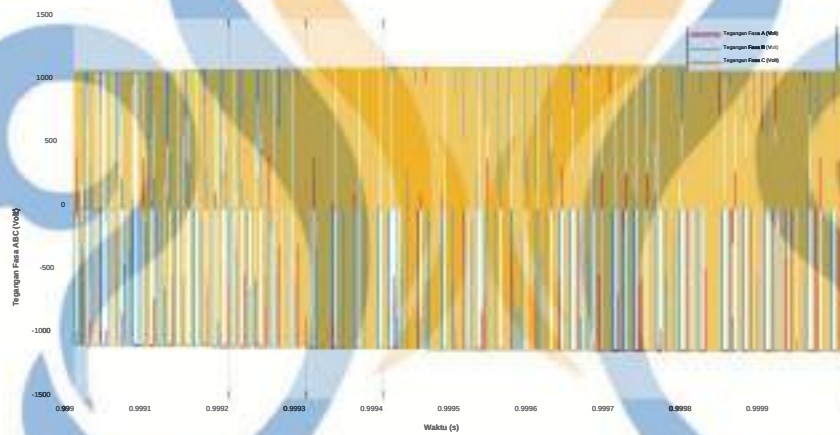
Beban 15 Nm



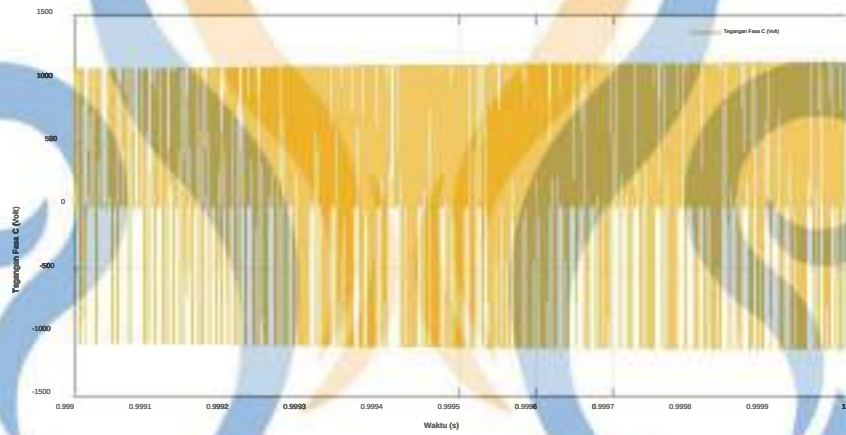
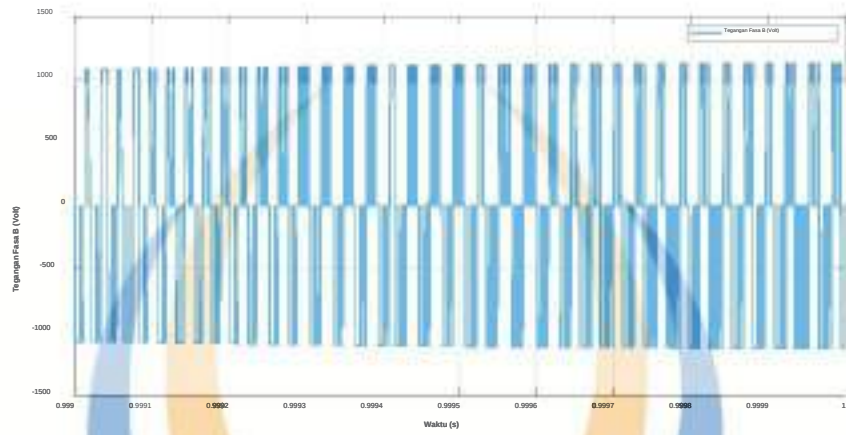
INSTITUT TEKNOLOGI
KALIMANTAN



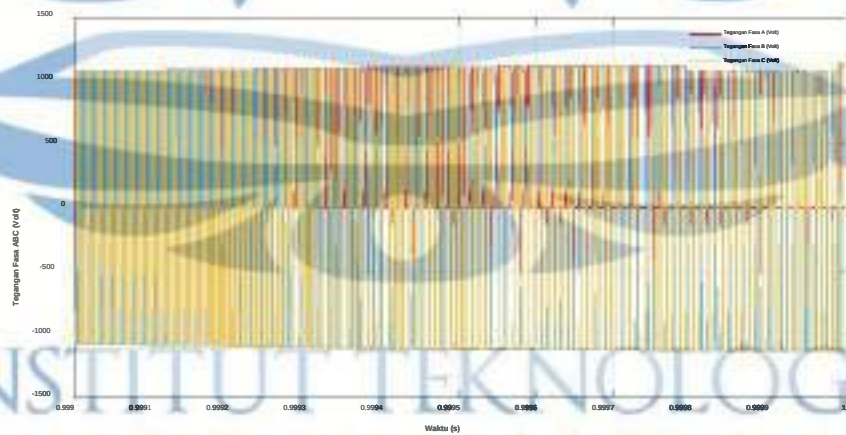
Beban 20 Nm

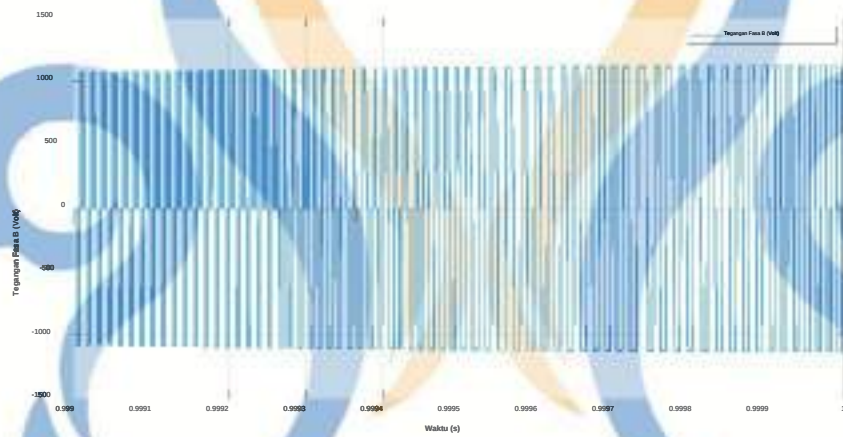
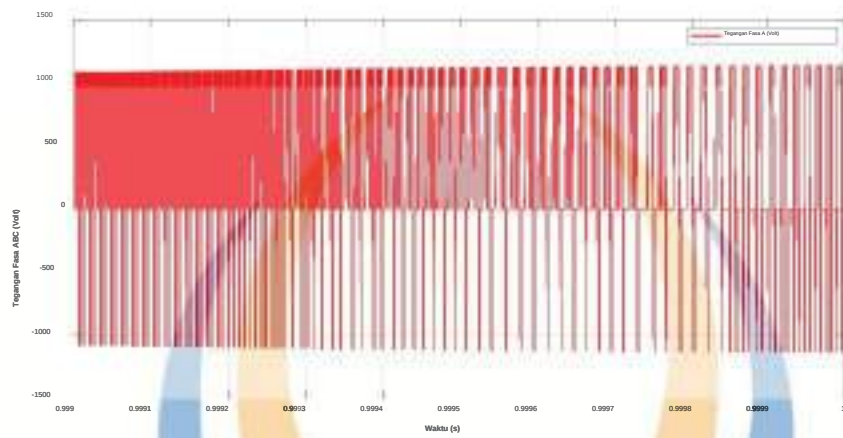


INSTITUT TEKNOLOGI
KALIMANTAN



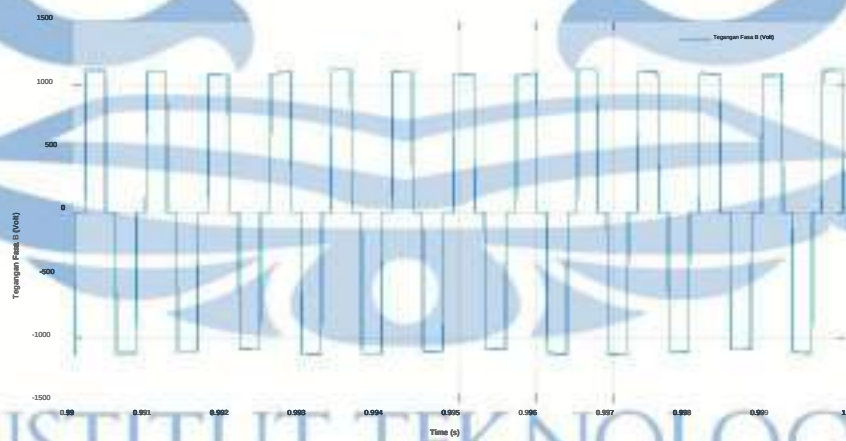
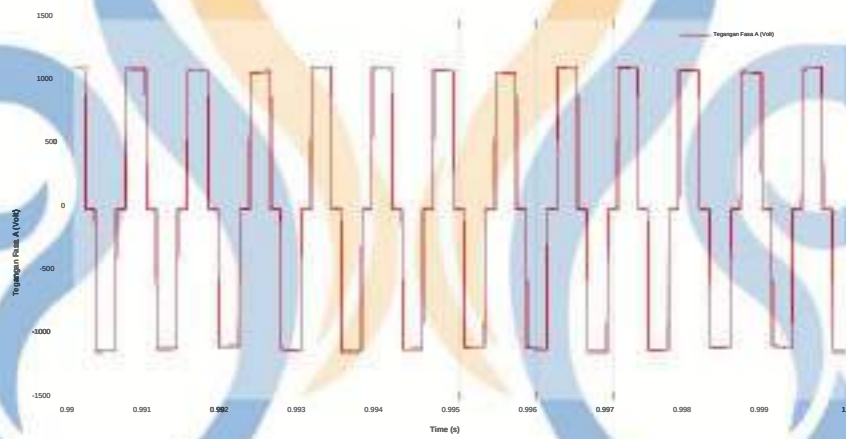
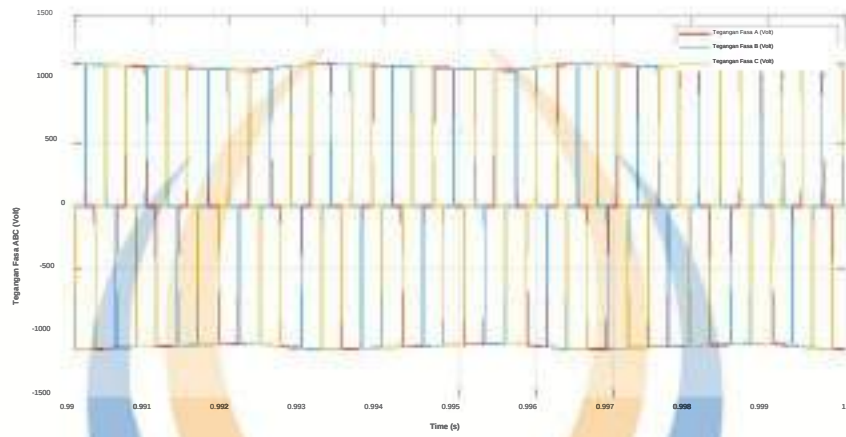
Beban 25 Nm



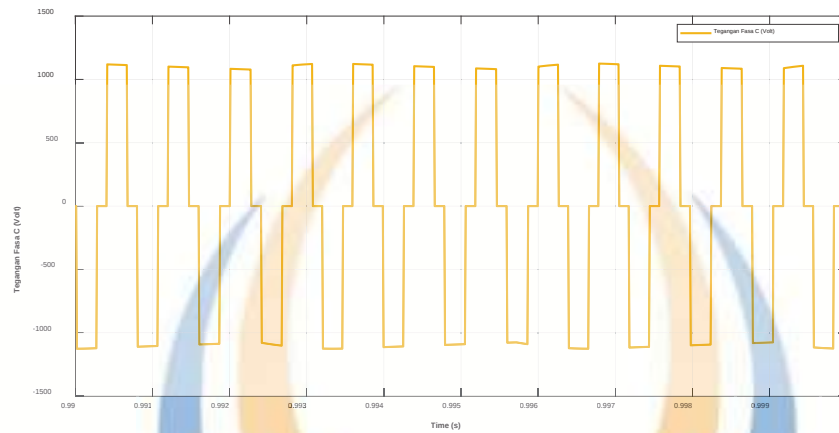


INSTITUT TEKNOLOGI
KALIMANTAN

Beban 26.71 Nm



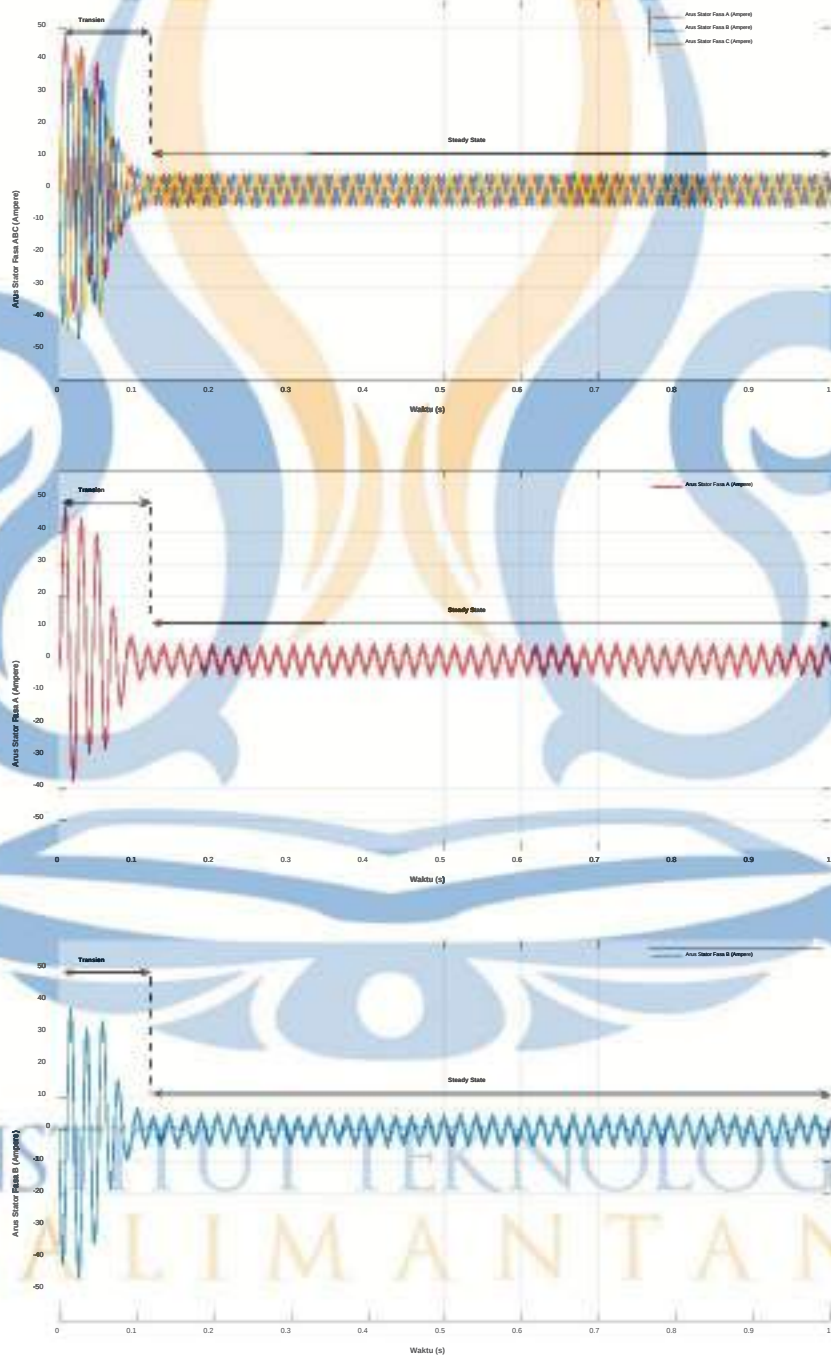
INSTITUT TEKNOLOGI
KALIMANTAN

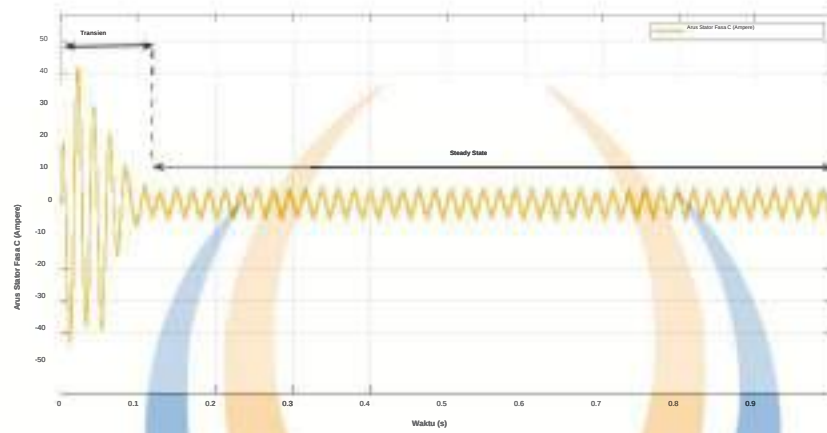


INSTITUT TEKNOLOGI
KALIMANTAN

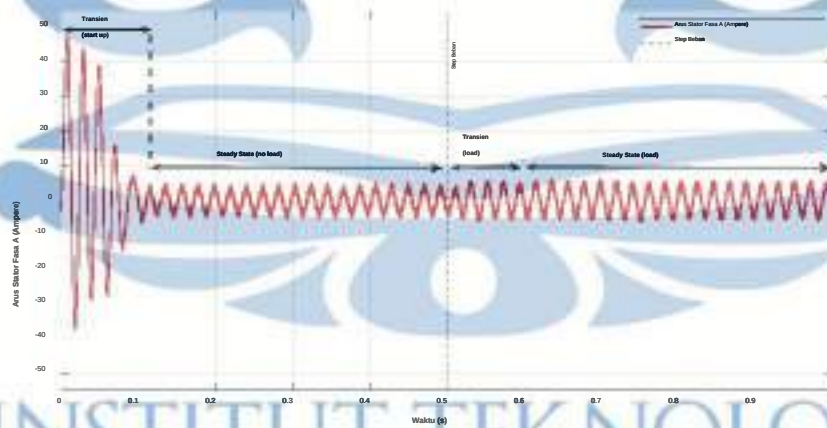
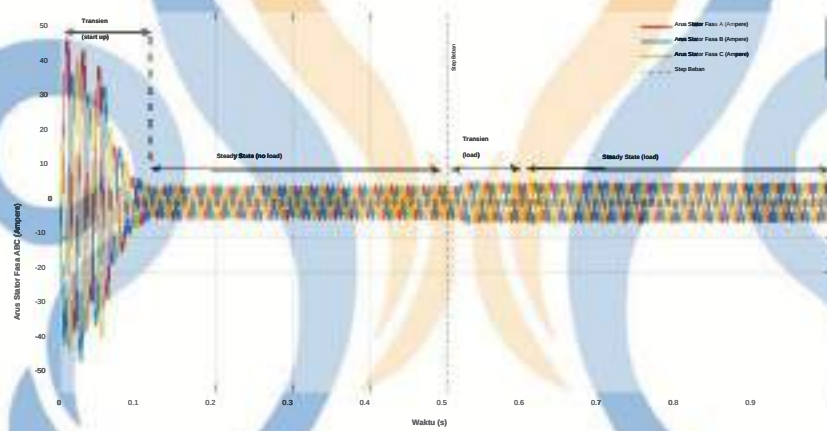
LAMPIRAN D

Lampiran D-1. Arus V/F *Open Loop Single Inverter* (Beban 0, 5, 10, 15 Nm, 20 Nm, 25 Nm dan 26.71 Nm)
Beban 0 Nm

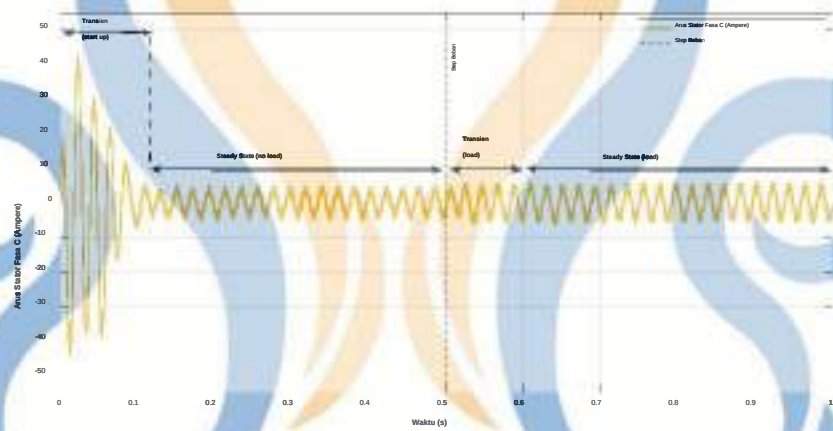
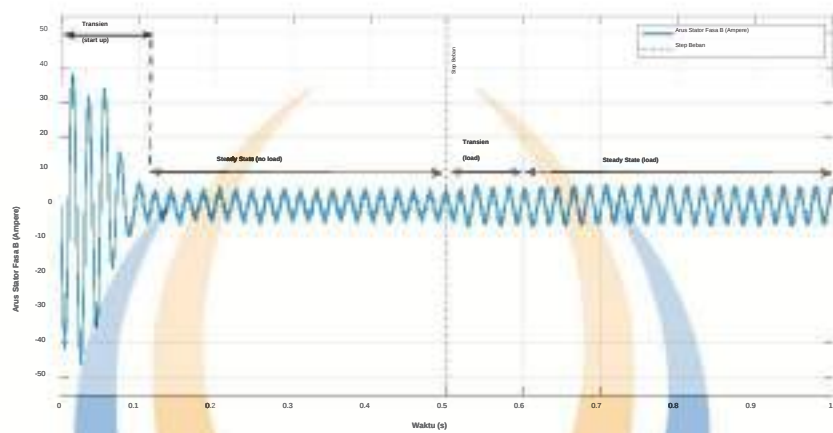




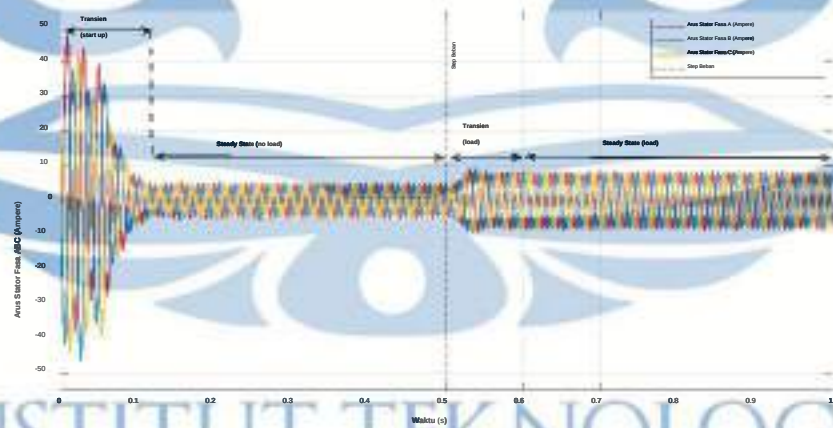
Beban 5 Nm



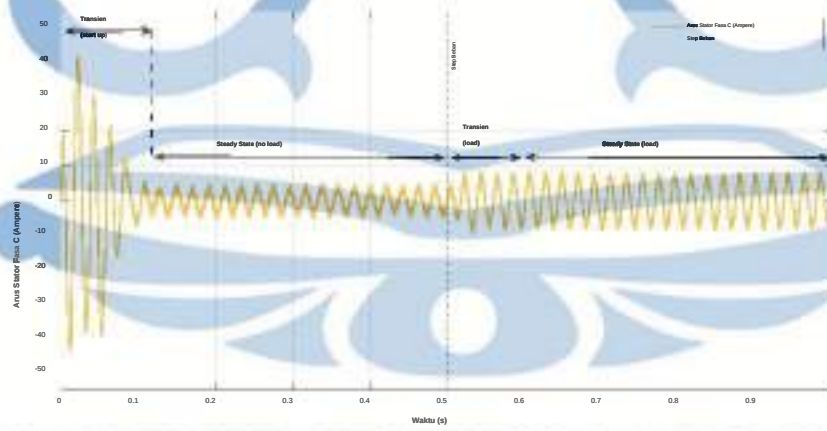
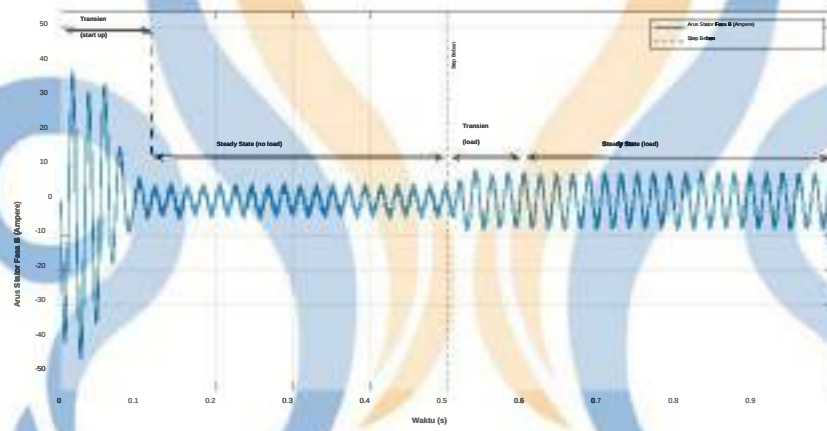
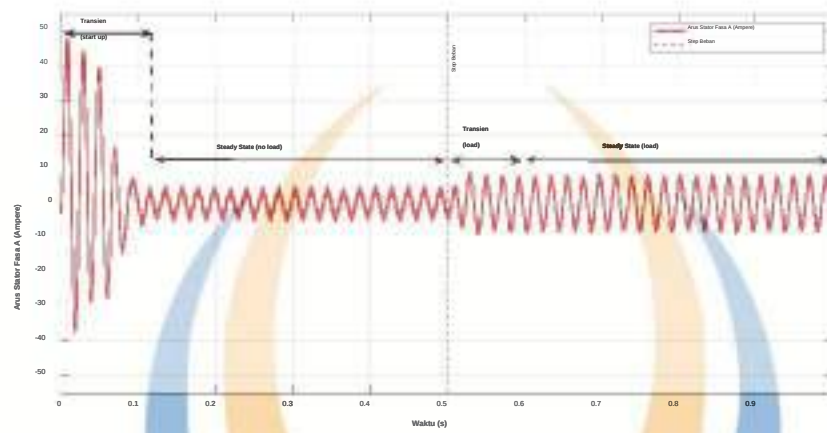
INSTITUT TEKNOLOGI
KALIMANTAN



Beban 10 Nm

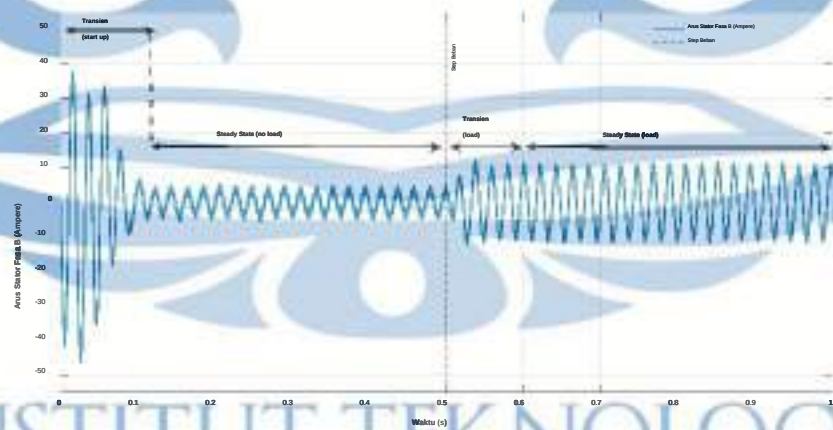
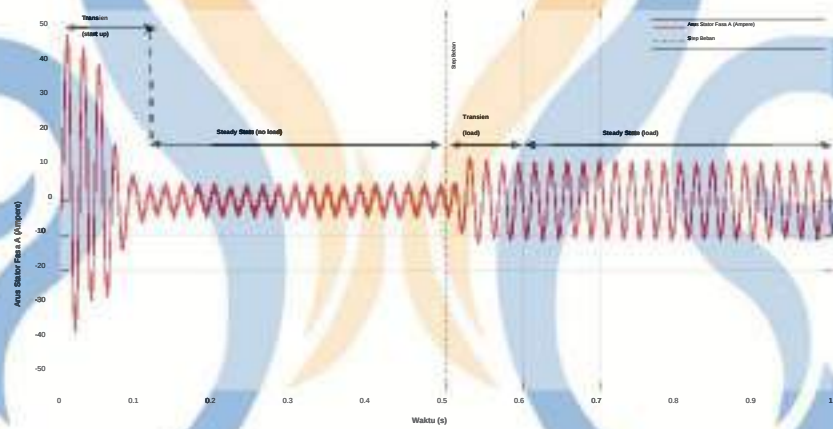
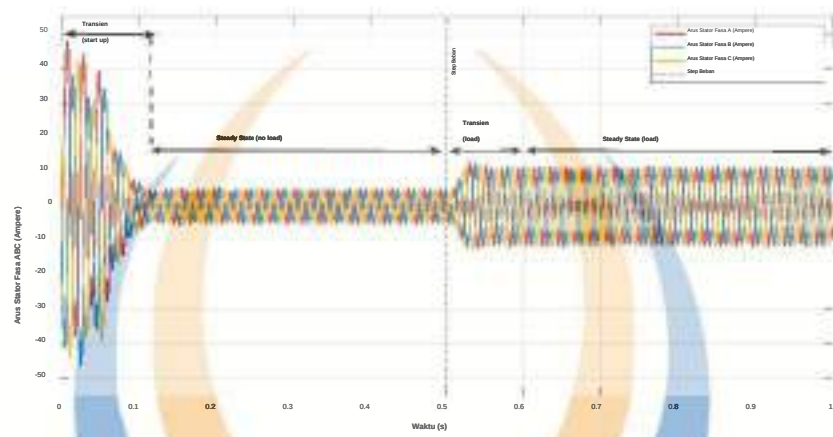


INSTITUT TEKNOLOGI
KALIMANTAN

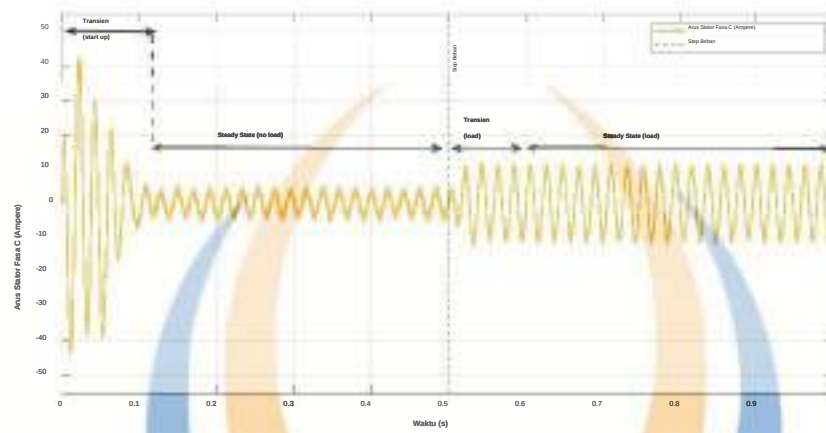


INSTITUT TEKNOLOGI
KALIMANTAN

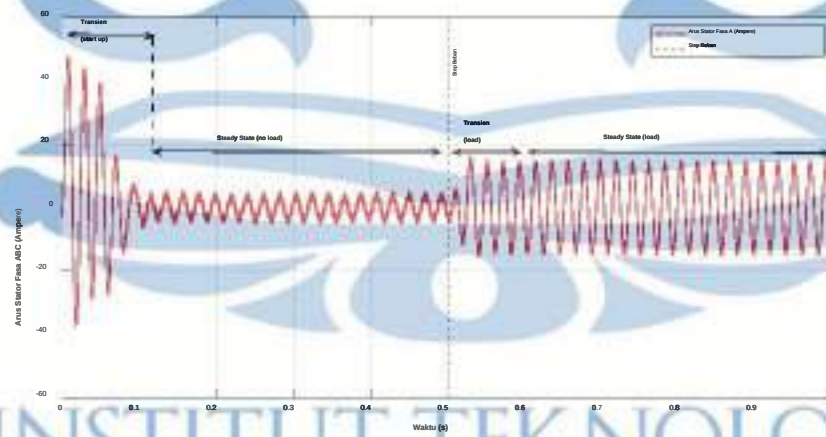
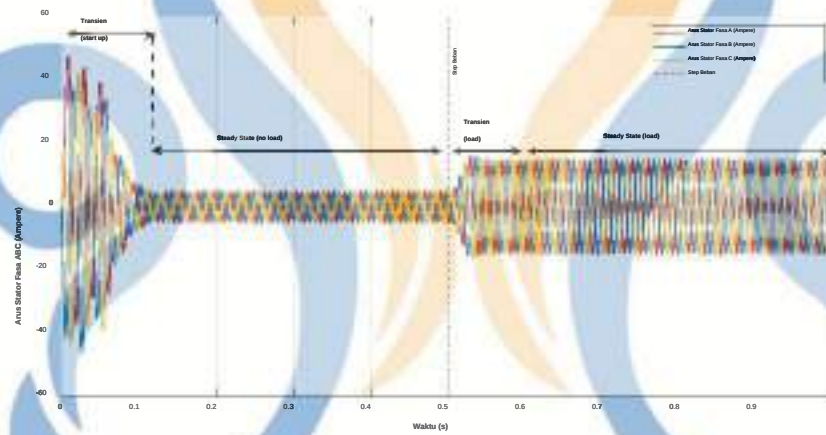
Beban 15 Nm



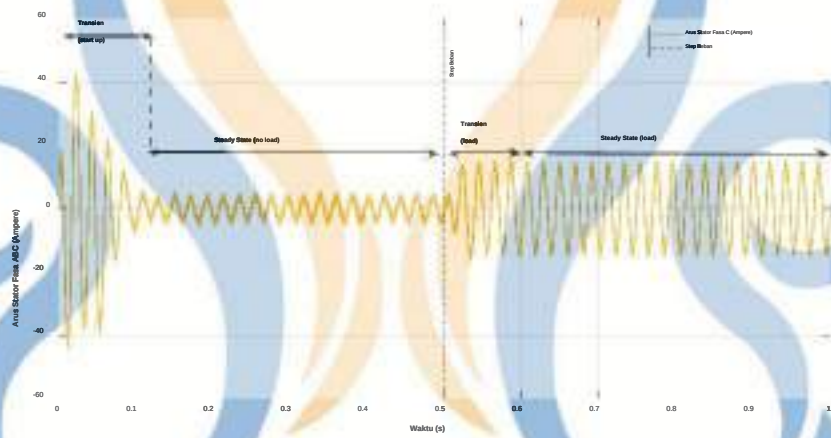
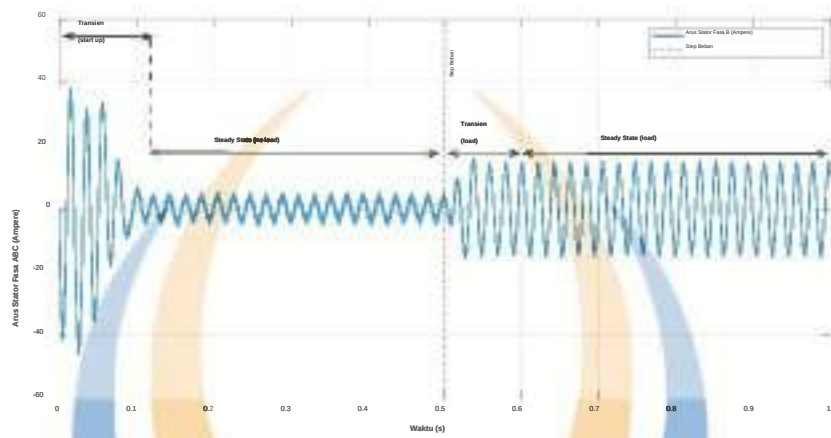
INSTITUT TEKNOLOGI
KALIMANTAN



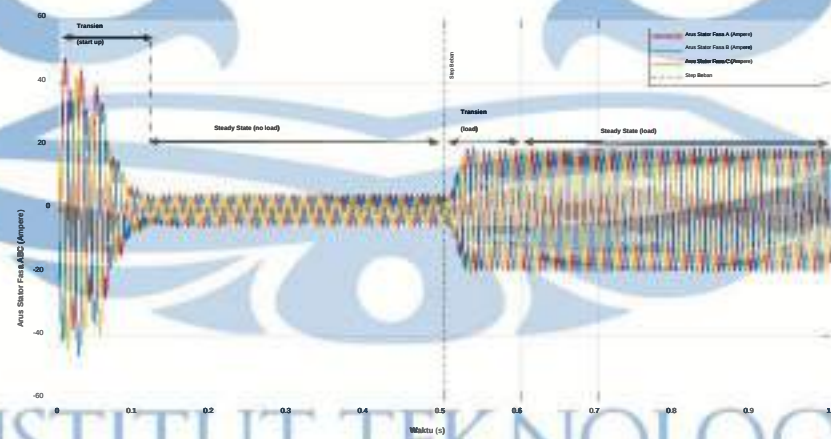
Beban 20 Nm



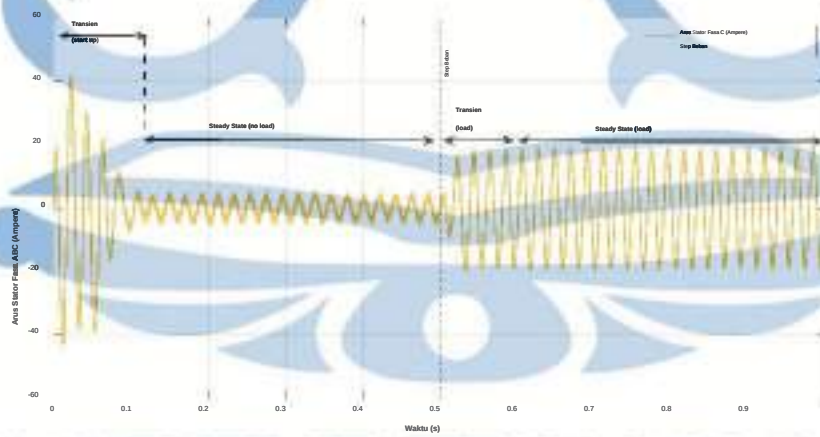
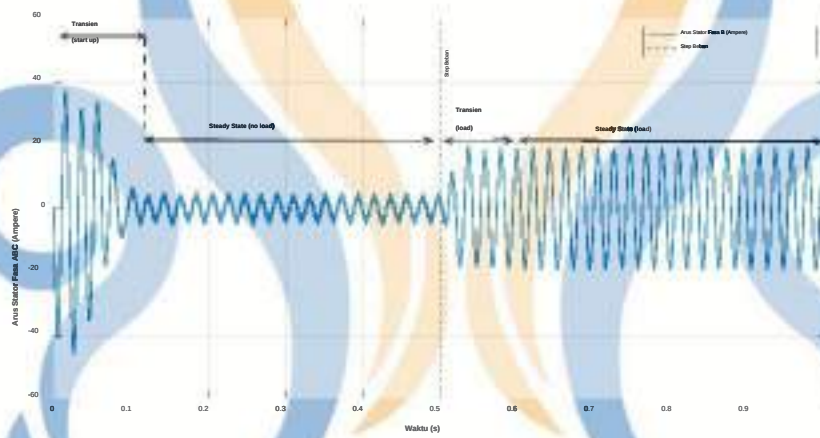
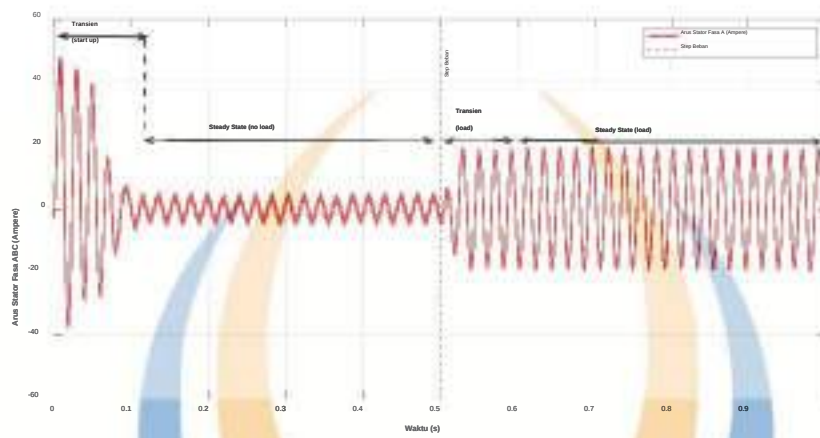
INSTITUT TEKNOLOGI
KALIMANTAN



Beban 25 Nm

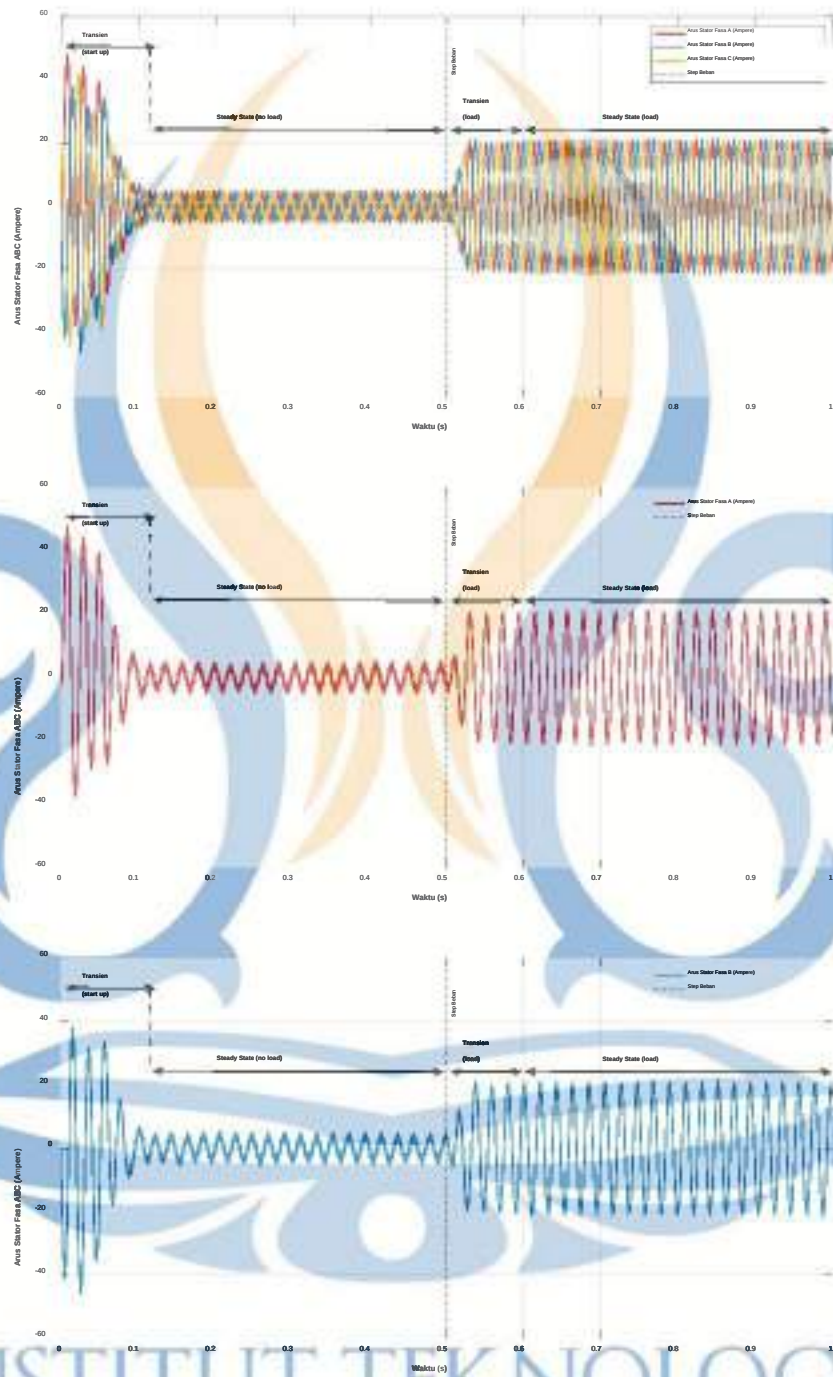


INSTITUT TEKNOLOGI
KALIMANTAN

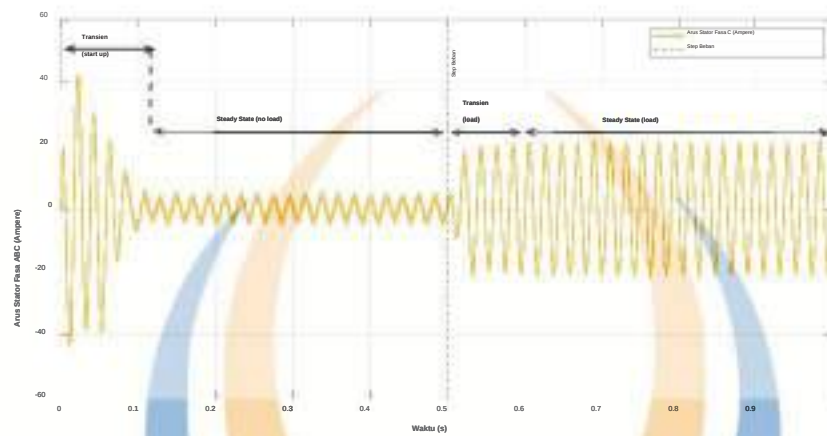


INSTITUT TEKNOLOGI
KALIMANTAN

Beban 26.71 Nm



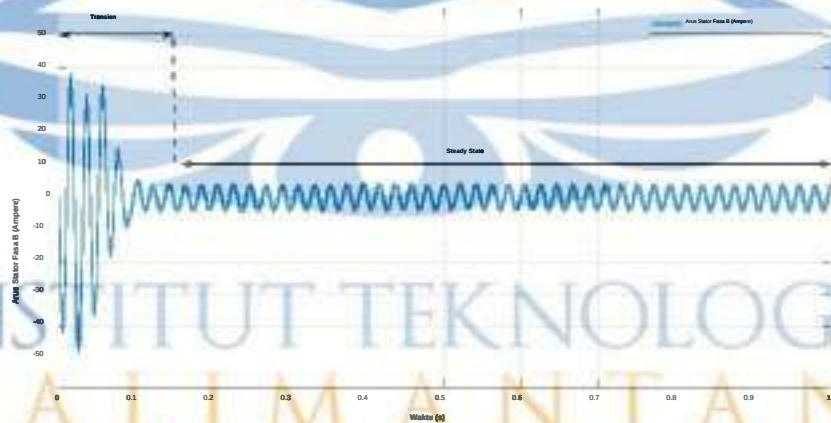
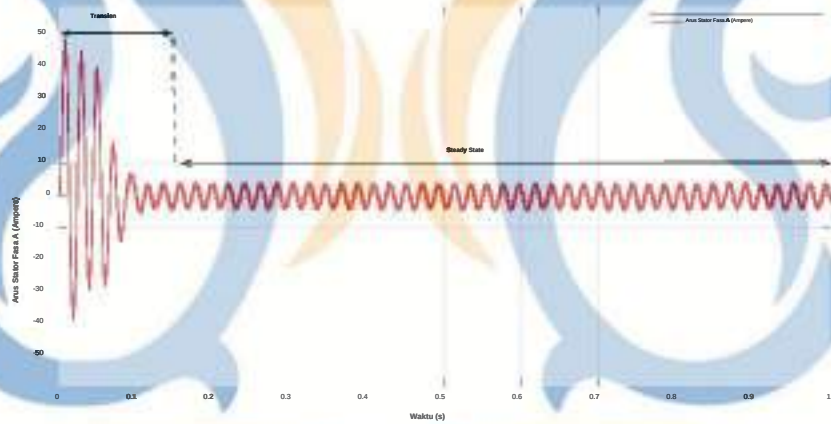
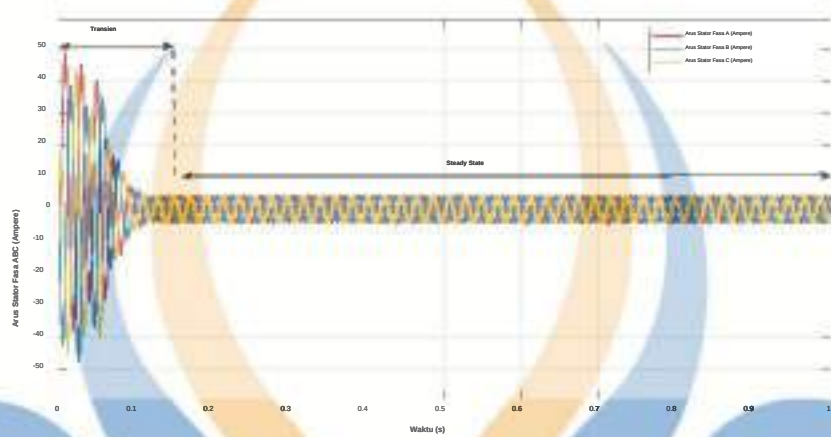
INSTITUT TEKNOLOGI
KALIMANTAN

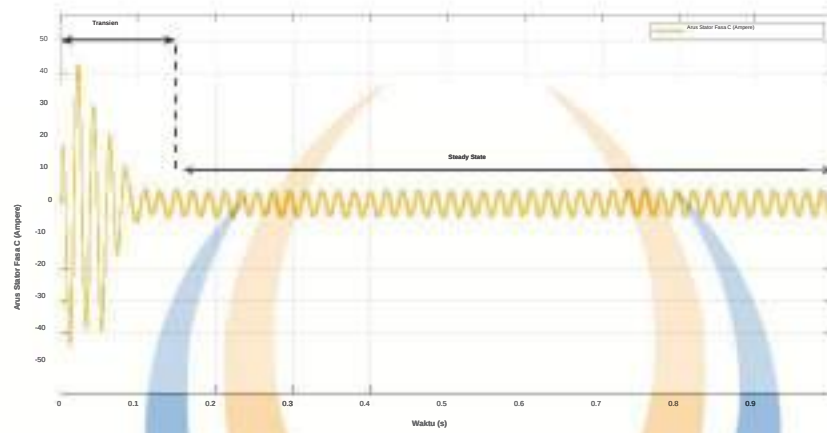


INSTITUT TEKNOLOGI
KALIMANTAN

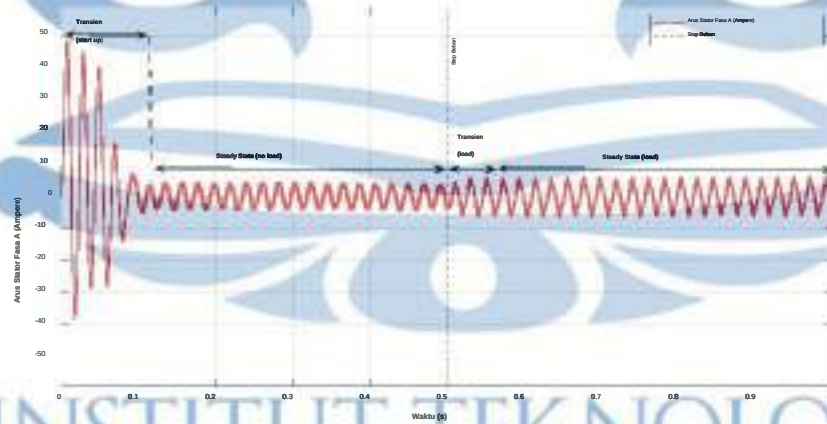
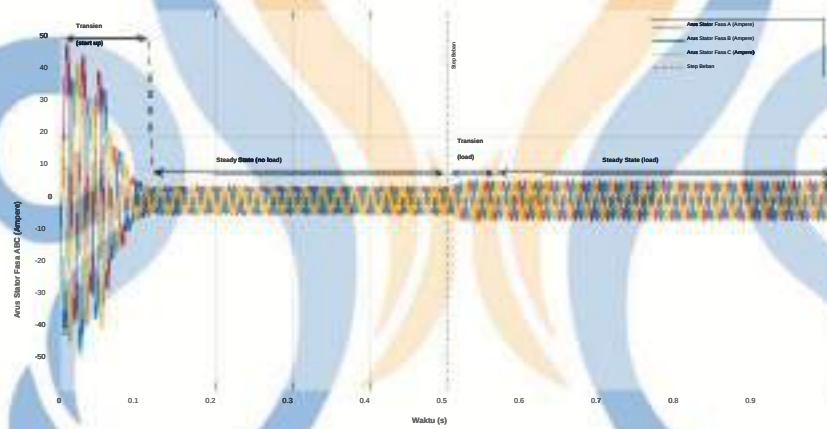
Lampiran D-2 Arus V/F *Open Loop Dual Inverter* (Beban 0, 5, 10, 15 Nm, 20 Nm, 25 Nm dan 26.71 Nm)

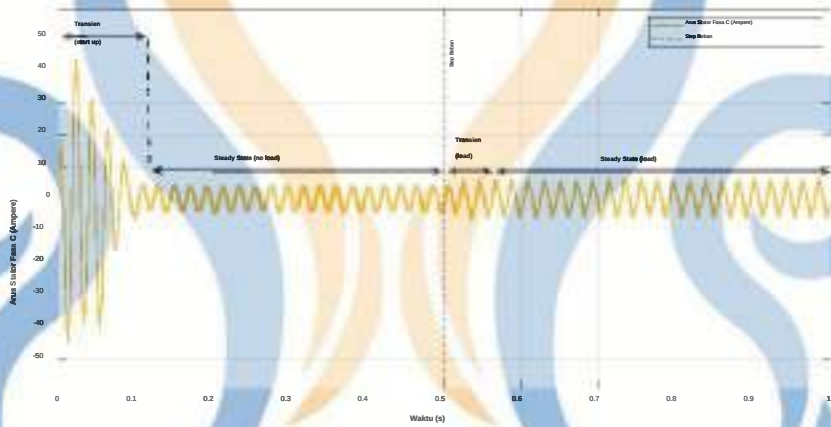
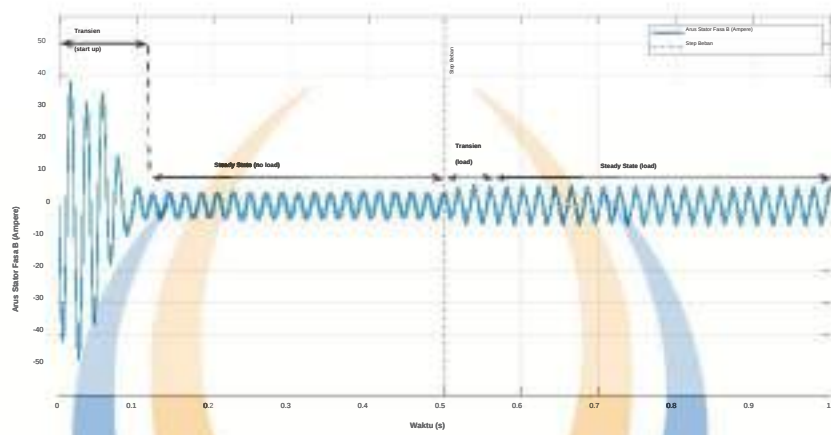
Beban 0 Nm



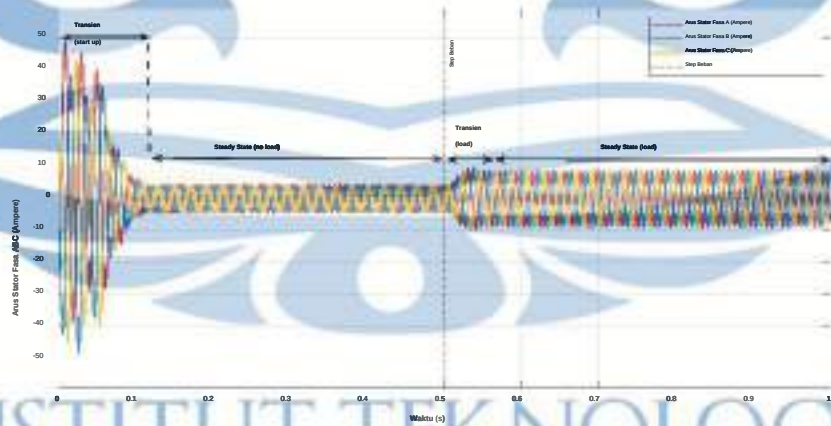


Beban 5 Nm

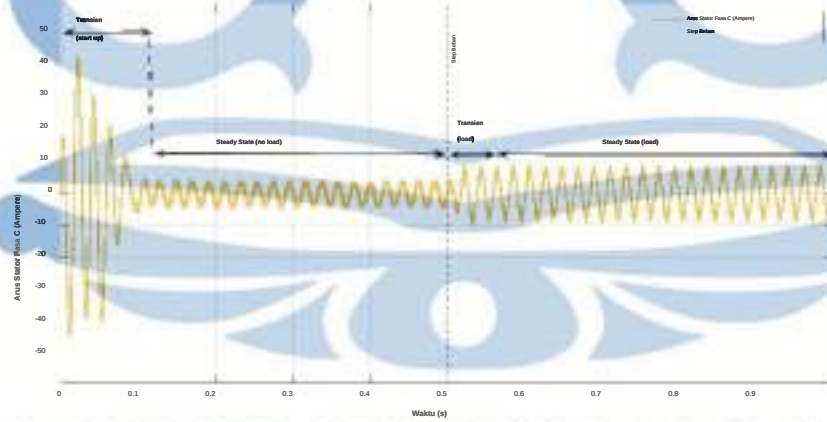
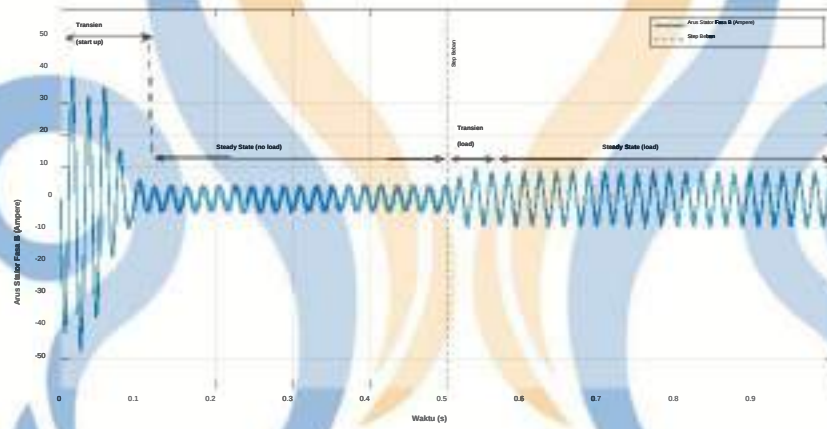
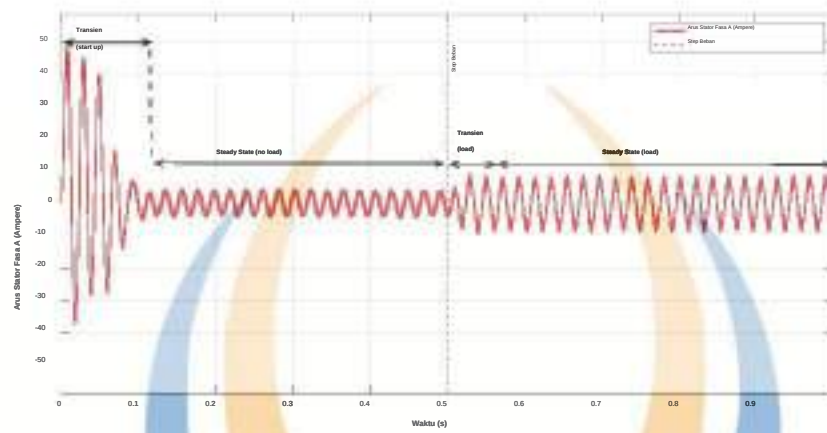




Beban 10 Nm

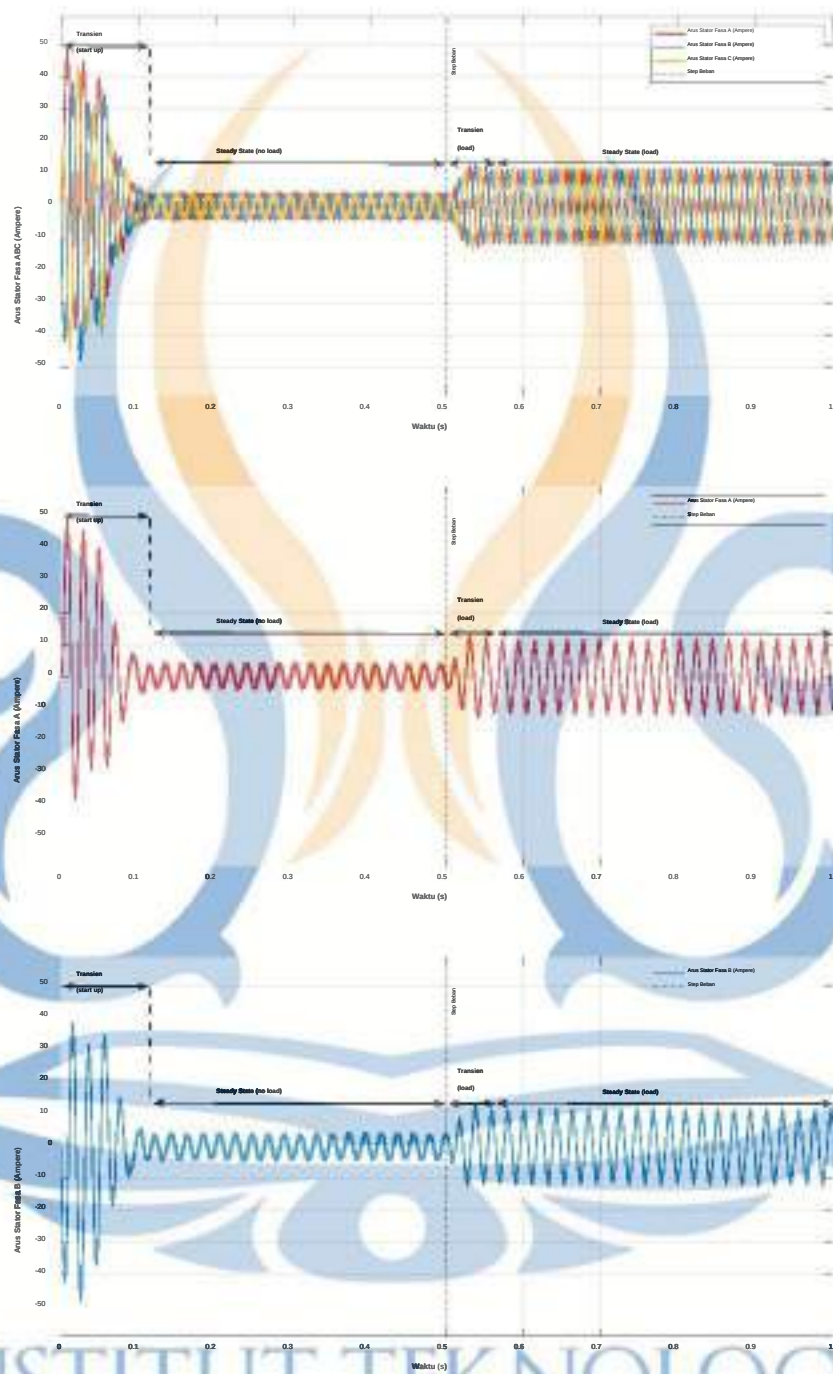


INSTITUT TEKNOLOGI
KALIMANTAN

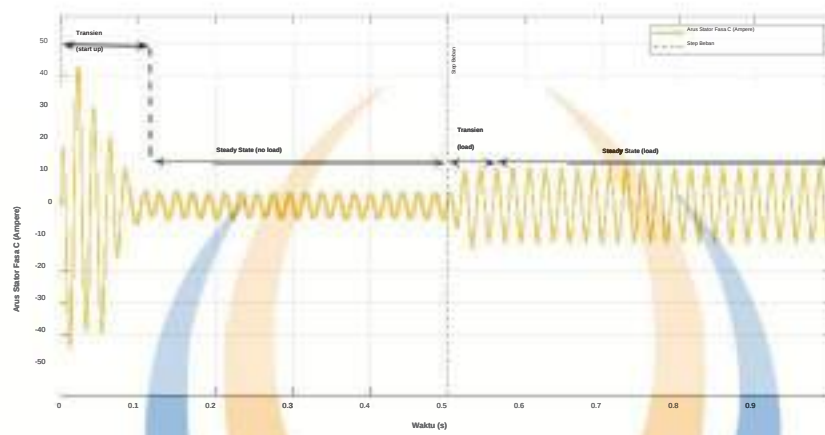


INSTITUT TEKNOLOGI
KALIMANTAN

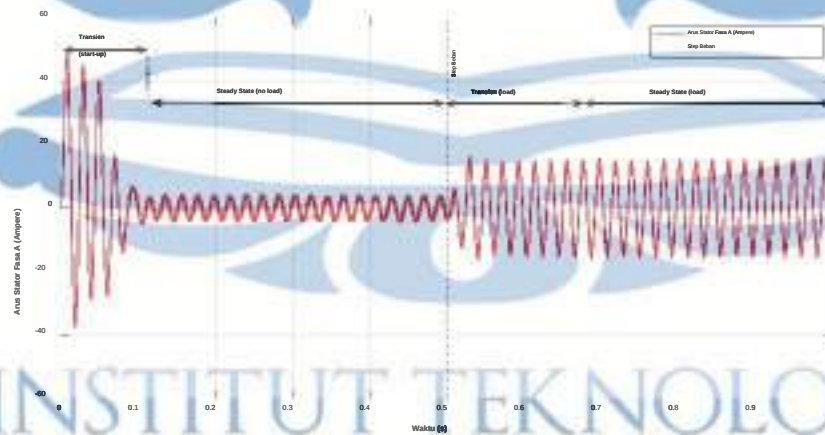
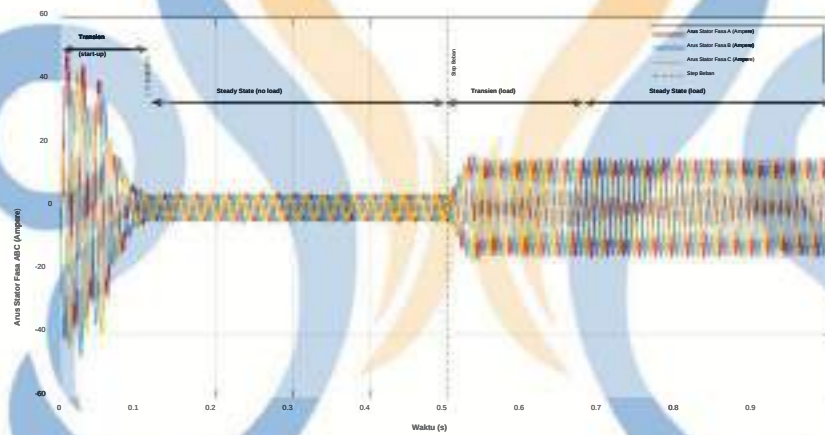
Beban 15 Nm

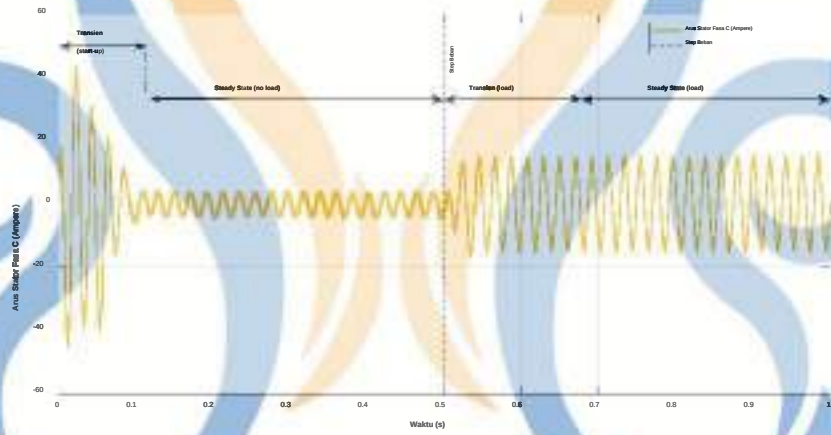
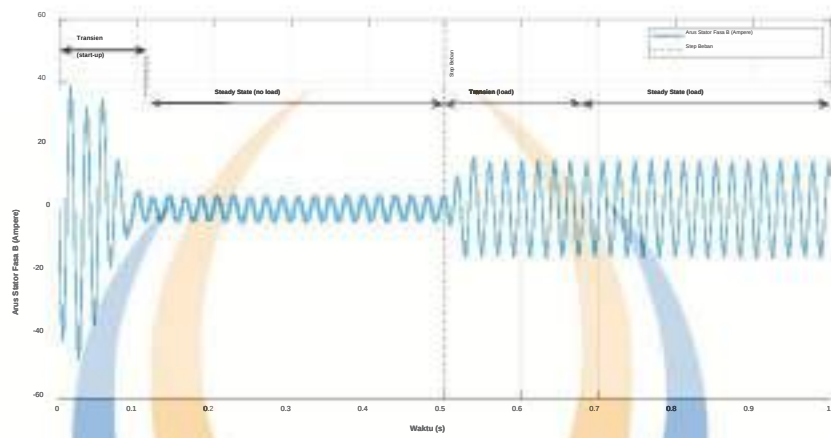


INSTITUT TEKNOLOGI
KALIMANTAN

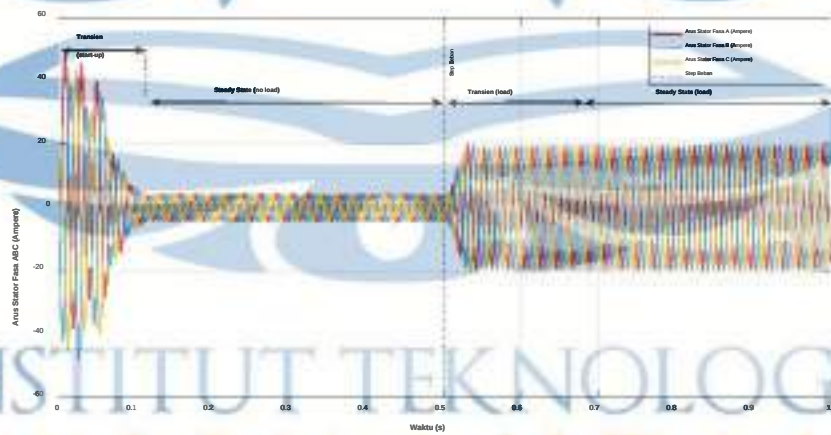


Beban 20 Nm

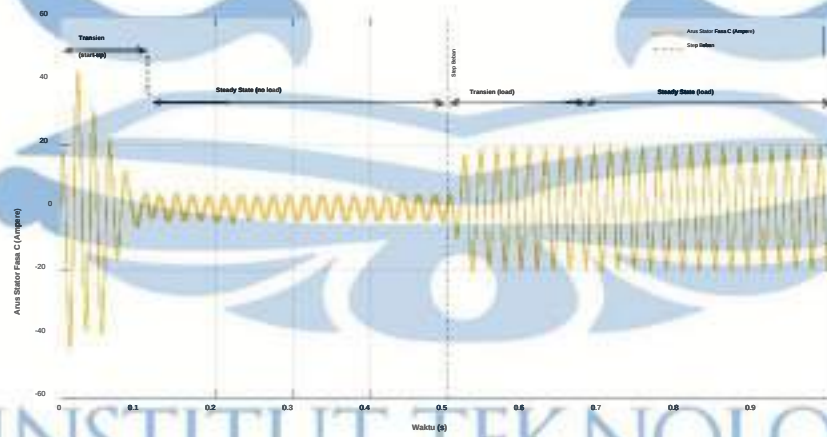
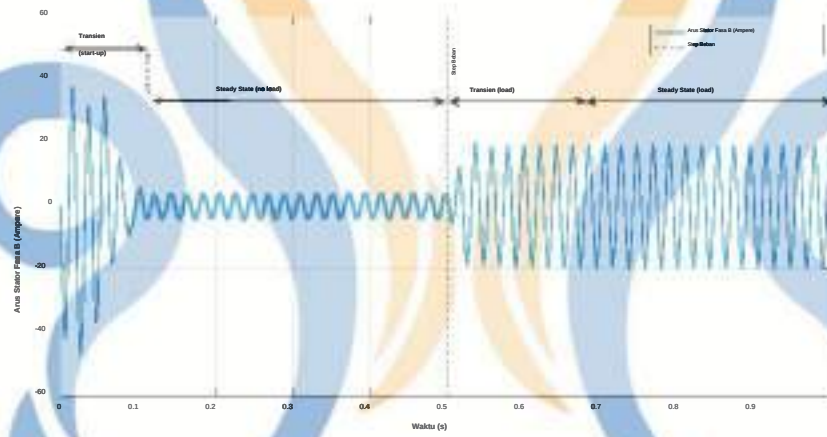
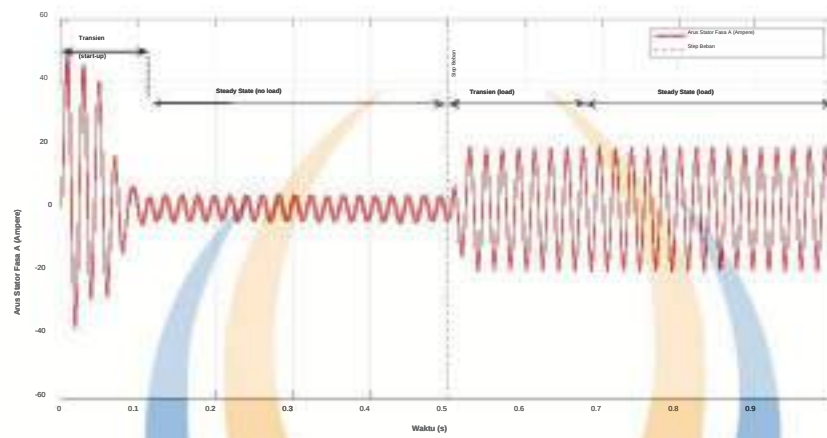




Beban 25 Nm

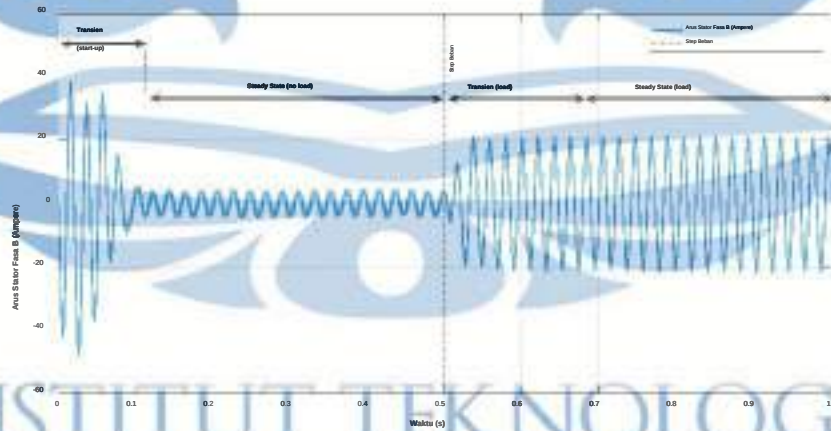
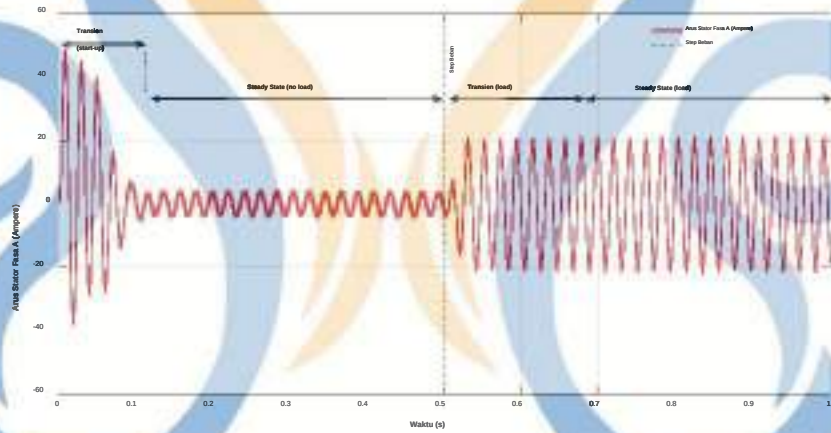
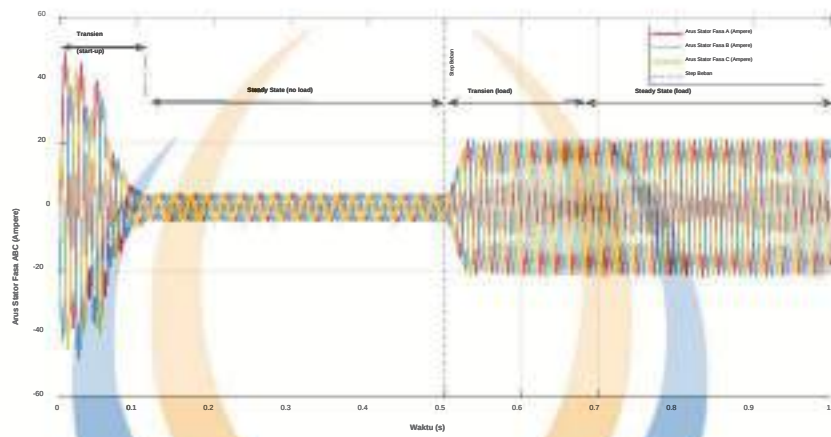


INSTITUT TEKNOLOGI
KALIMANTAN

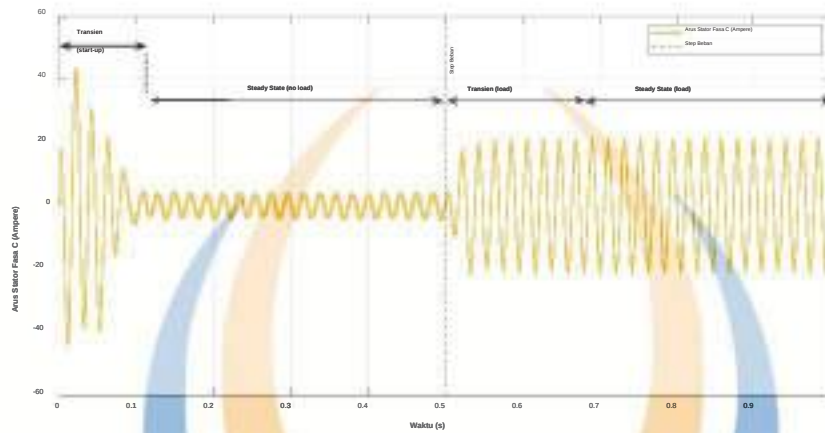


INSTITUT TEKNOLOGI
KALIMANTAN

Beban 26.71 Nm



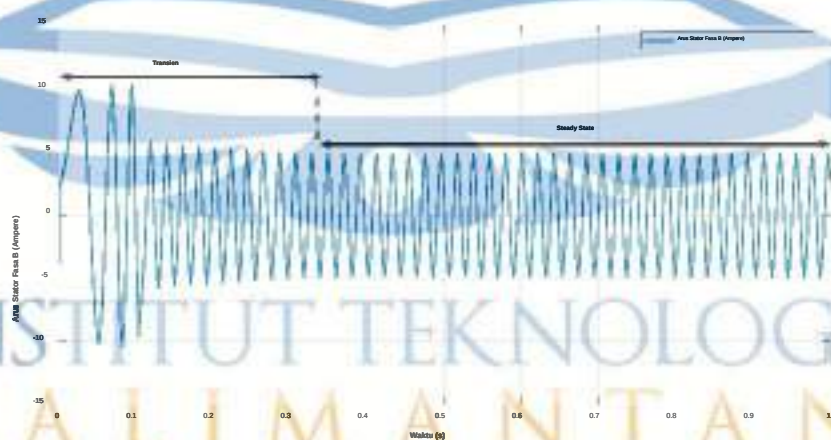
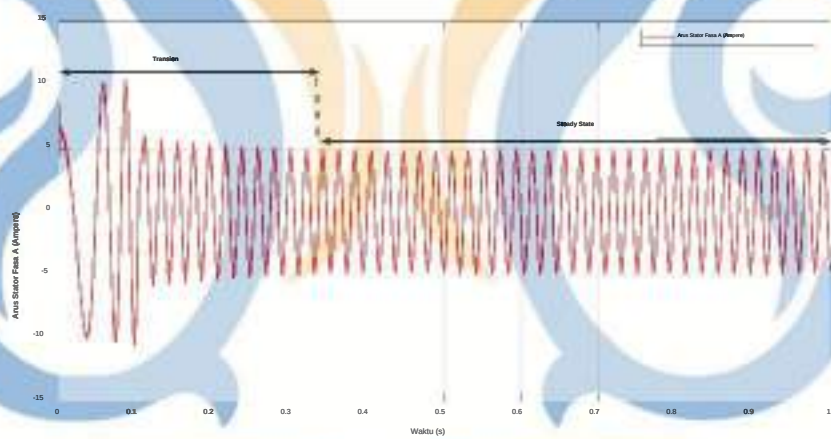
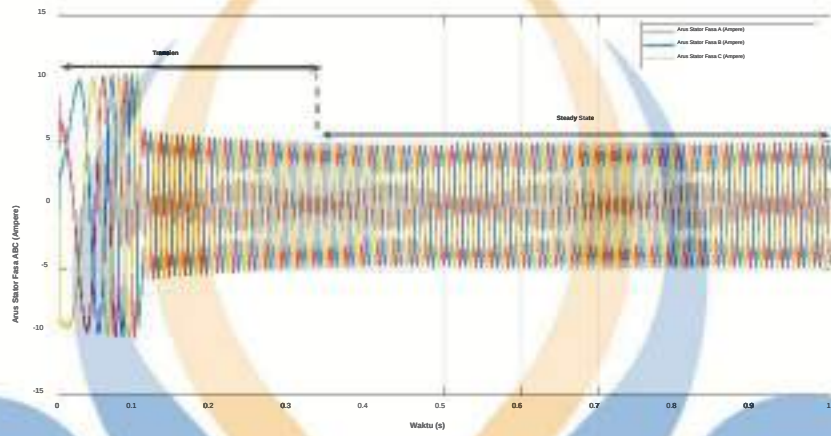
INSTITUT TEKNOLOGI
KALIMANTAN

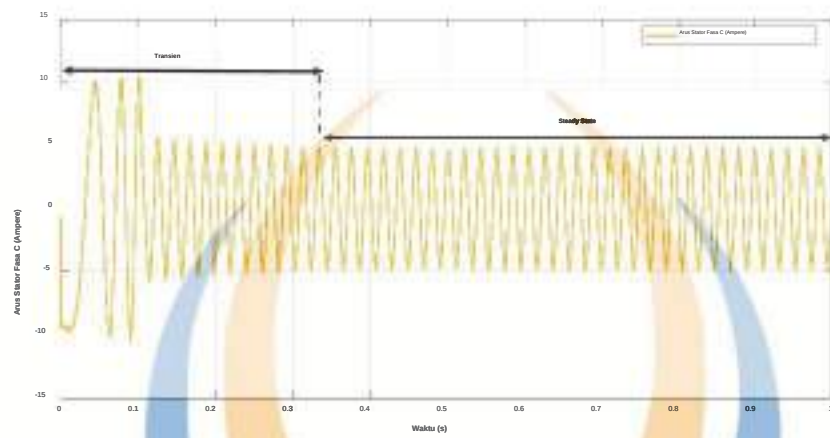


INSTITUT TEKNOLOGI
KALIMANTAN

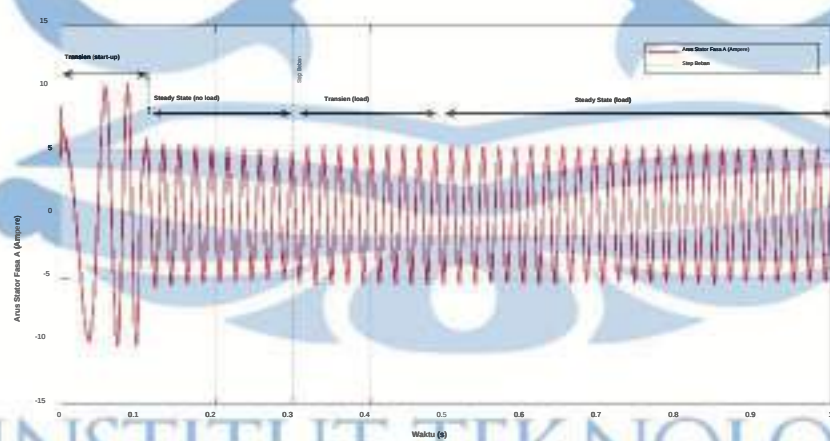
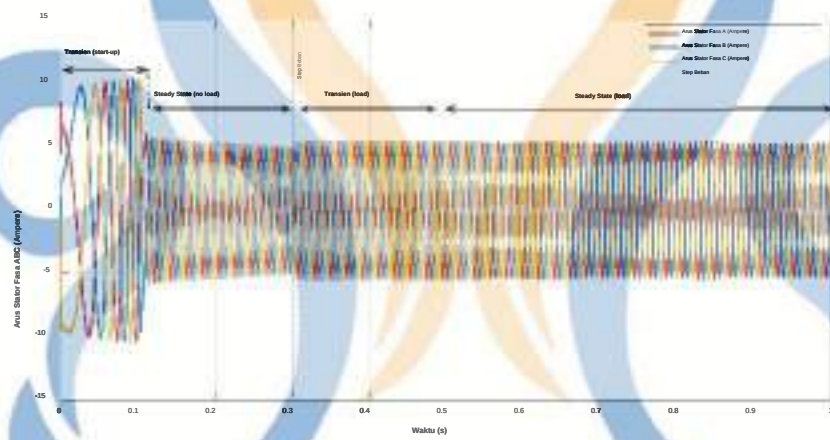
Lampiran D-3 Arus DTC-HBPWM *Single Inverter* (Beban 0, 5, 10, 15 Nm, 20 Nm, 25 Nm dan 26.71 Nm)

Beban 0 Nm

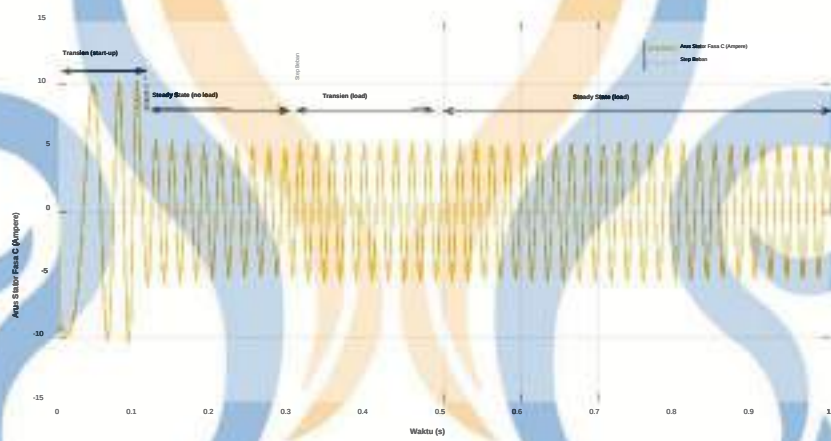
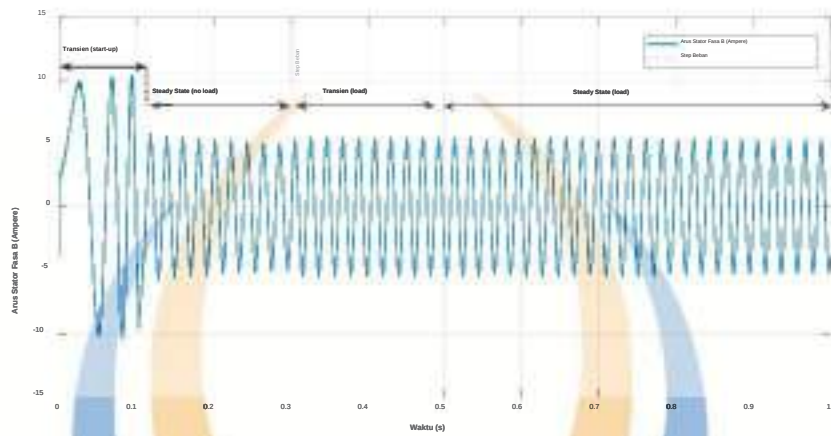




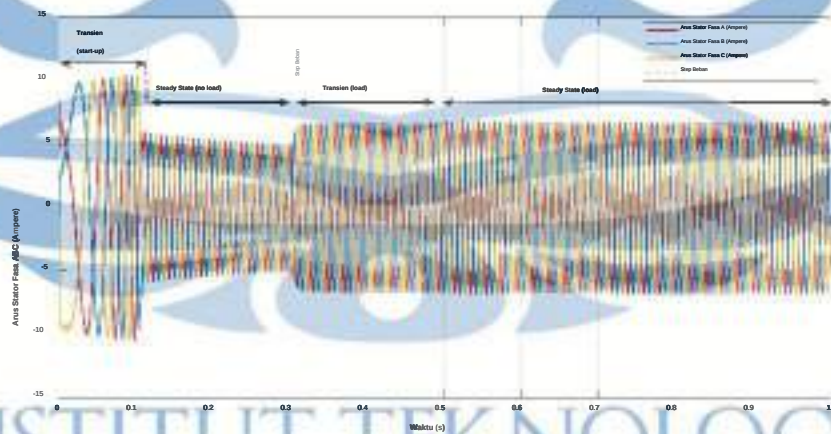
Beban 5 Nm



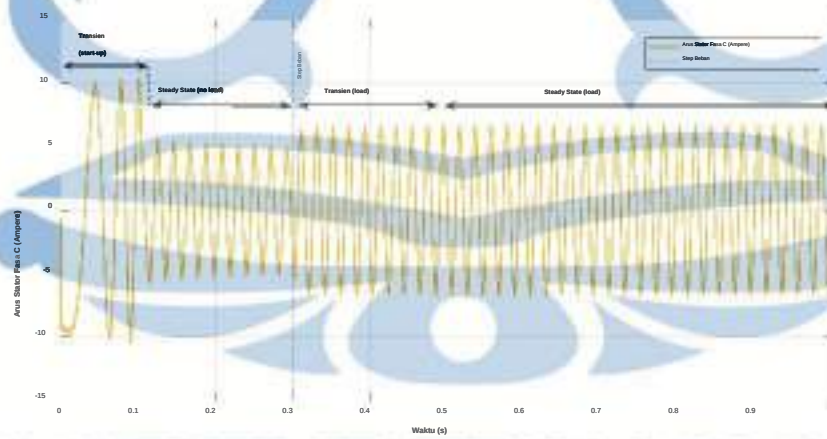
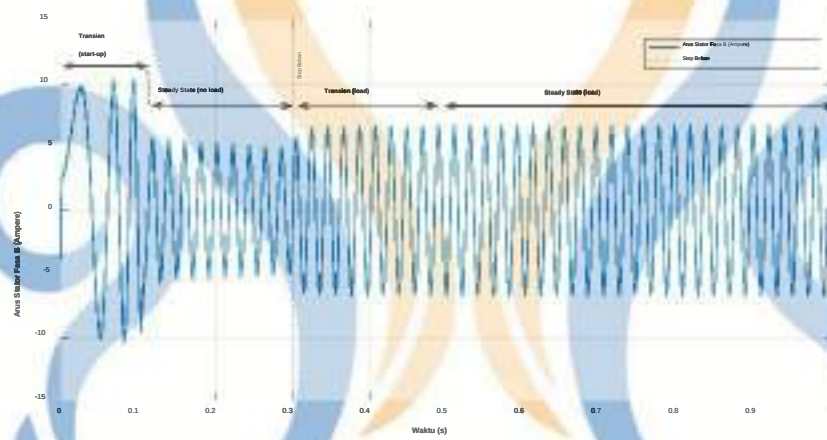
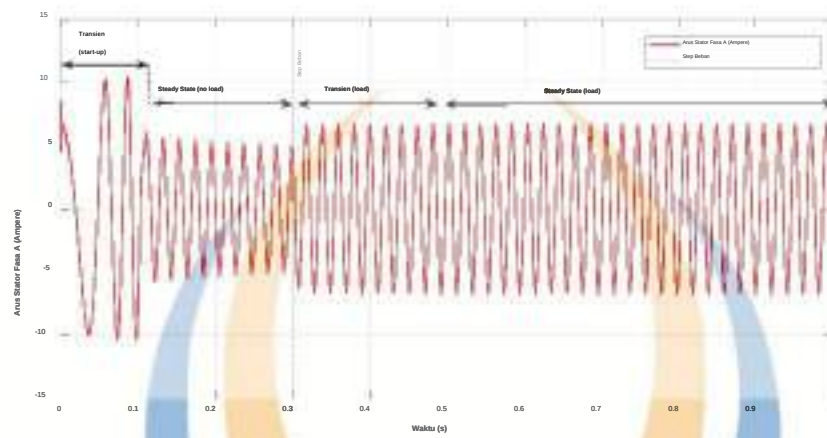
INSTITUT TEKNOLOGI
KALIMANTAN



Beban 10 Nm

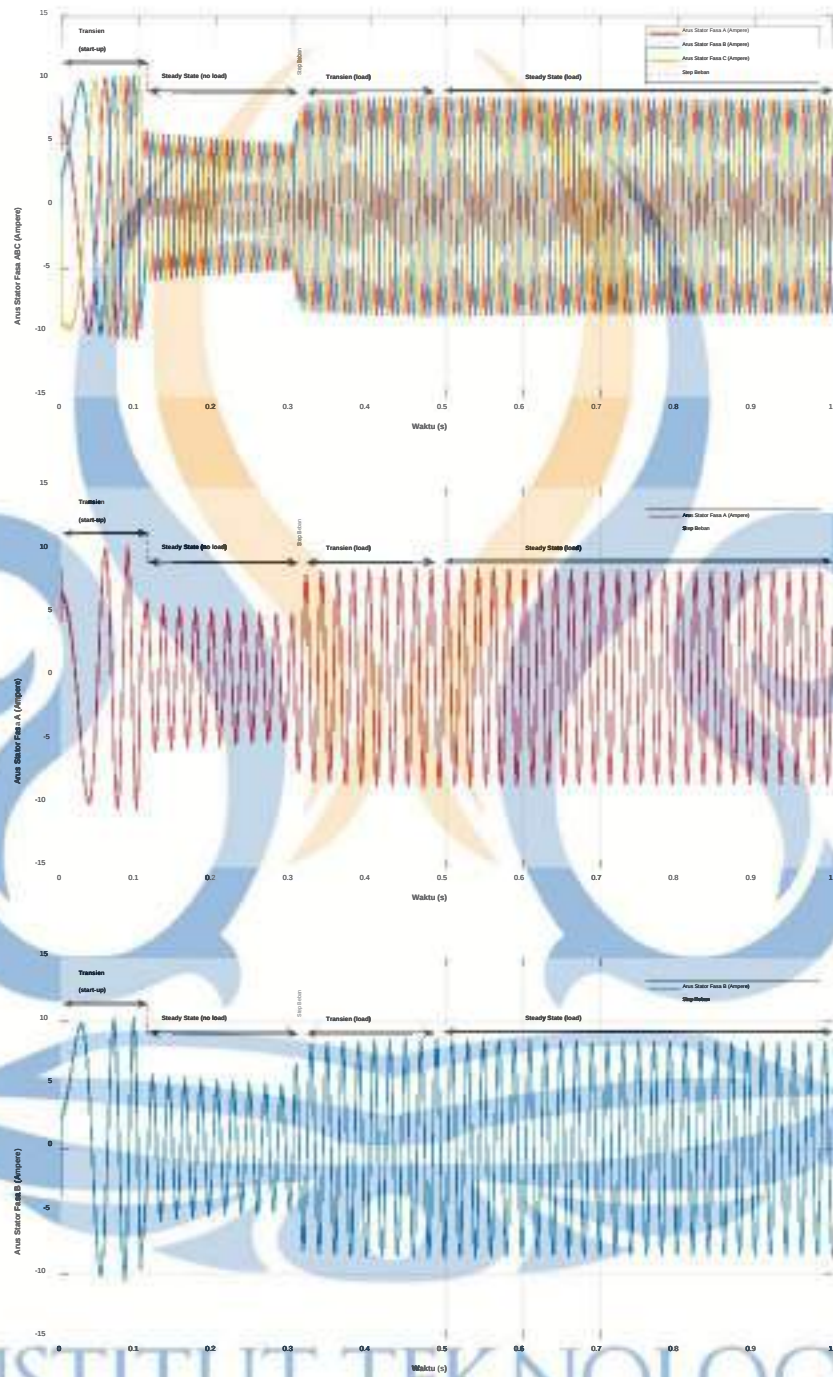


INSTITUT TEKNOLOGI
KALIMANTAN

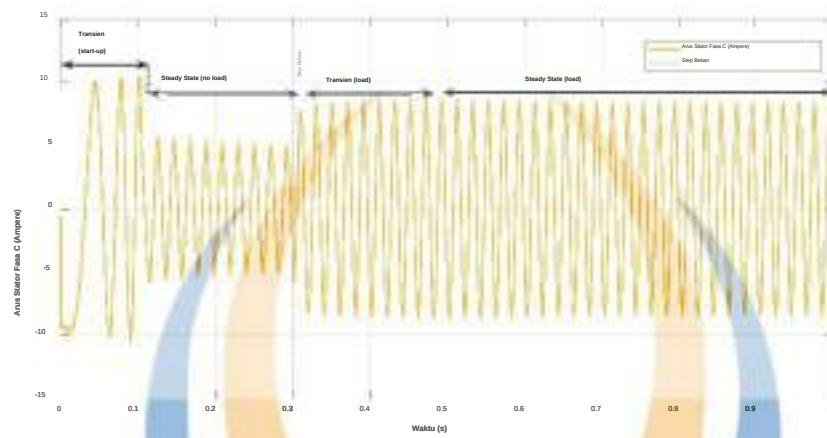


INSTITUT TEKNOLOGI
KALIMANTAN

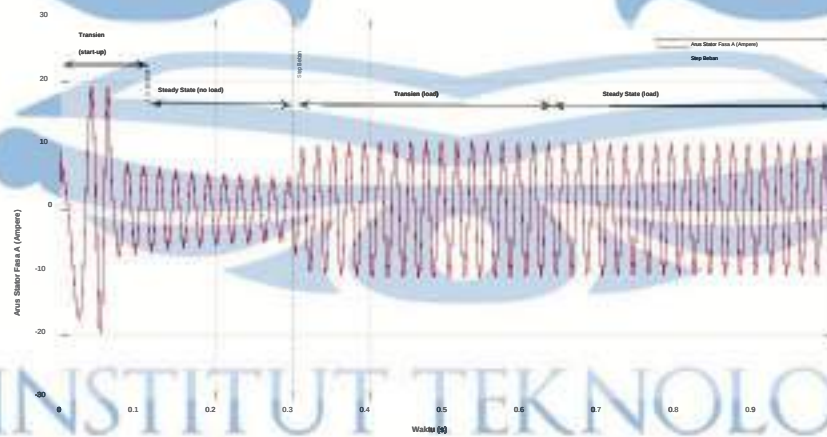
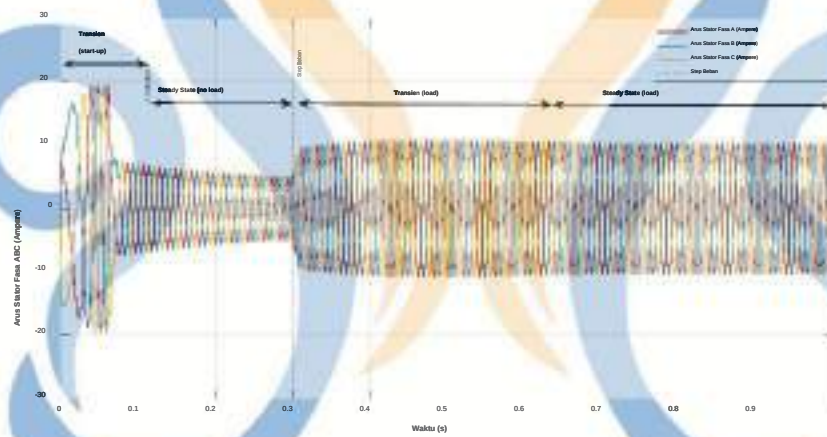
Beban 15 Nm



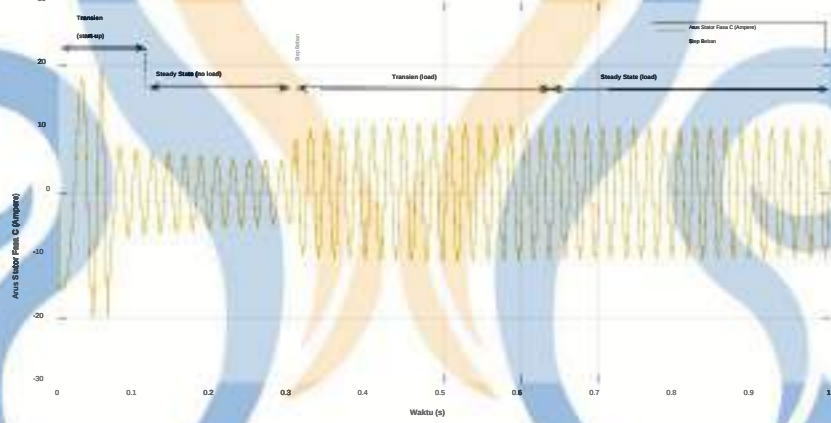
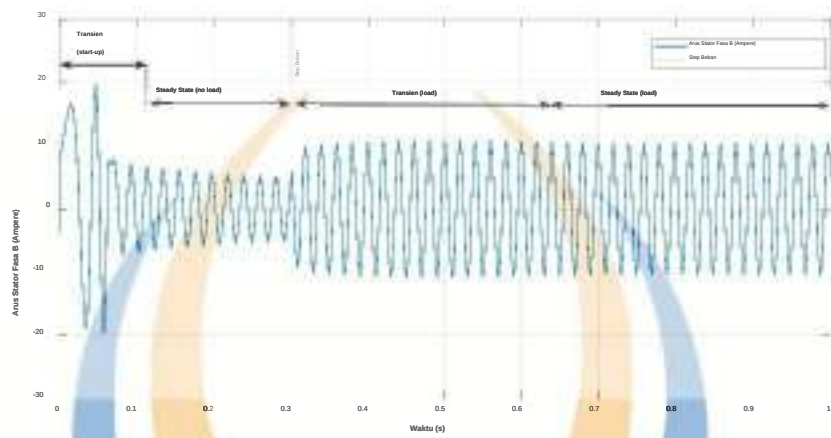
INSTITUT TEKNOLOGI
KALIMANTAN



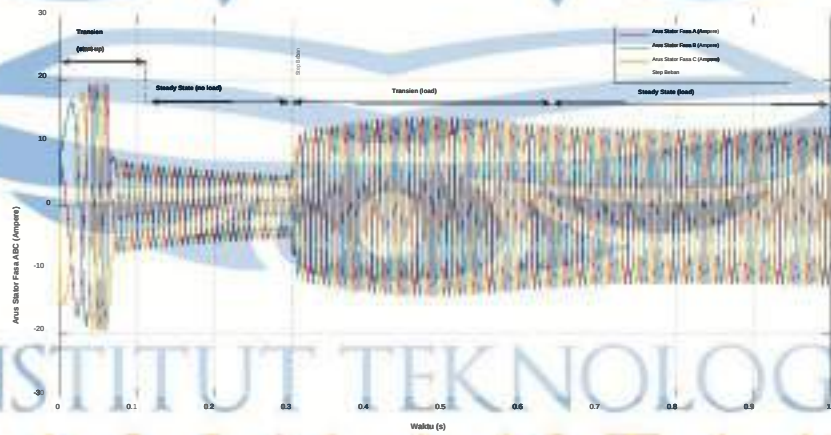
Beban 20 Nm



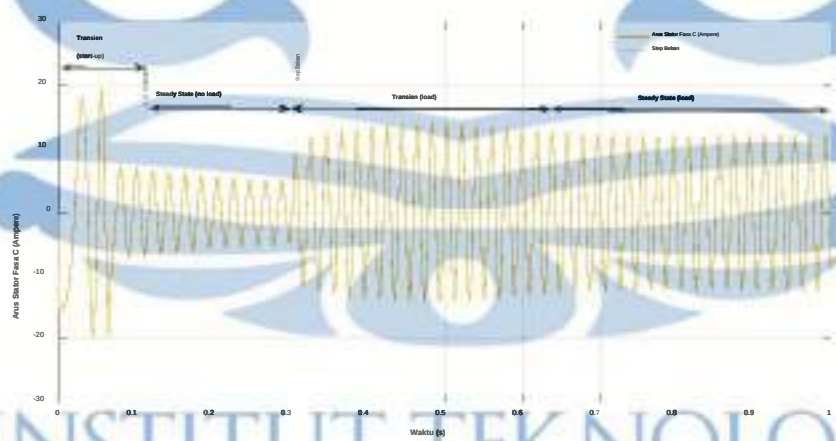
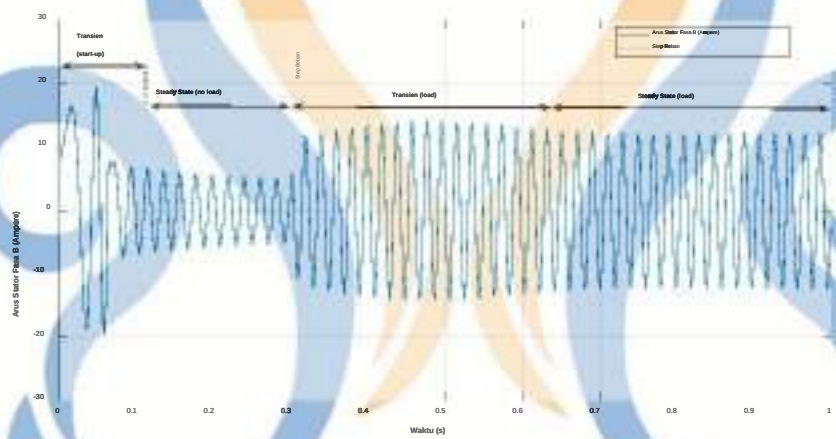
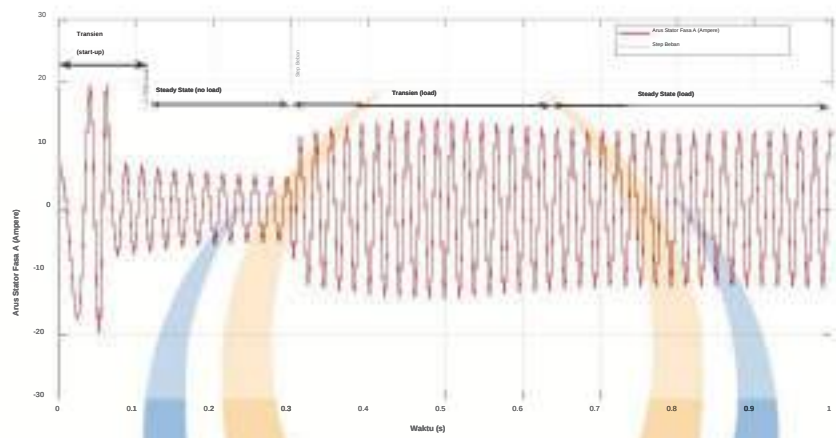
INSTITUT TEKNOLOGI
KALIMANTAN



Beban 25 Nm

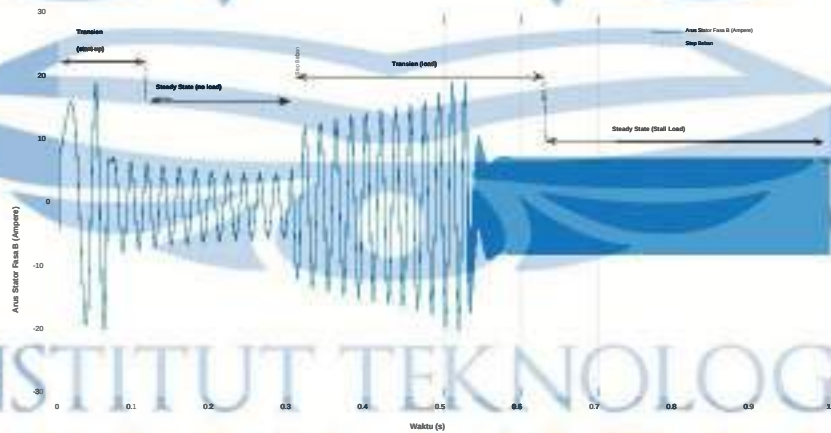
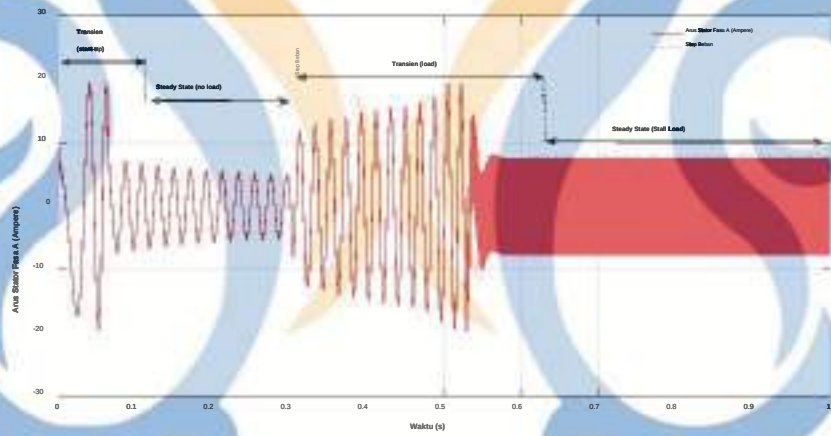
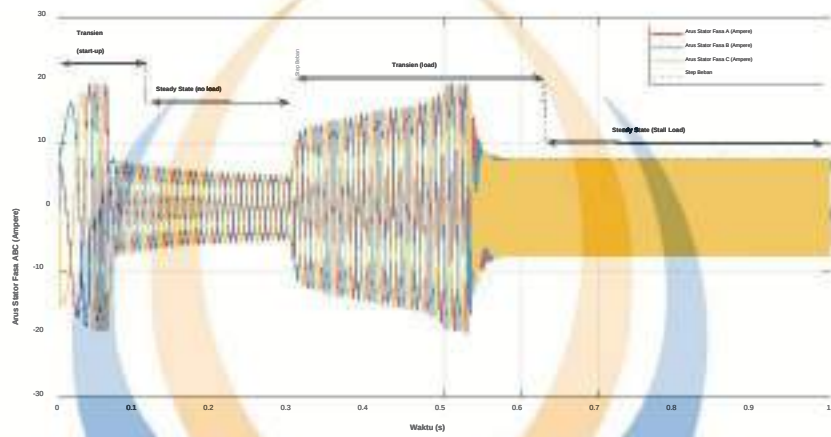


INSTITUT TEKNOLOGI
KALIMANTAN

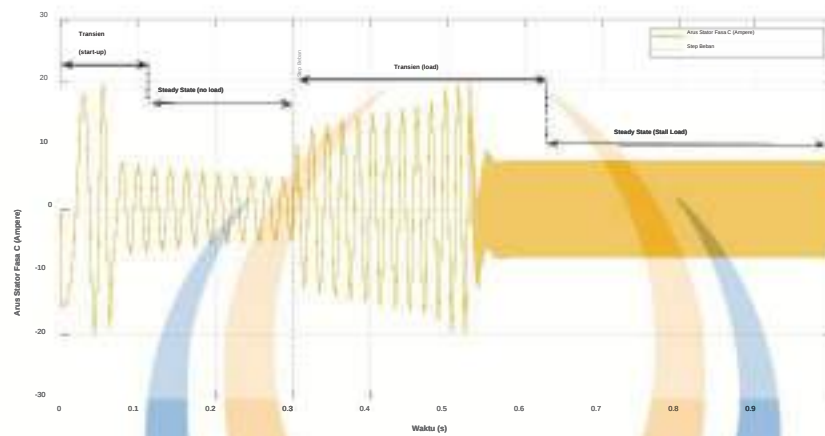


INSTITUT TEKNOLOGI
KALIMANTAN

Beban 26.71 Nm

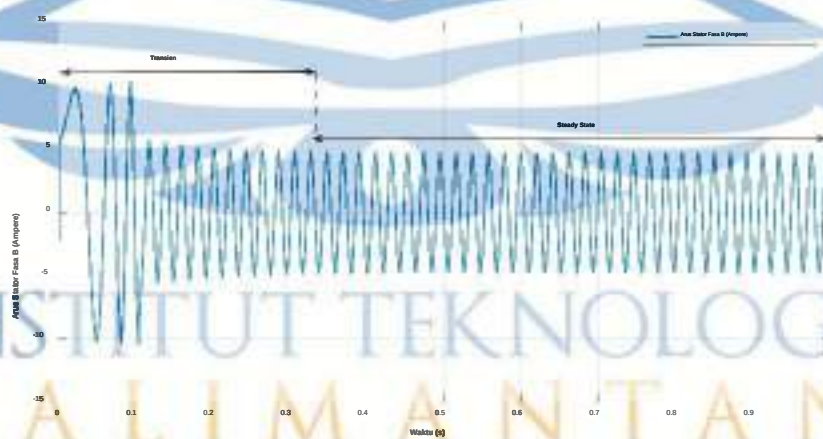
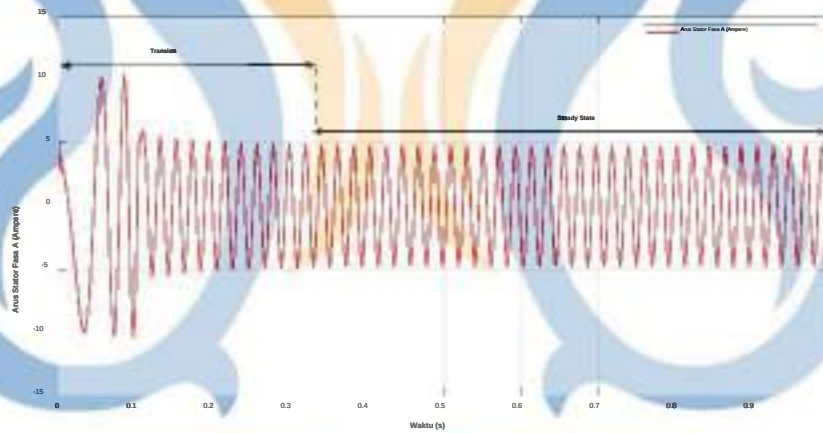
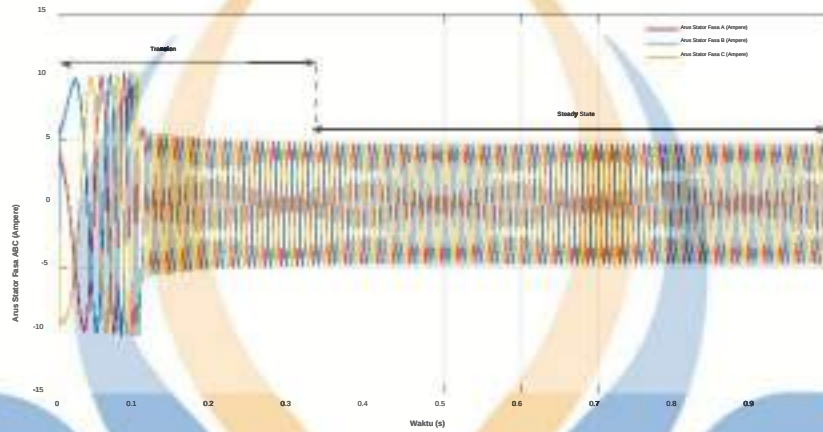


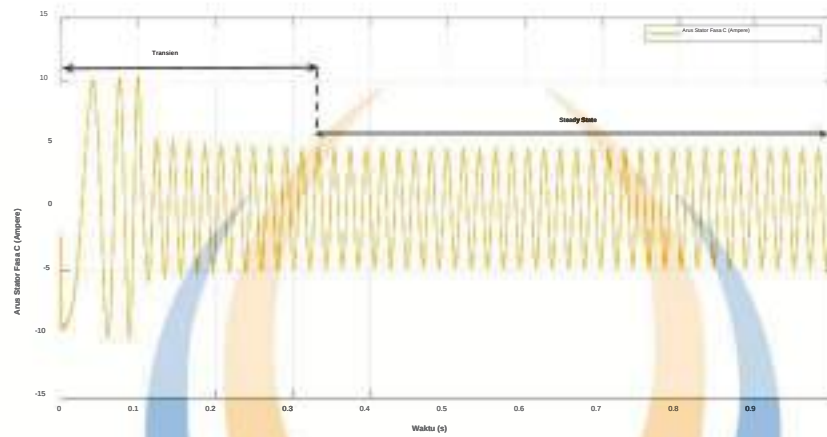
INSTITUT TEKNOLOGI
KALIMANTAN



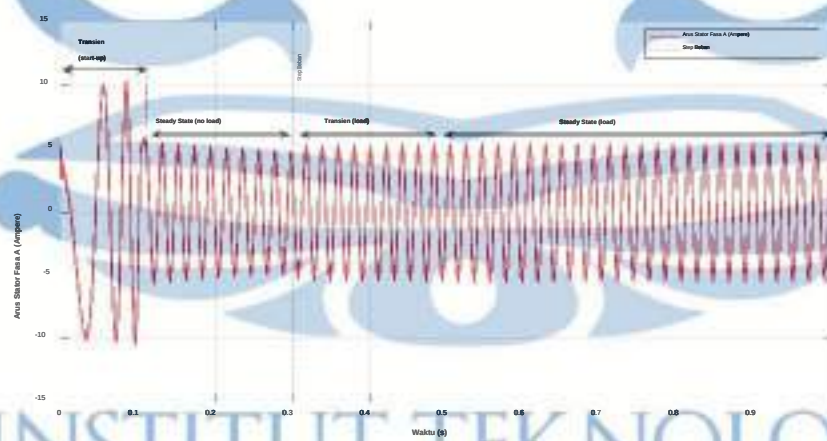
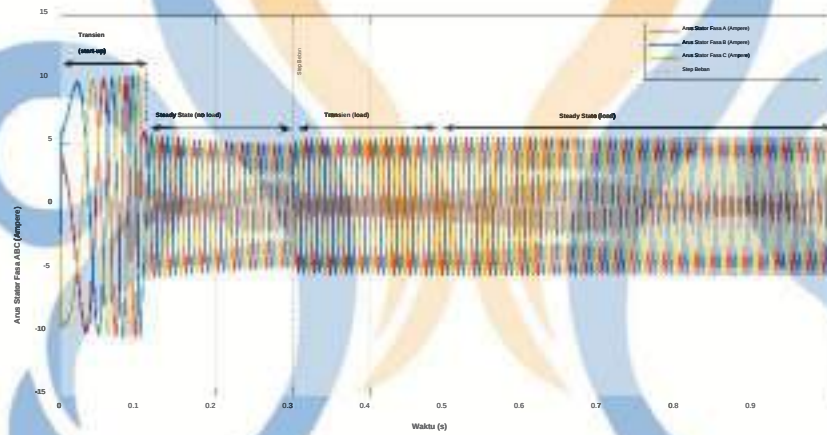
Lampiran D-4 Arus DTC-HBPWM *Dual Inverter* (Beban 0, 5, 10, 15 Nm, 20 Nm, 25 Nm dan 26.71 Nm)

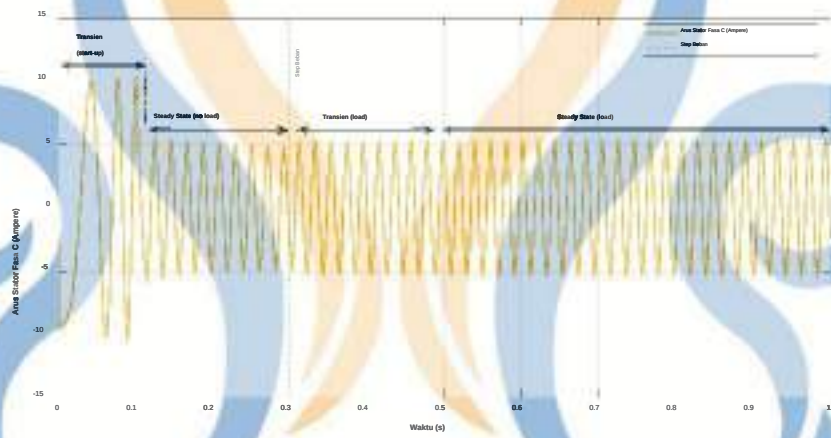
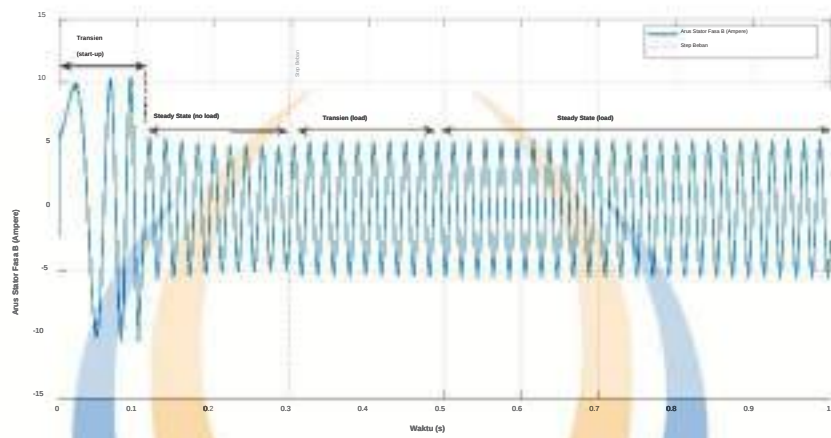
Beban 0 Nm



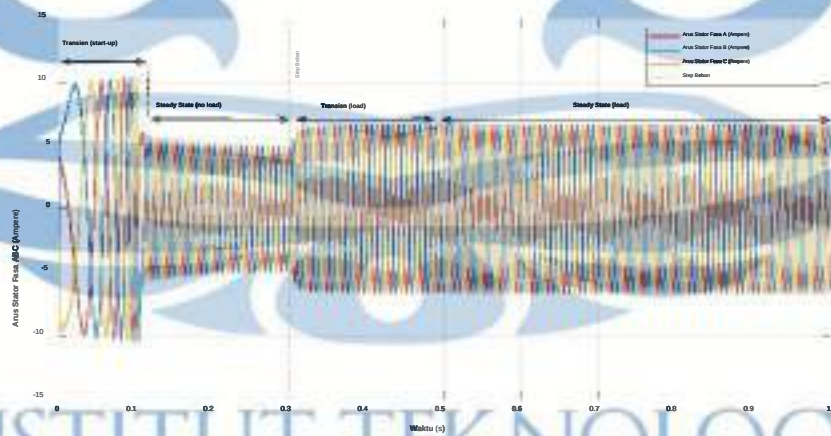


Beban 5 Nm

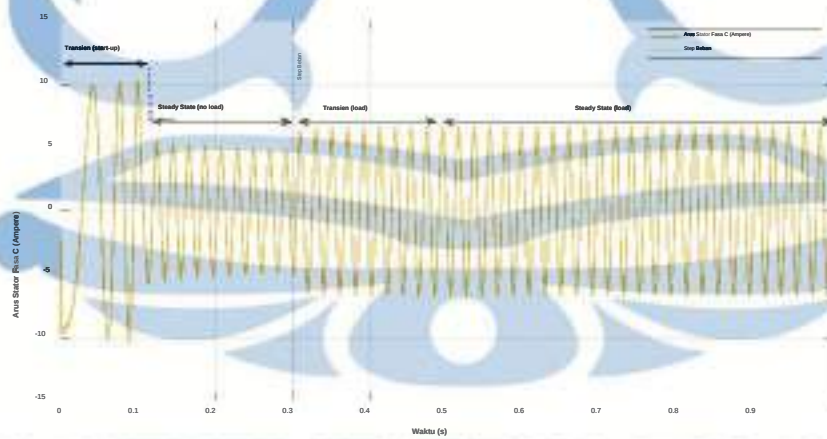
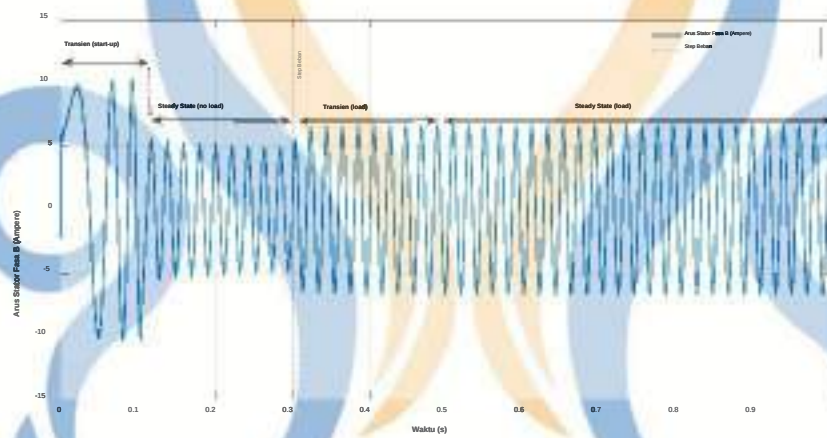
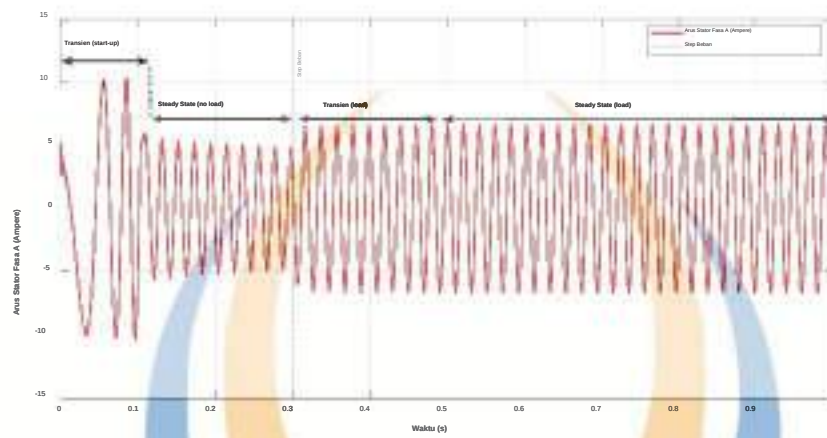




Beban 10 Nm

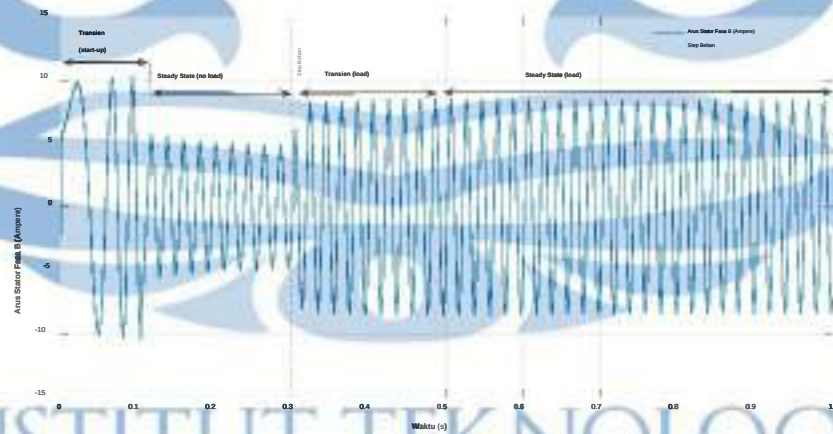
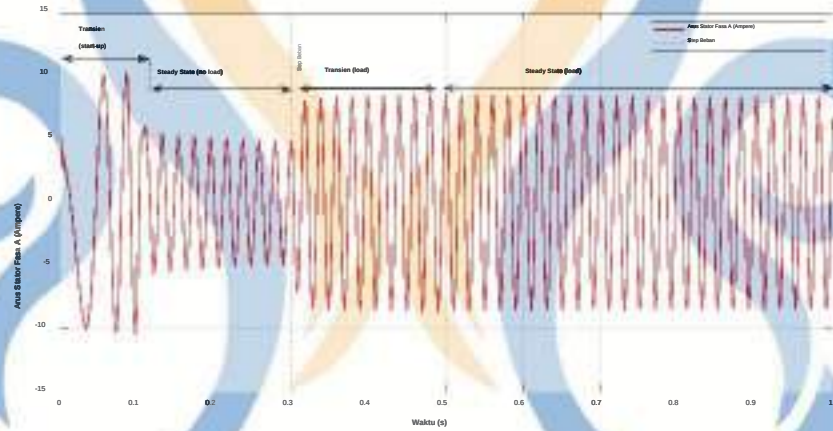
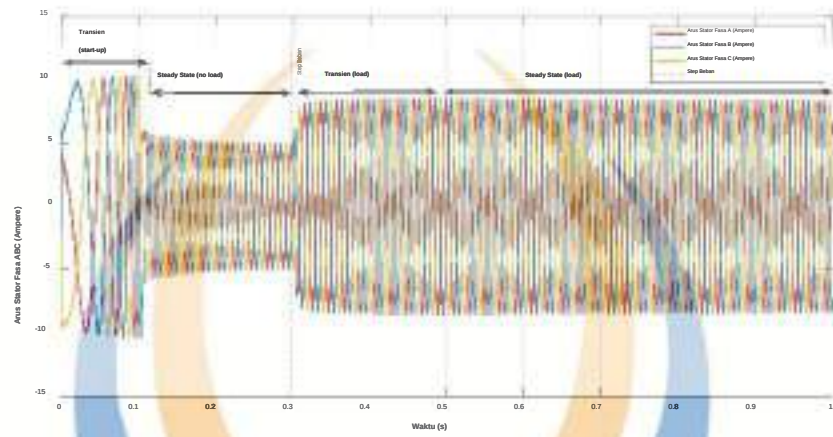


INSTITUT TEKNOLOGI
KALIMANTAN

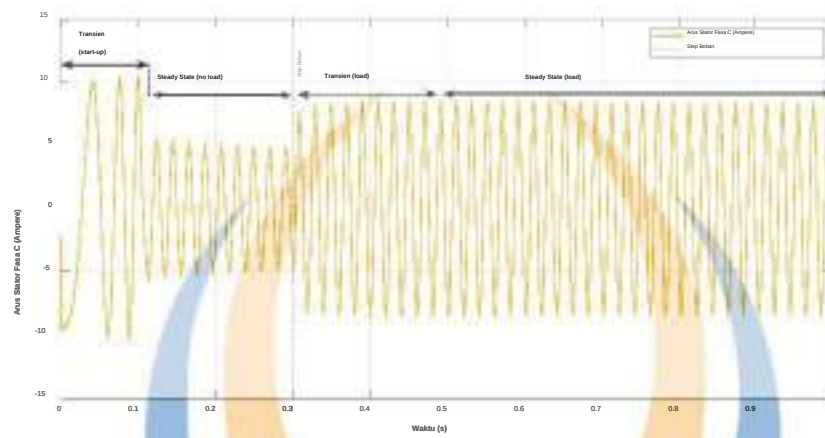


INSTITUT TEKNOLOGI
KALIMANTAN

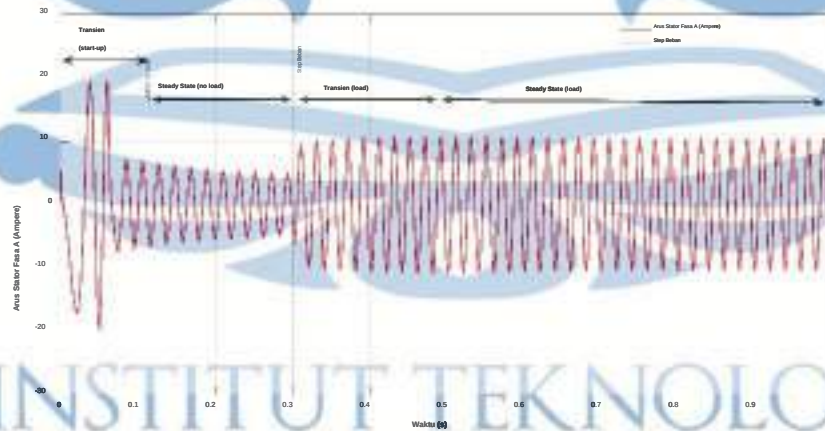
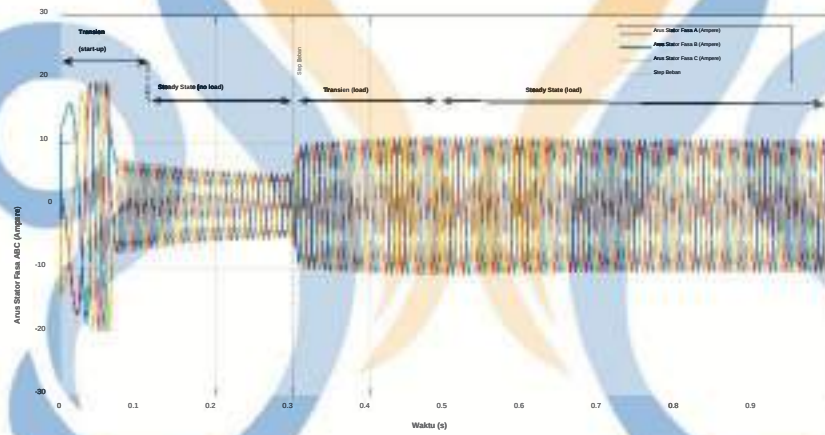
Beban 15 Nm

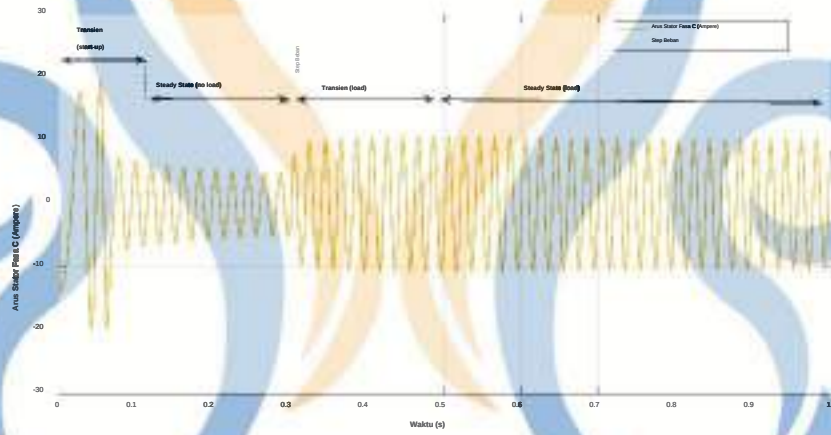
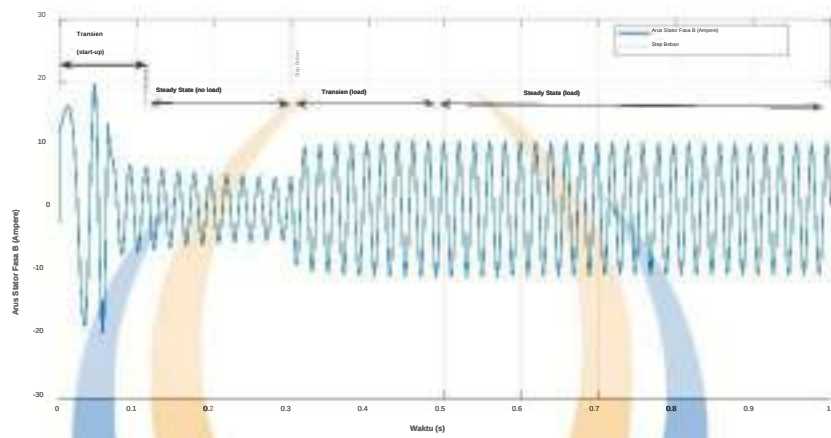


INSTITUT TEKNOLOGI
KALIMANTAN

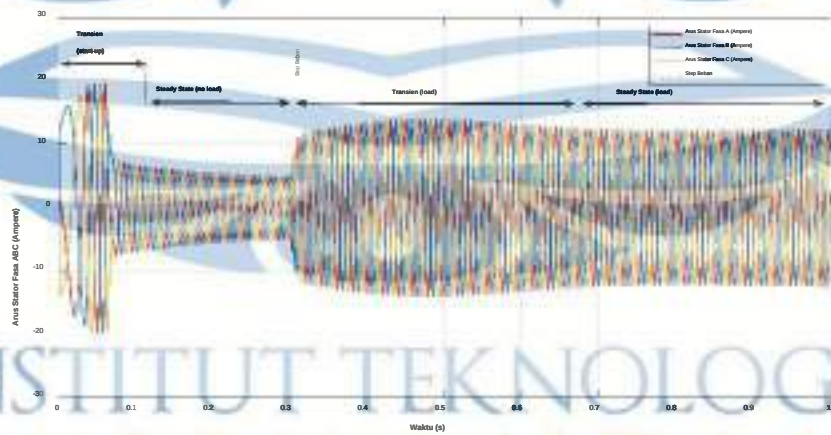


Beban 20 Nm

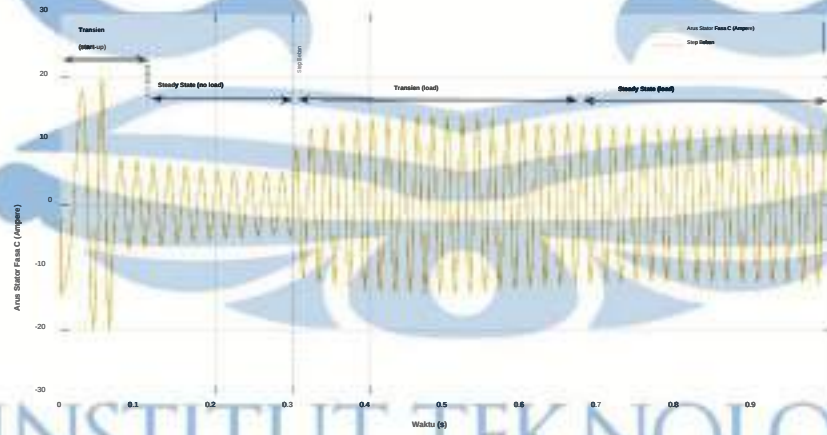
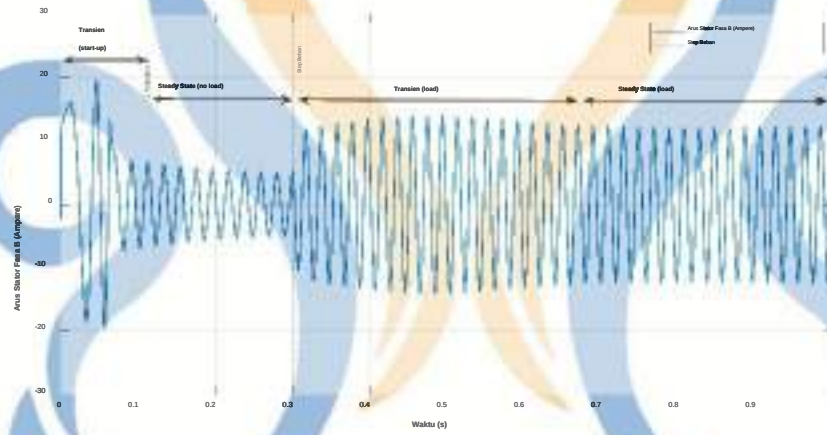
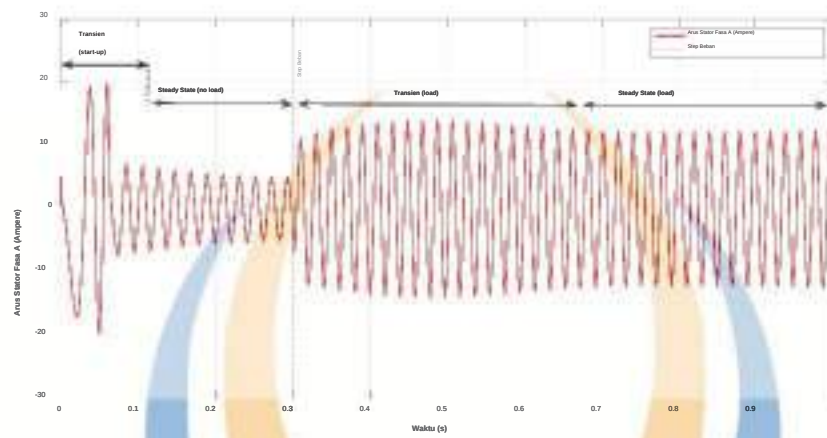




Beban 25 Nm

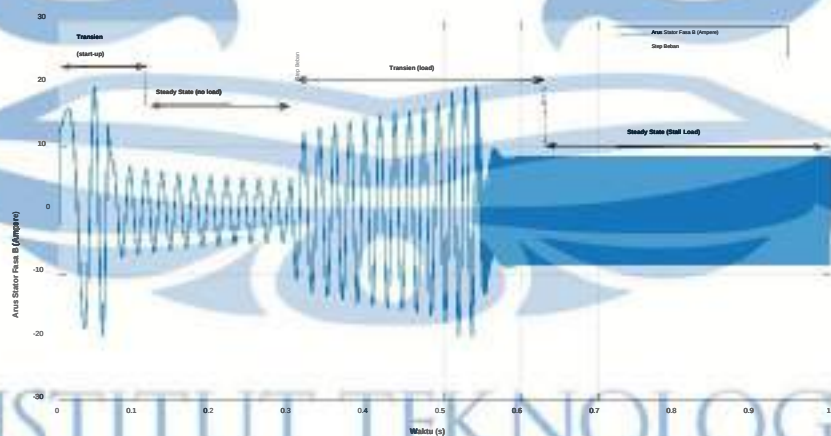
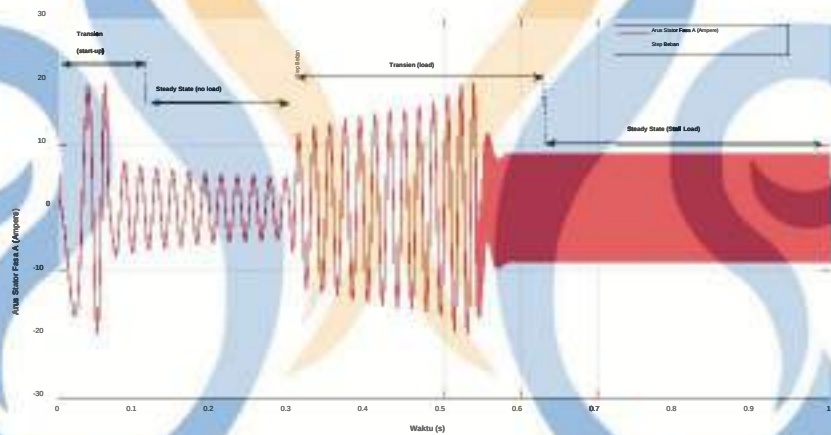
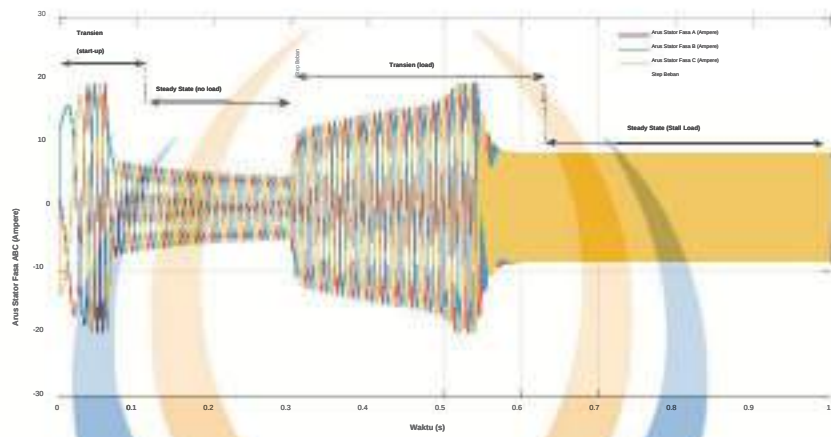


INSTITUT TEKNOLOGI
KALIMANTAN

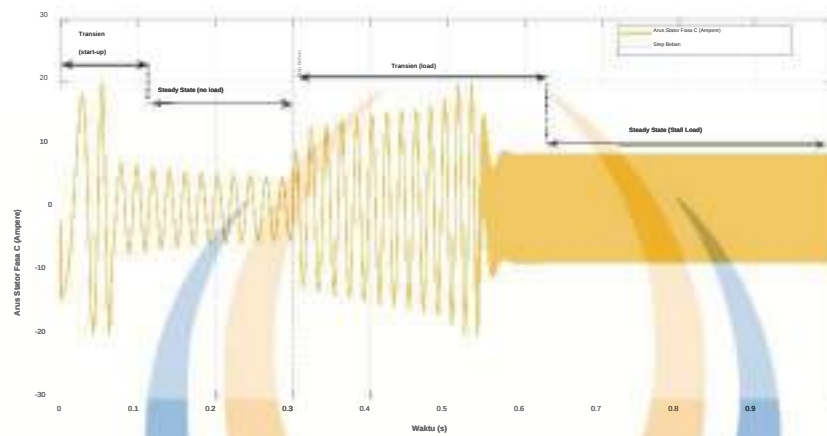


INSTITUT TEKNOLOGI
KALIMANTAN

Beban 26.71 Nm



INSTITUT TEKNOLOGI
KALIMANTAN

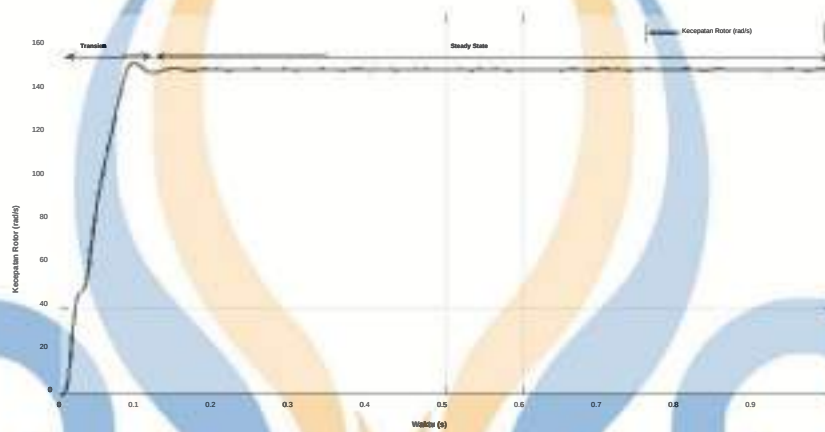


INSTITUT TEKNOLOGI
KALIMANTAN

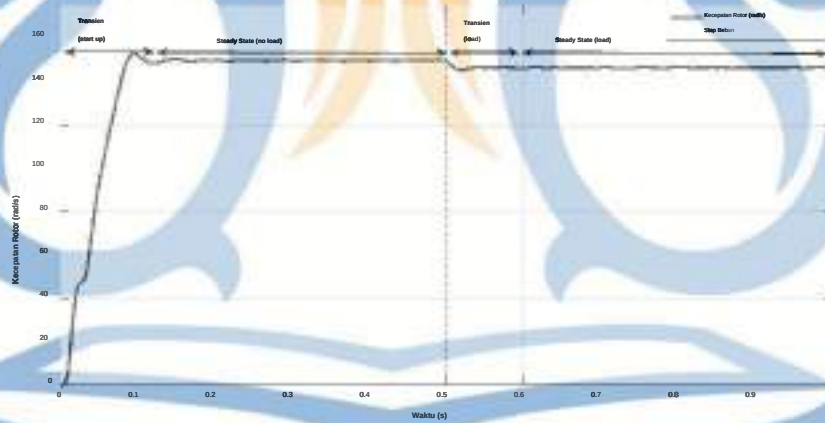
LAMPIRAN E

Lampiran E-1 Kecepatan Rotor V/F *Open Loop* Single Inverter (Beban 0, 5, 10, 15 Nm, 20 Nm, 25 Nm dan 26.71 Nm)

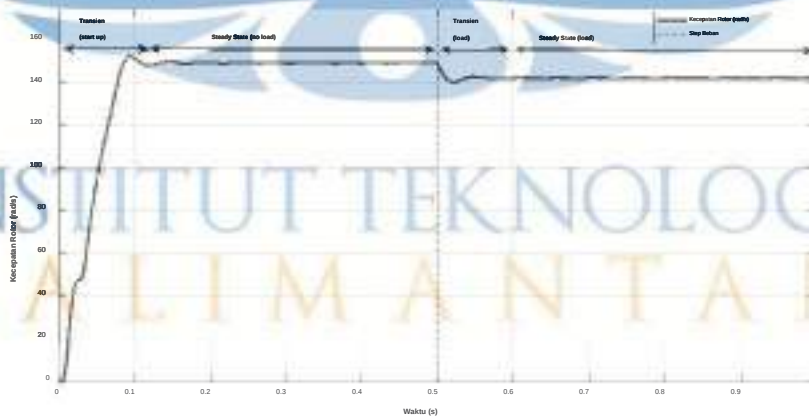
Beban 0 Nm



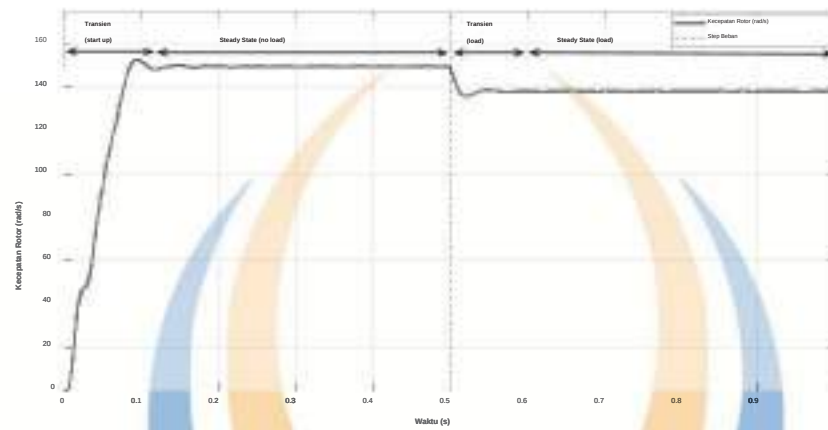
Beban 5 Nm



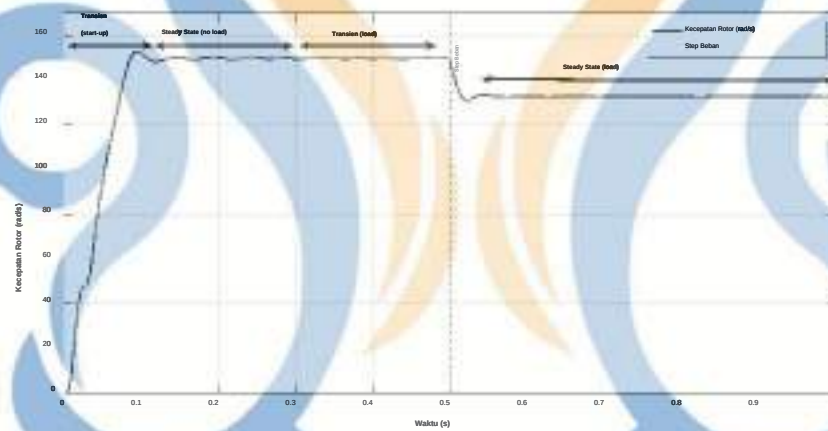
Beban 10 Nm



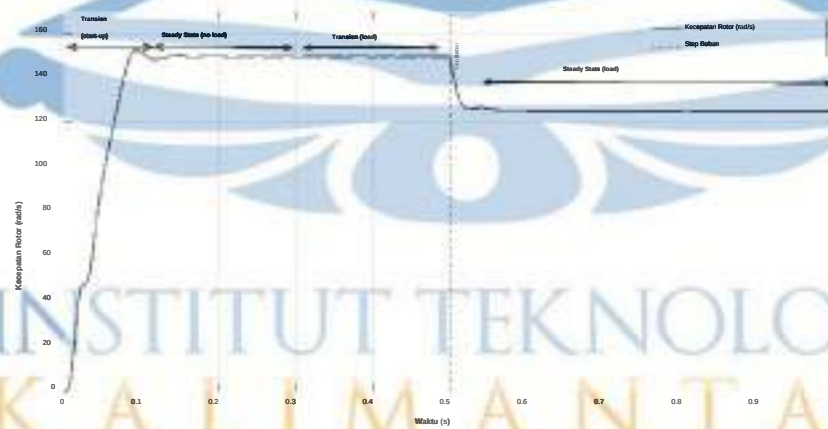
Beban 15 Nm



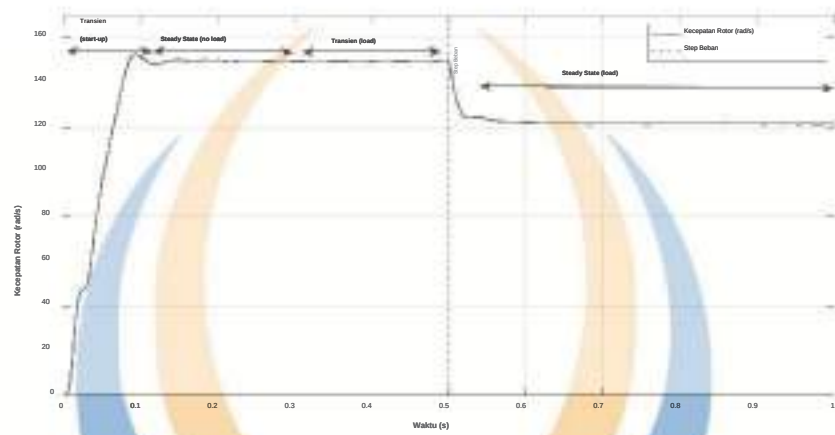
Beban 20 Nm



Beban 25 Nm



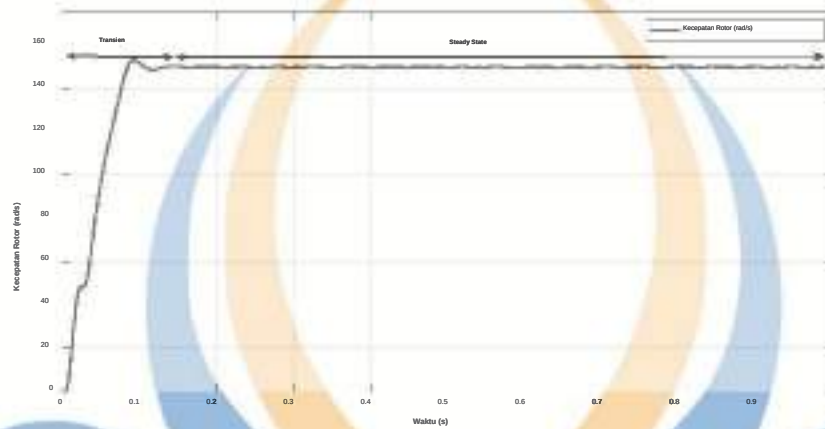
Beban 26.71 Nm



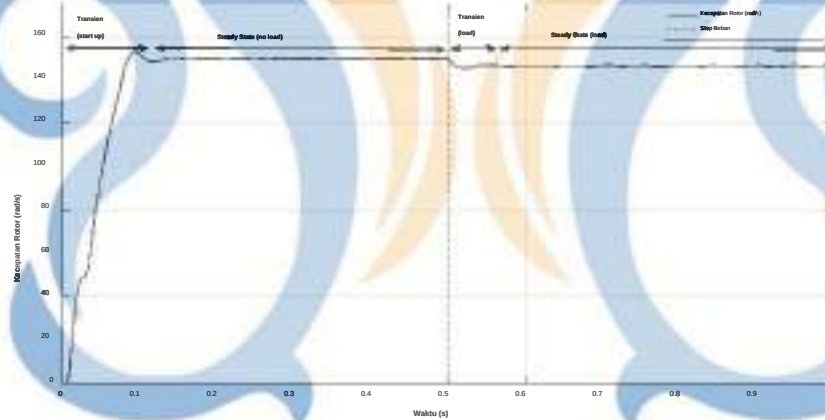
INSTITUT TEKNOLOGI
KALIMANTAN

Lampiran E-2 Kecepatan Rotor V/F *Open Loop Dual Inverter* (Beban 0, 5, 10, 15 Nm, 20 Nm, 25 Nm dan 26.71 Nm)

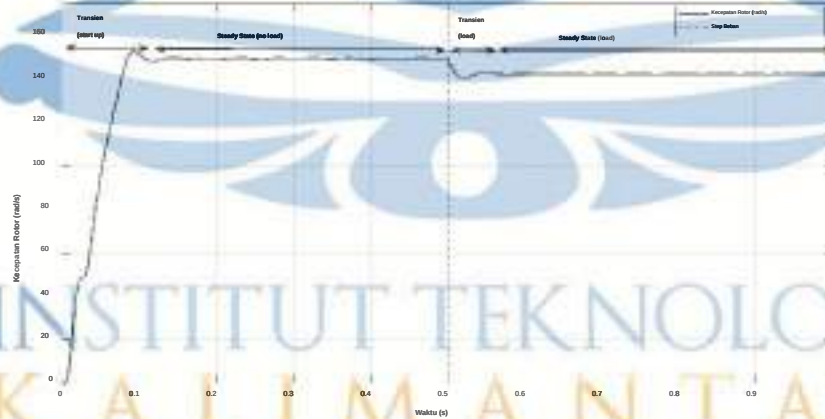
Beban 0 Nm



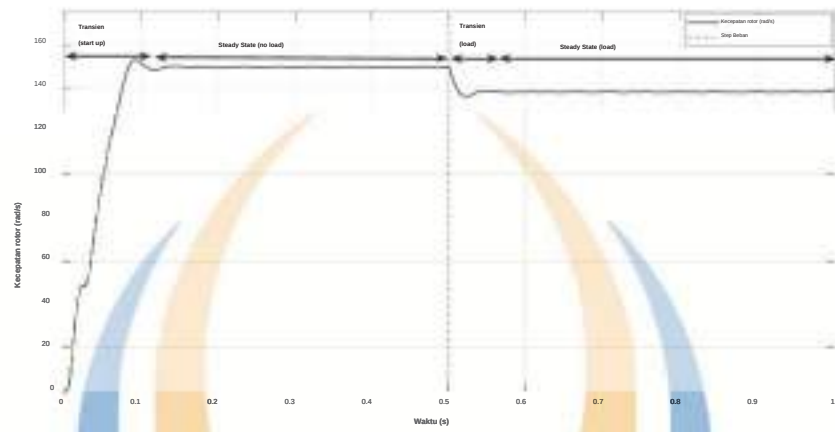
Beban 5 Nm



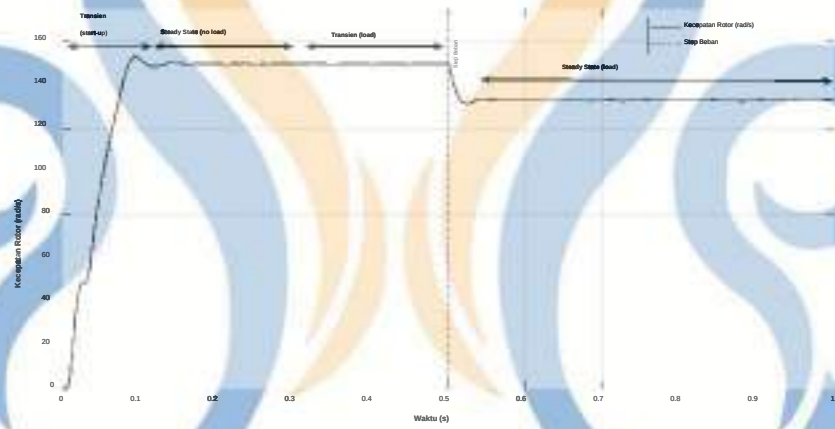
Beban 10 Nm



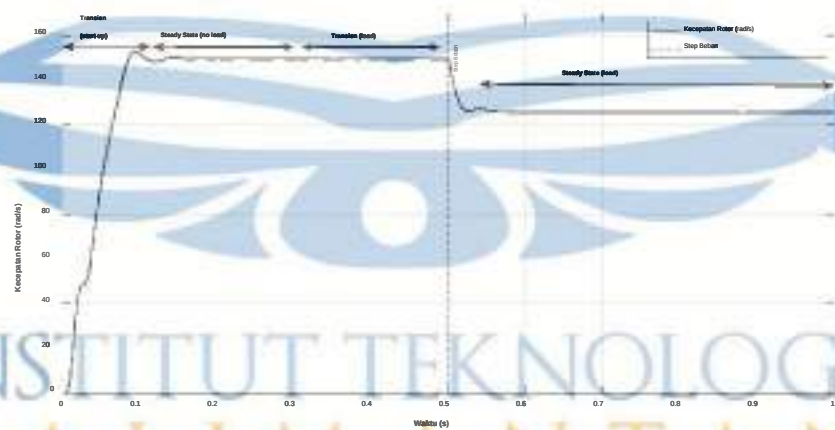
Beban 15 Nm



Beban 20 Nm

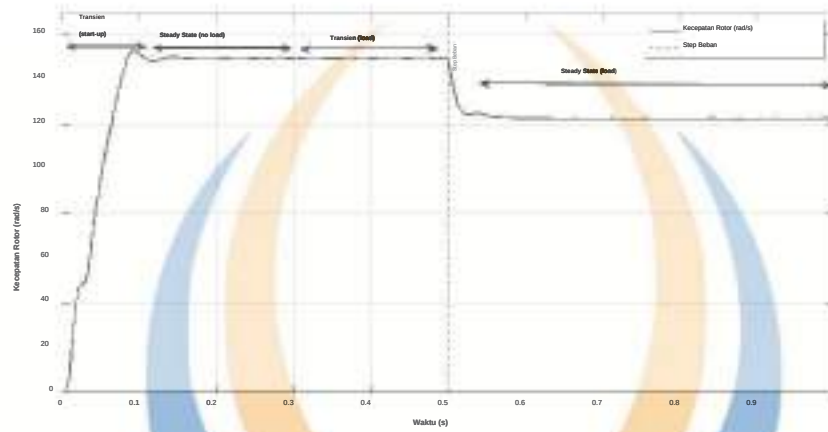


Beban 25 Nm



INSTITUT TEKNOLOGI
KALIMANTAN

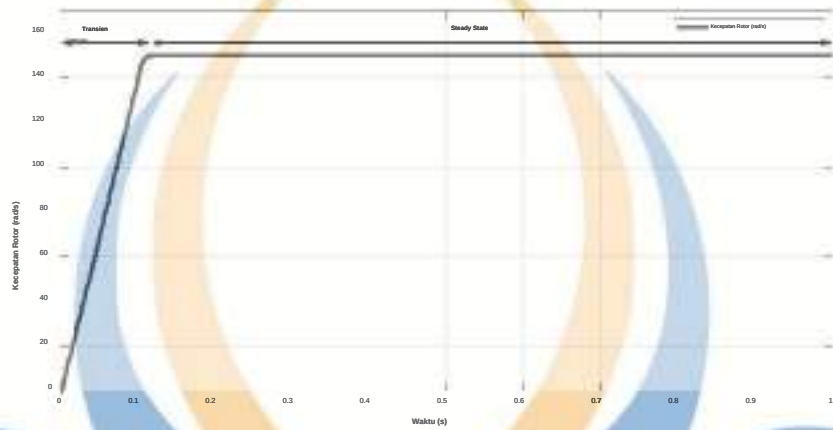
Beban 26.71 Nm



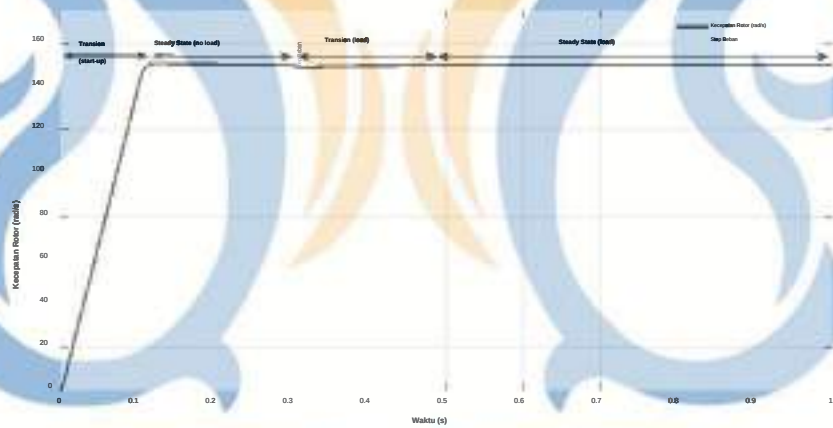
INSTITUT TEKNOLOGI
KALIMANTAN

Lampiran E-3 Kecepatan Rotor DTC-HBPWM *Single Inverter* (Beban 0, 5, 10, 15 Nm, 20 Nm, 25 Nm dan 26.71 Nm)

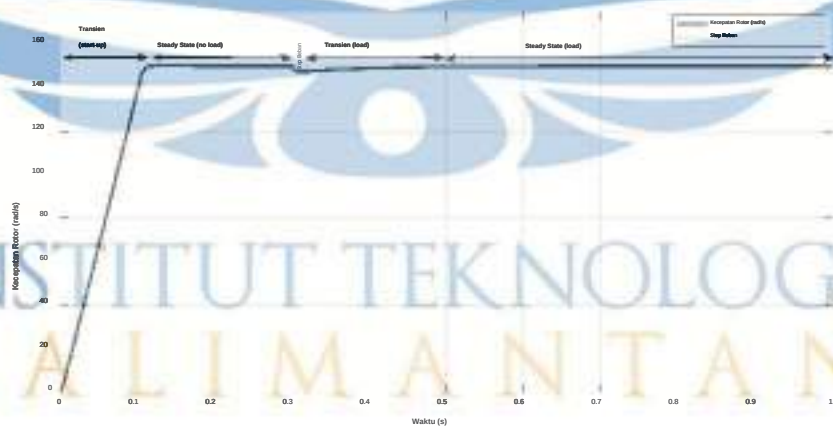
Beban 0 Nm



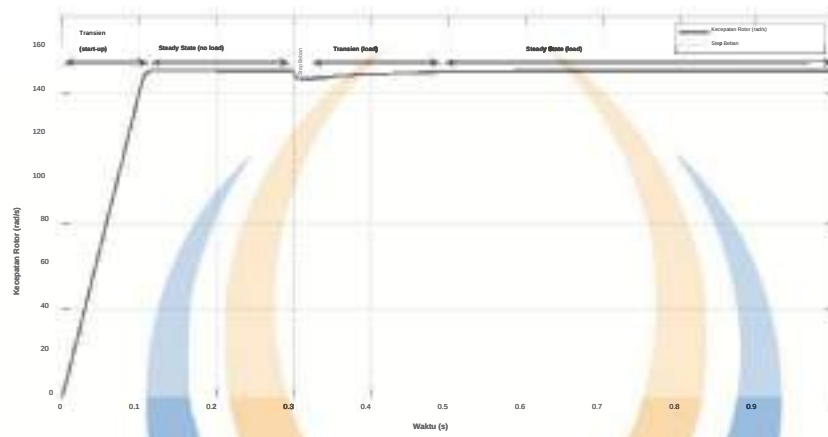
Beban 5 Nm



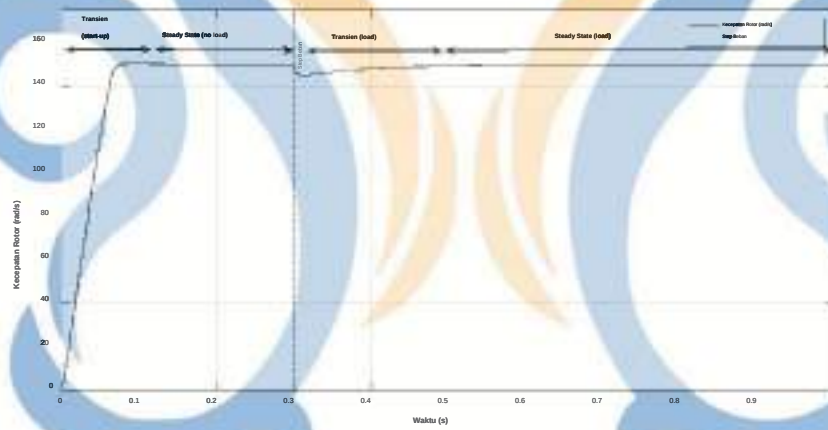
Beban 10 Nm



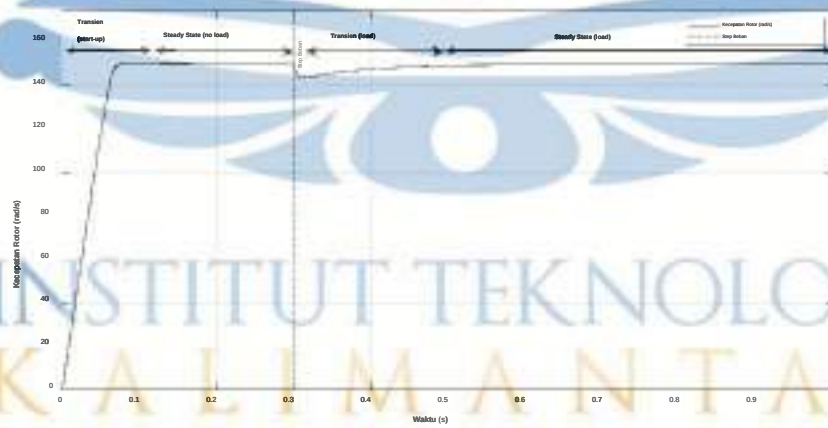
Beban 15 Nm



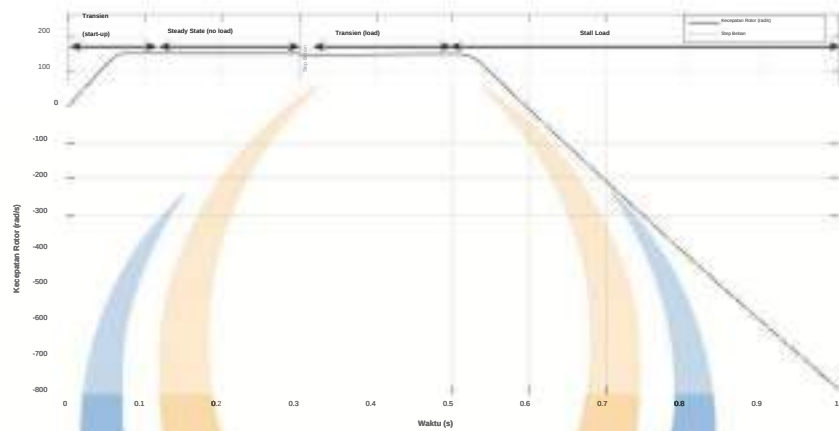
Beban 20 Nm



Beban 25 Nm



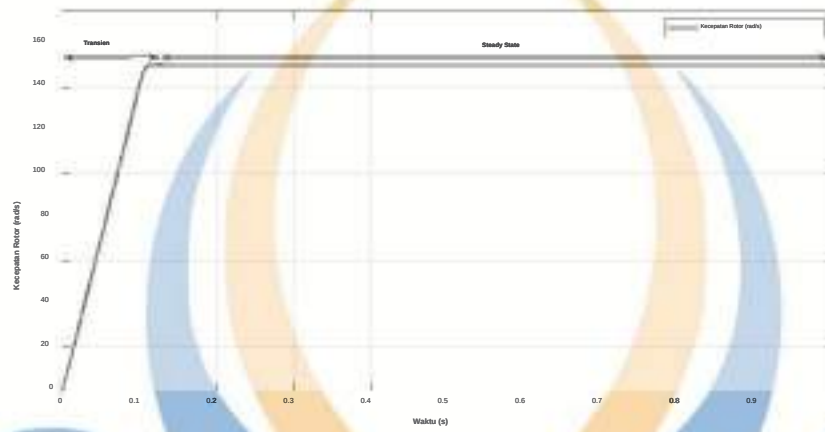
Beban 26.71 Nm



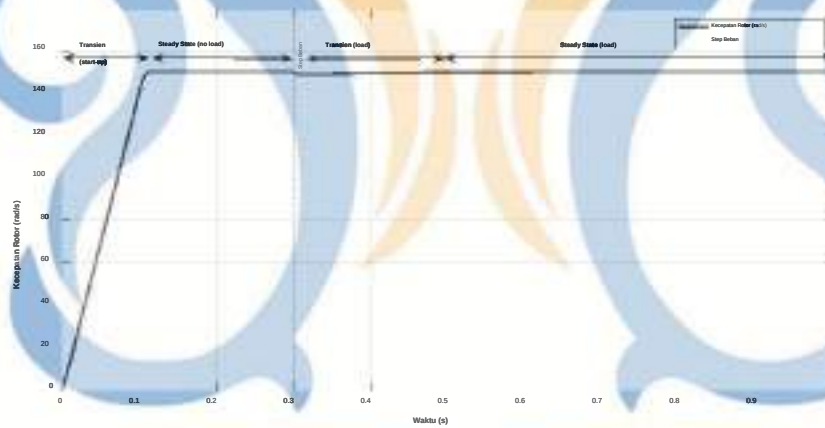
INSTITUT TEKNOLOGI
KALIMANTAN

Lampiran E-4 Kecepatan Rotor DTC-HBPWM *Dual Inverter* (Beban 0, 5, 10, 15 Nm, 20 Nm, 25 Nm dan 26.71 Nm)

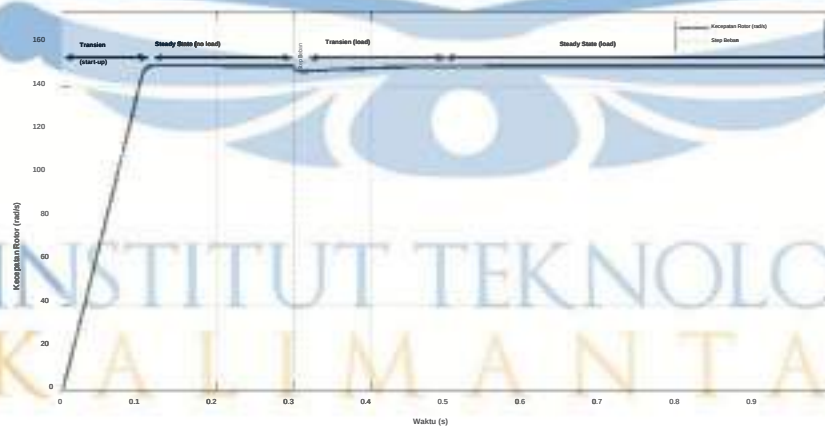
Beban 0 Nm



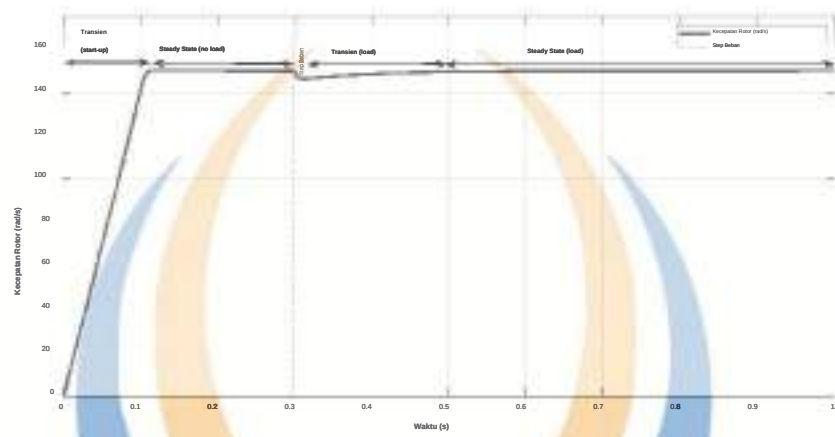
Beban 5 Nm



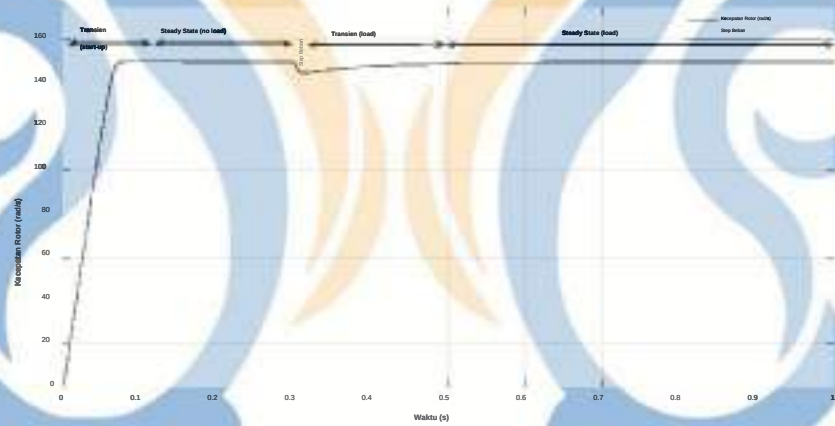
Beban 10 Nm



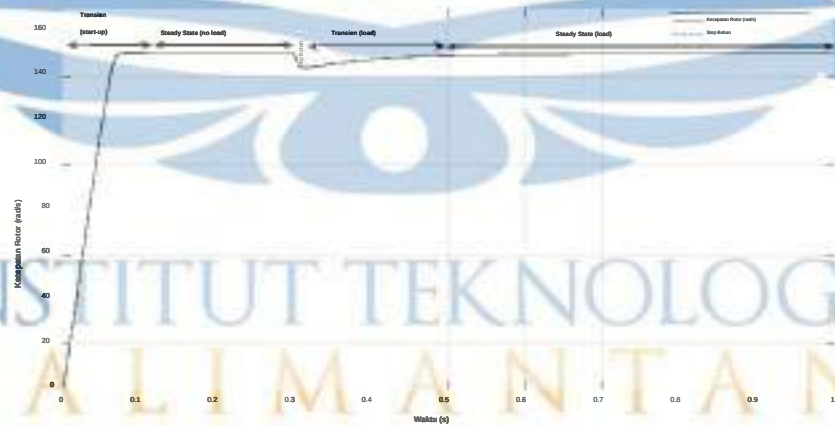
Beban 15 Nm



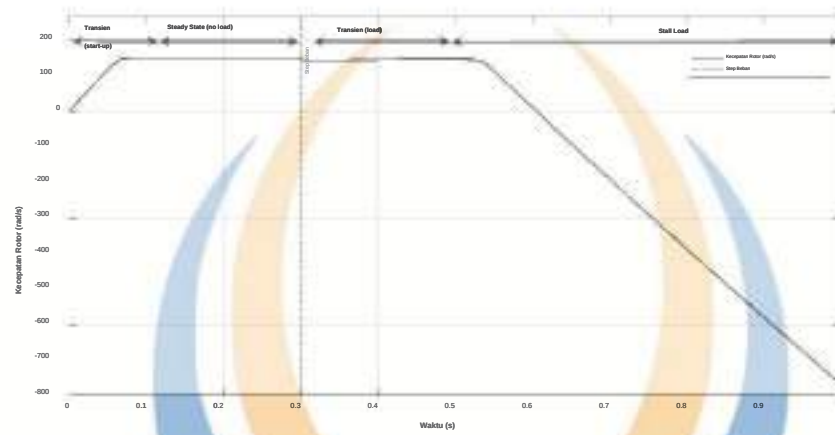
Beban 20 Nm



Beban 25 Nm



Beban 26.71 Nm

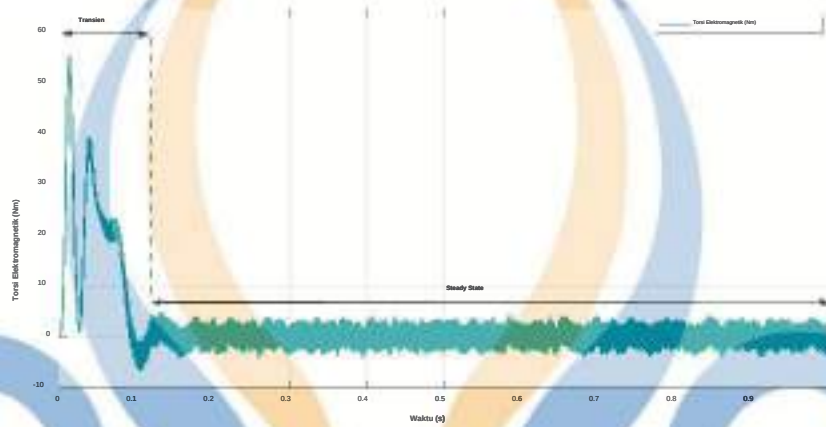


INSTITUT TEKNOLOGI
KALIMANTAN

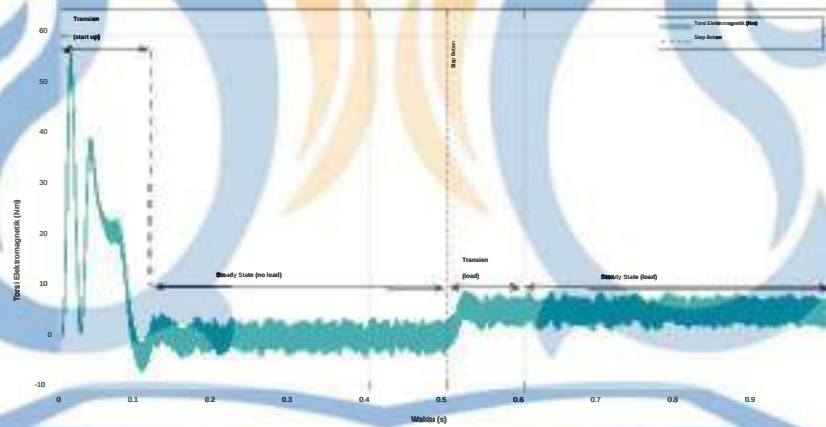
LAMPIRAN F

Lampiran F-1 Torsi Elektromagnetik V/F *Open Loop Single Inverter* (Beban 0, 5, 10, 15 Nm, 20 Nm, 25 Nm dan 26.71 Nm)

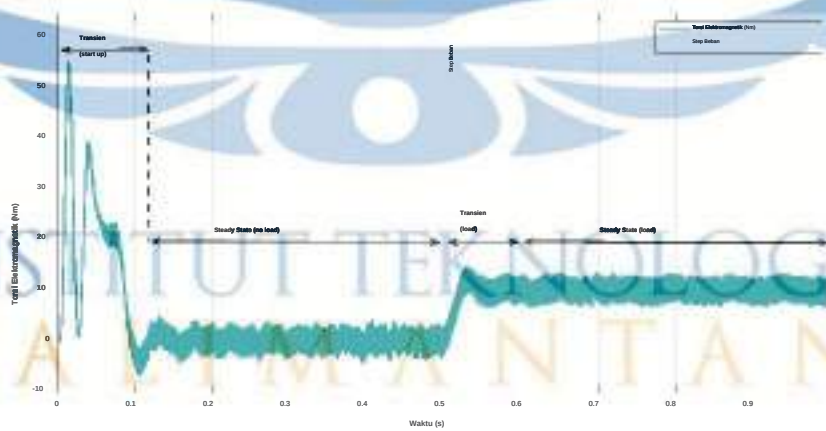
Beban 0 Nm



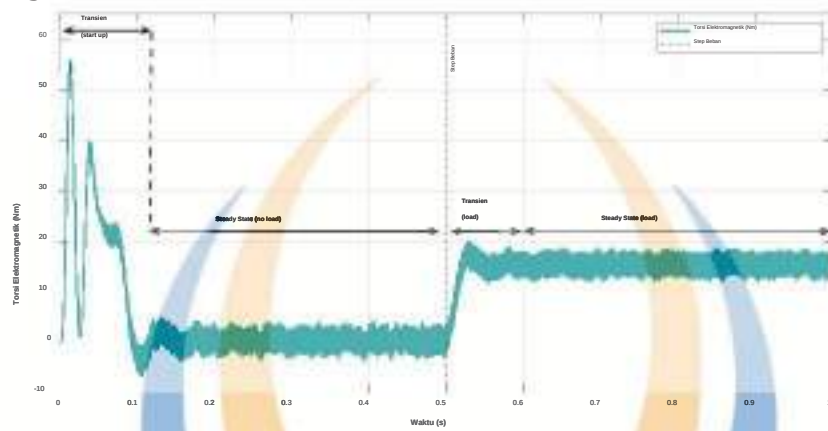
Beban 5 Nm



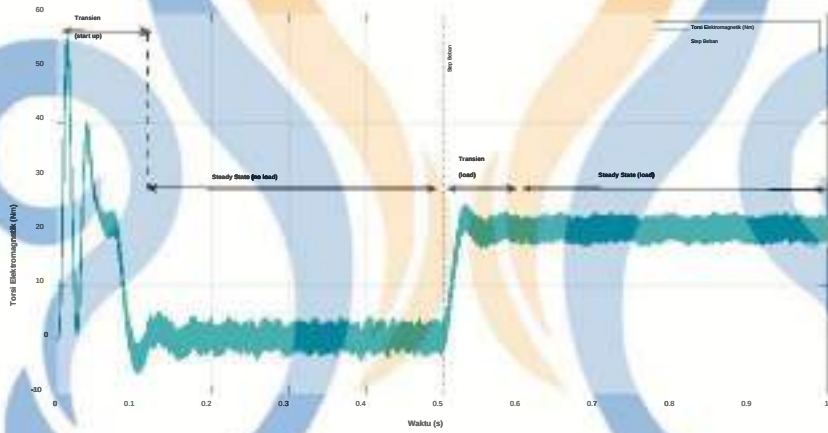
Beban 10 Nm



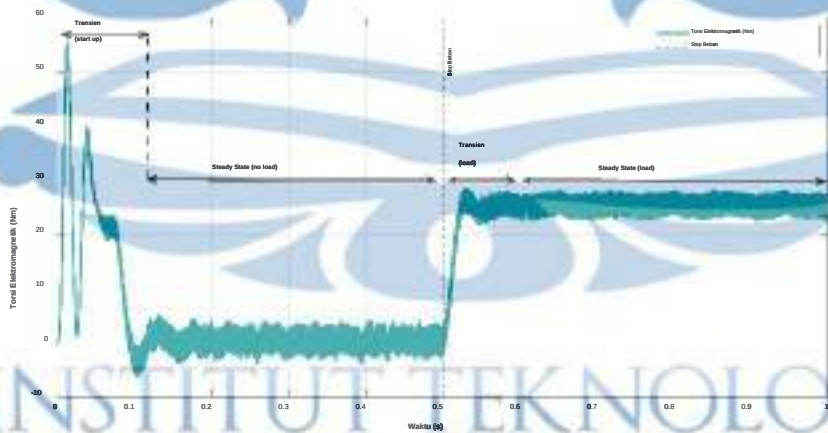
Beban 15 Nm



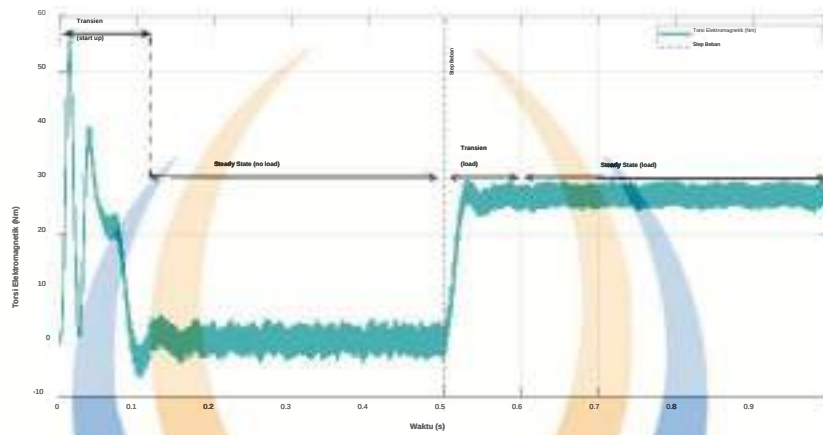
Beban 20 Nm



Beban 25 Nm



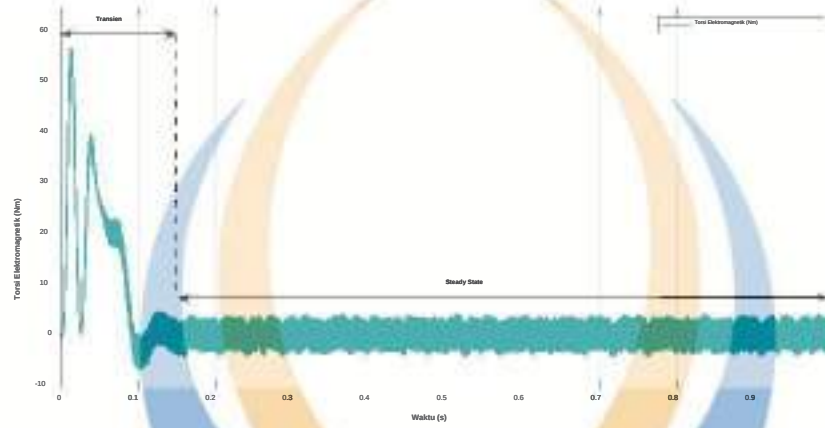
Beban 26.71 Nm



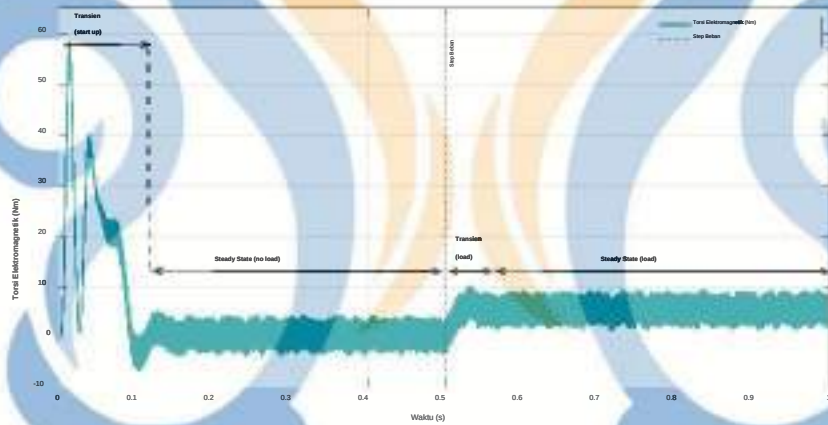
INSTITUT TEKNOLOGI
KALIMANTAN

Lampiran F-2 Torsi Elektromagnetik V/F *Open Loop Dual Inverter* (Beban 0, 5, 10, 15 Nm, 20 Nm, 25 Nm dan 26.71 Nm)

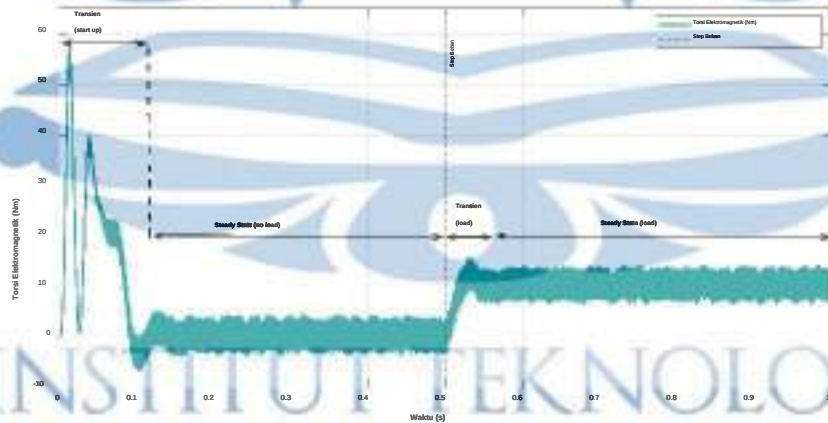
Beban 0 Nm



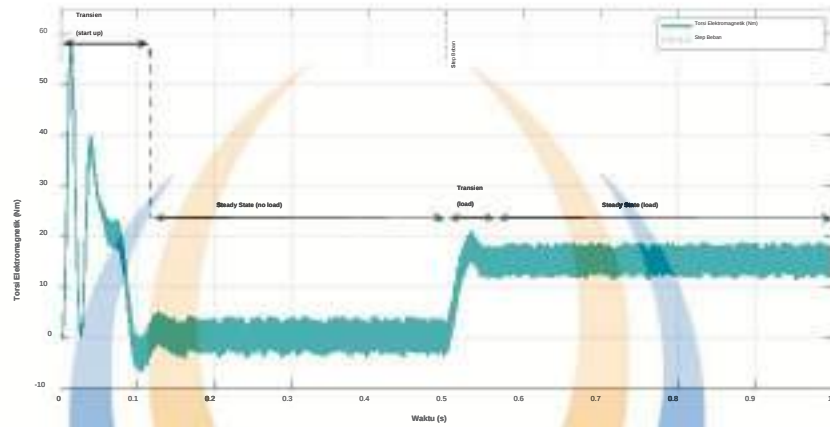
Beban 5 Nm



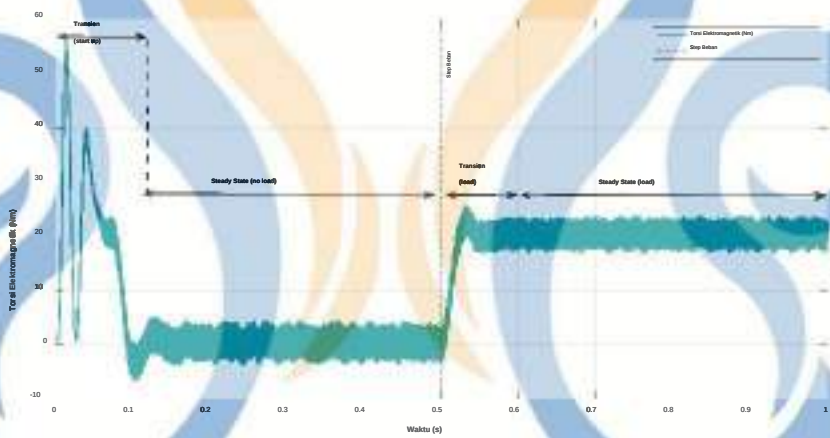
Beban 10 Nm



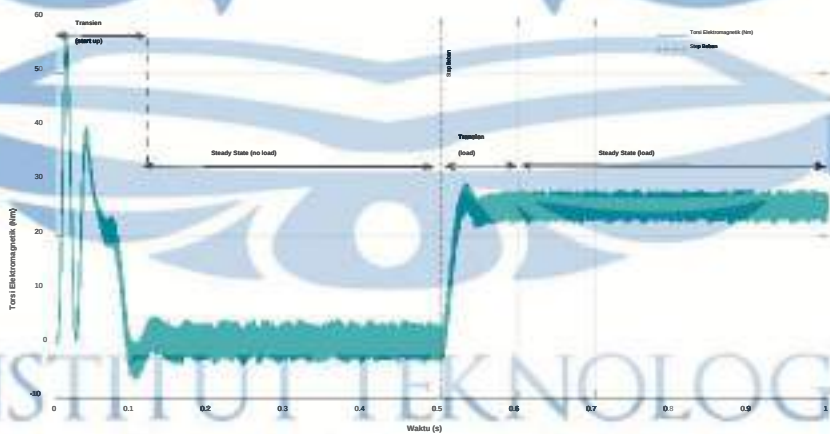
Beban 15 Nm



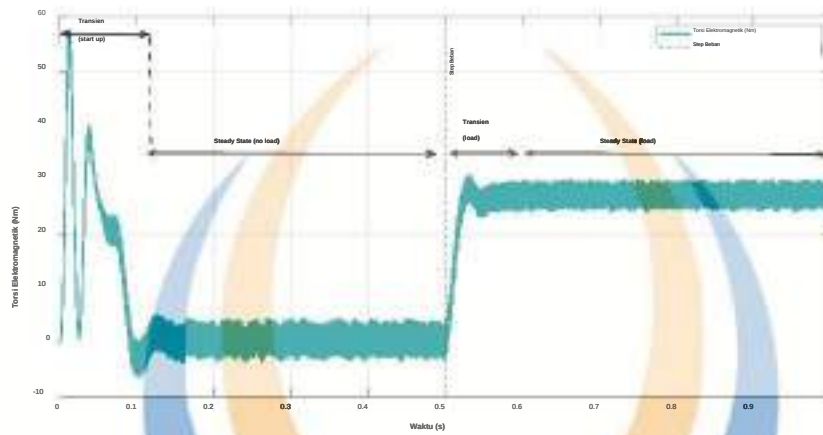
Beban 20 Nm



Beban 25 Nm



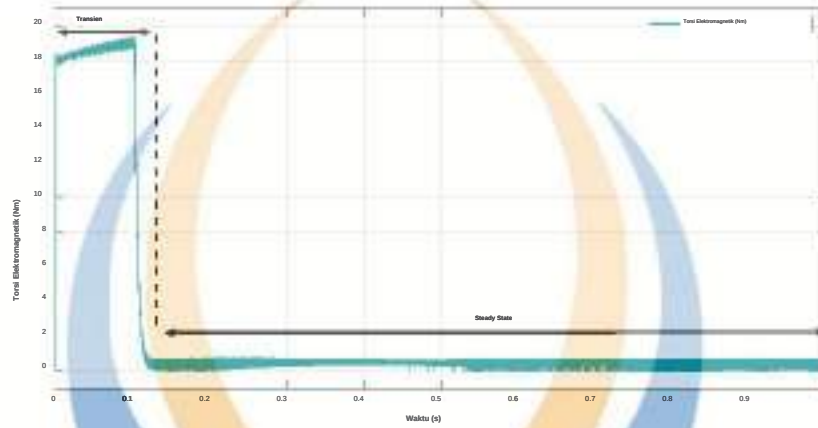
Beban 26.71 Nm



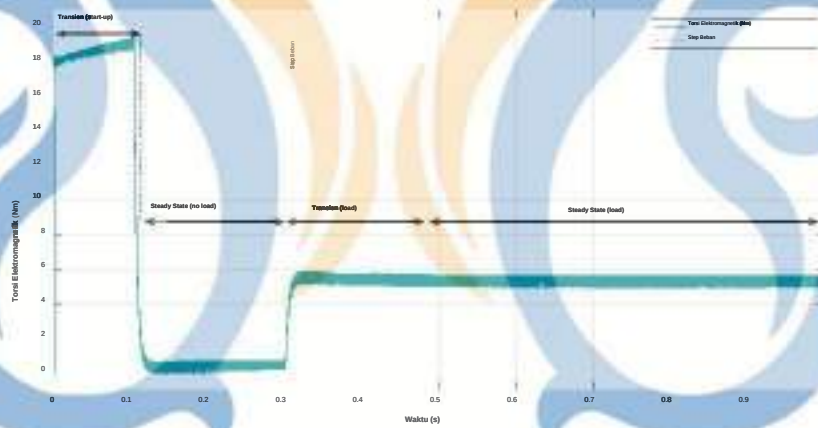
INSTITUT TEKNOLOGI
KALIMANTAN

Lampiran F-3 Torsi Elektromagnetik DTC-HBPWM *Single Inverter* (Beban 0, 5, 10, 15 Nm, 20 Nm, 25 Nm dan 26.71 Nm)

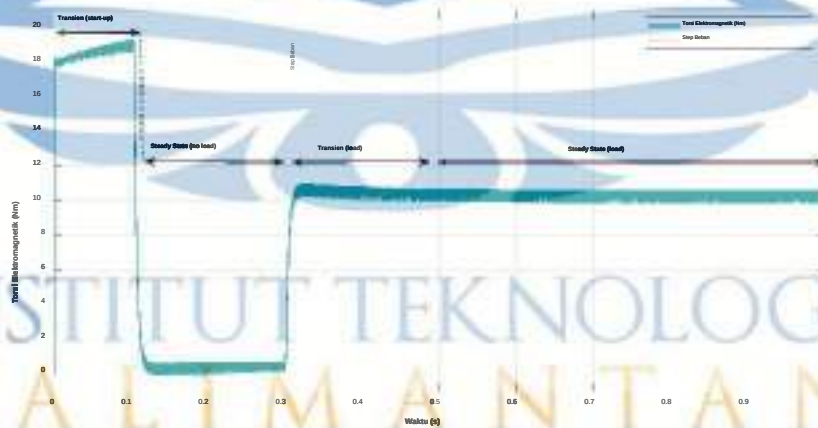
Beban 0 Nm



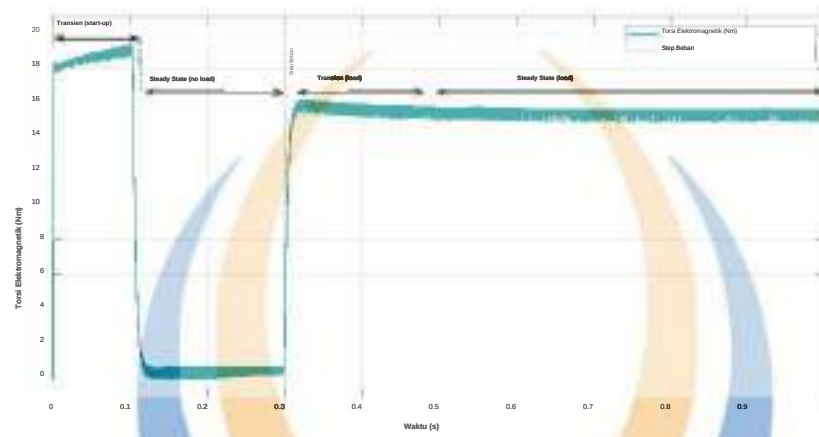
Beban 5 Nm



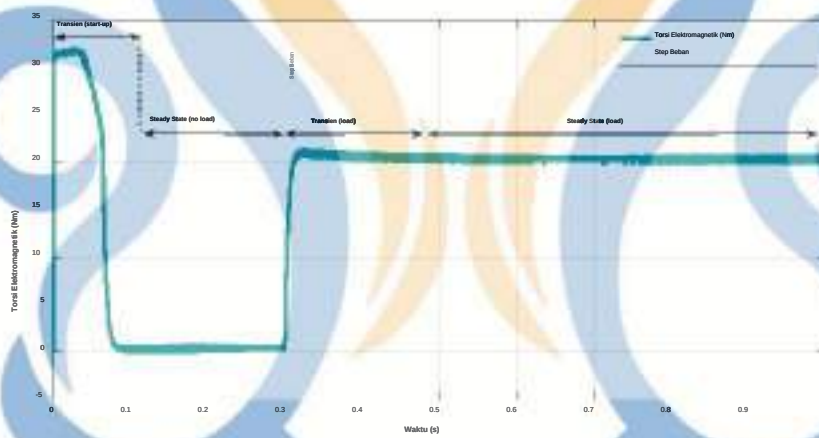
Beban 10 Nm



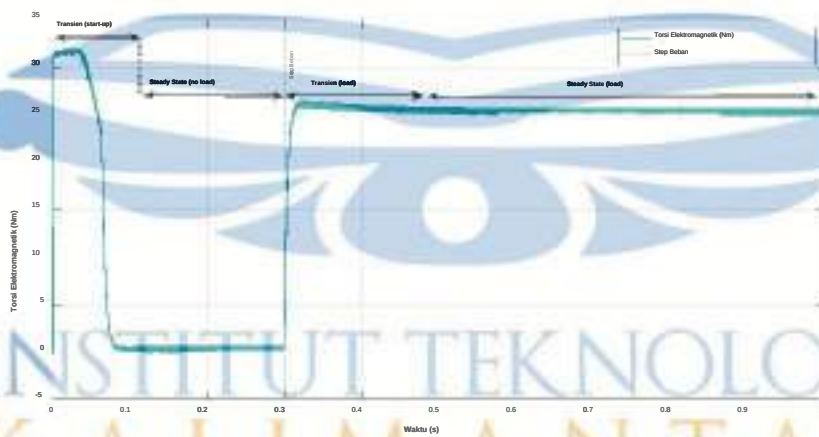
Beban 15 Nm



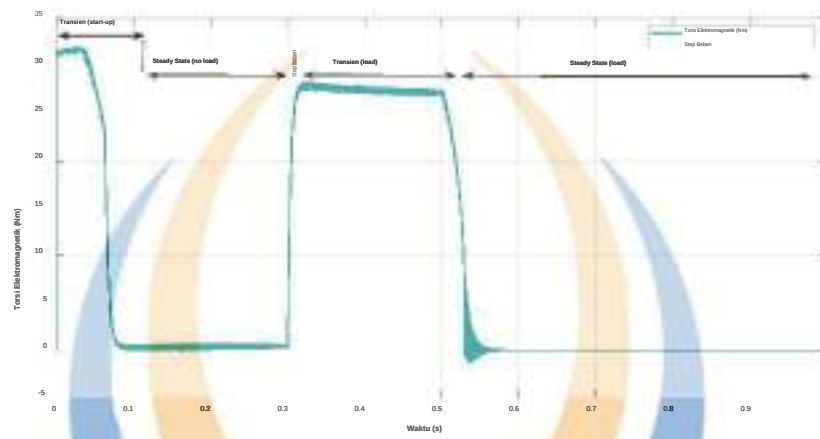
Beban 20 Nm



Beban 25 Nm



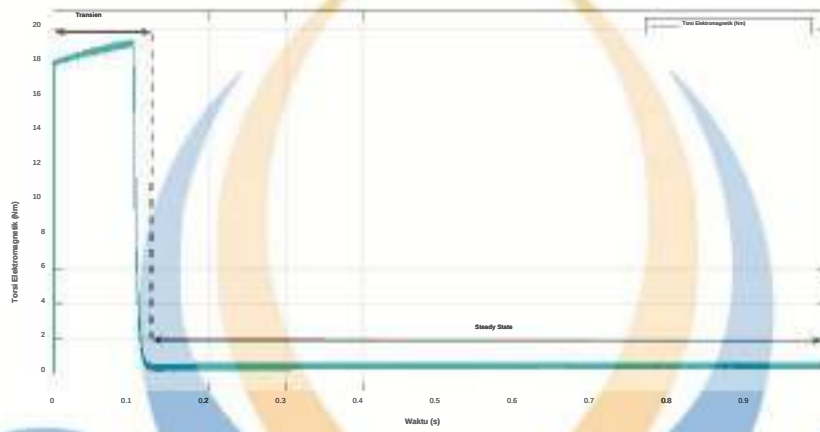
Beban 26.71 Nm



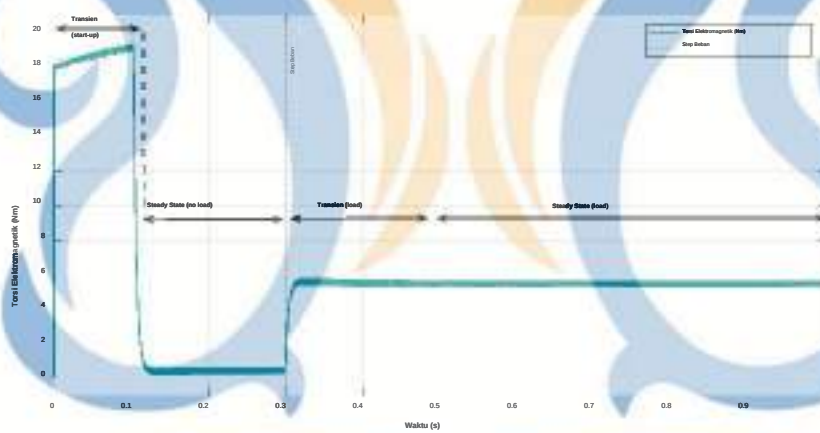
INSTITUT TEKNOLOGI
KALIMANTAN

Lampiran F-4 Torsi Elektromagnetik DTC-HBPWM *Dual Inverter* (Beban 0, 5, 10, 15 Nm, 20 Nm, 25 Nm dan 26.71 Nm)

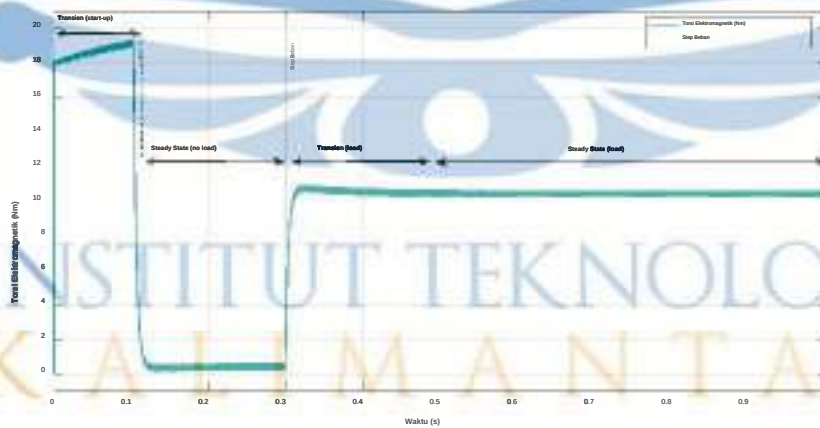
Beban 0 Nm



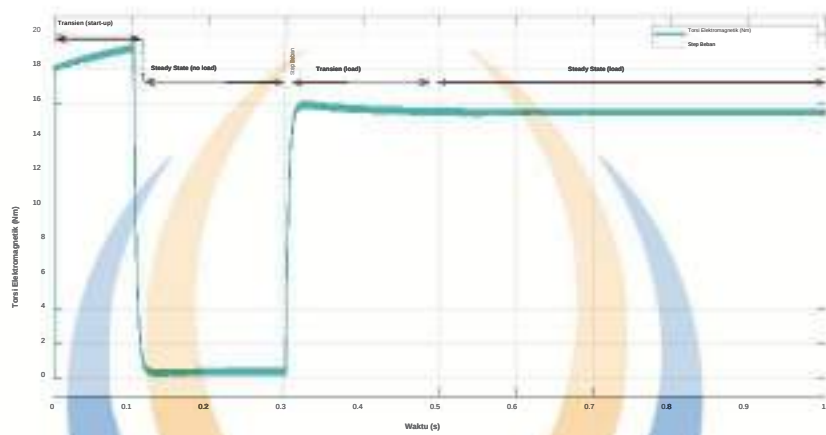
Beban 5 Nm



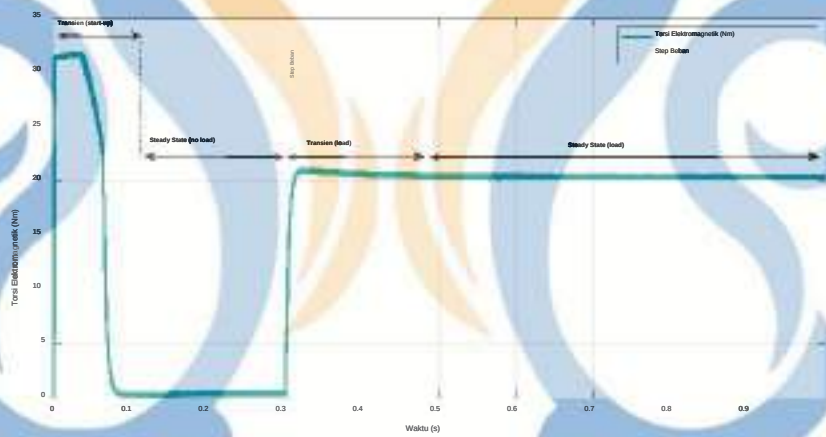
Beban 10 Nm



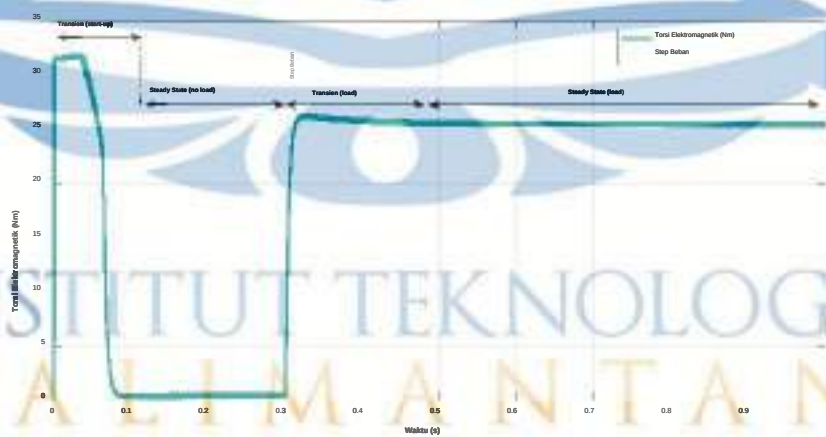
Beban 15 Nm



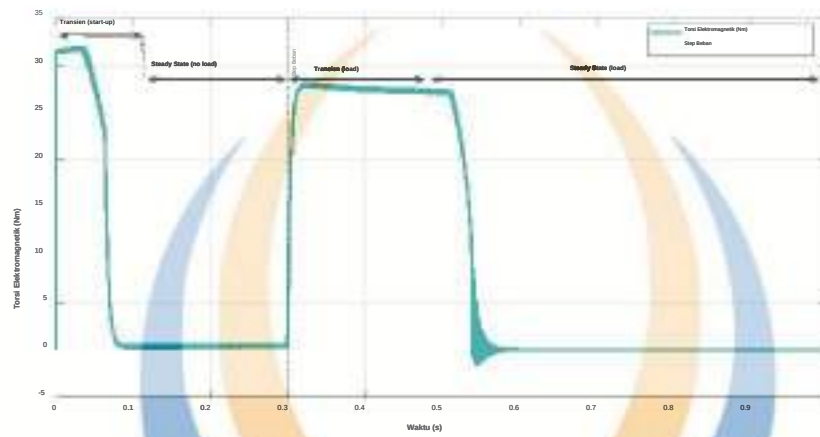
Beban 20 Nm



Beban 25 Nm



Beban 26.71 Nm

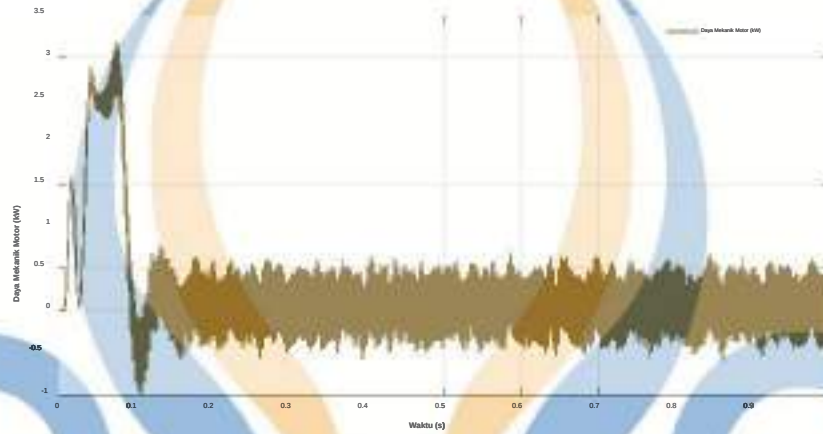


INSTITUT TEKNOLOGI
KALIMANTAN

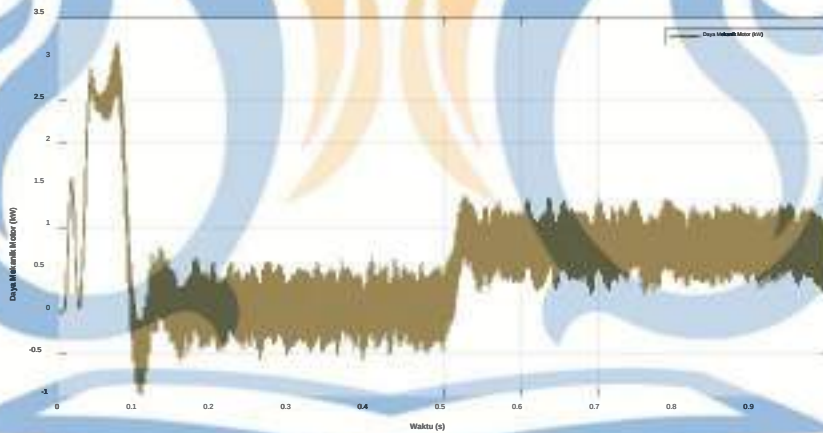
LAMPIRAN G

Lampiran G-1 Daya Mekanik Motor V/F *Open Loop Single Inverter* (Beban 0, 5, 10, 15 Nm)

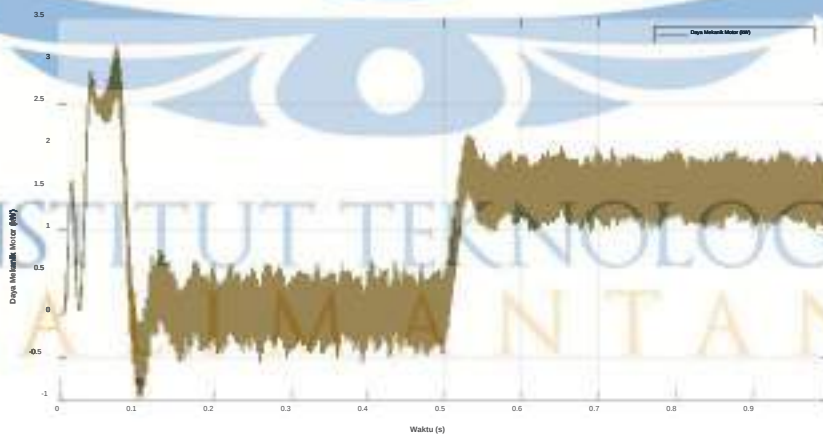
Beban 0 Nm



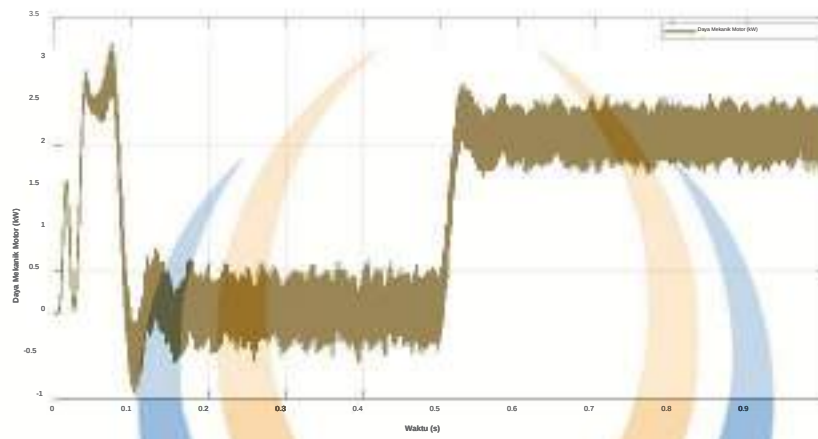
Beban 5 Nm



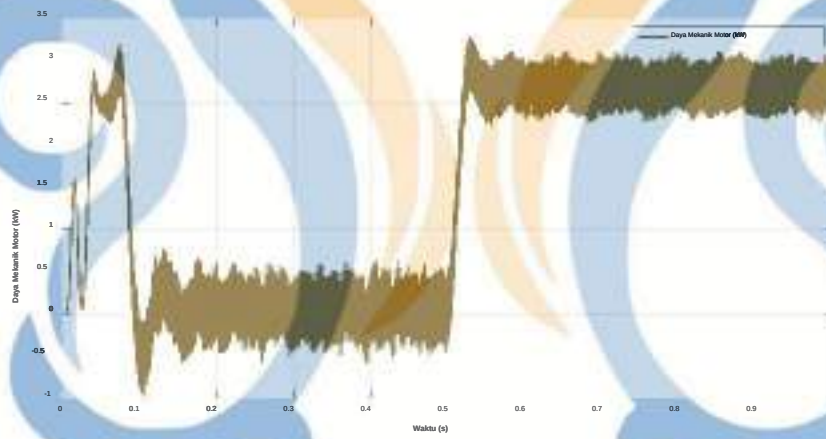
Beban 10 Nm



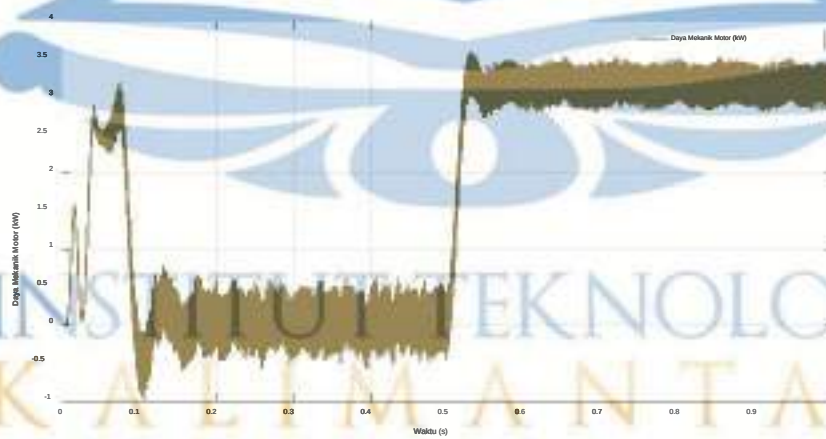
Beban 15 Nm



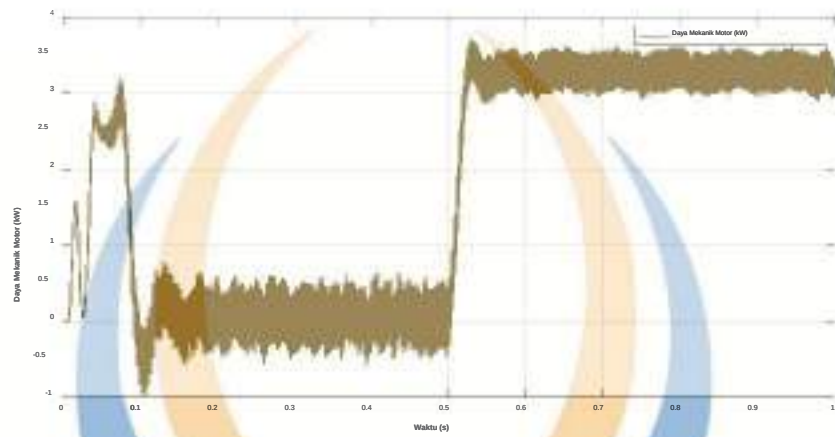
Beban 20 Nm



Beban 25 Nm

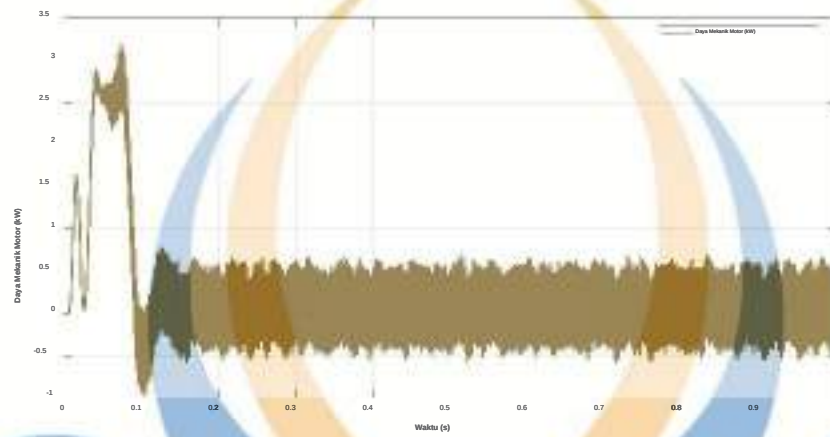


Beban 26.71 Nm

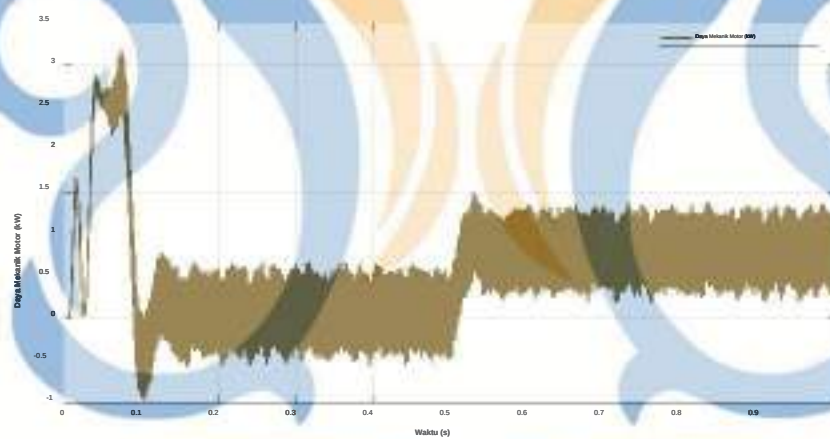


INSTITUT TEKNOLOGI
KALIMANTAN

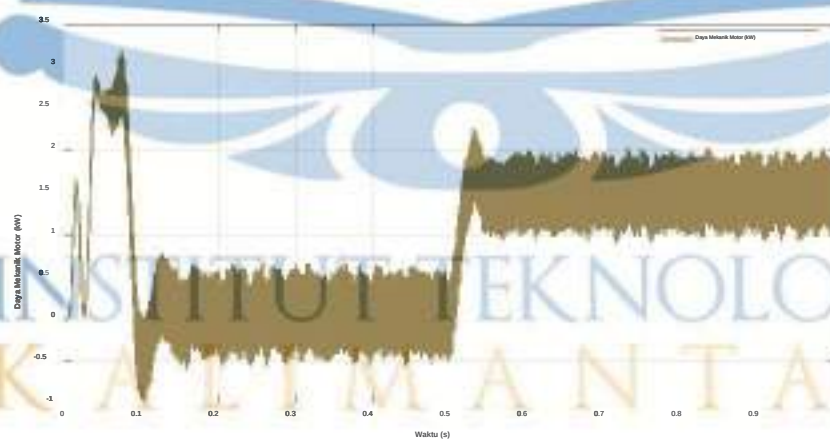
Lampiran G-2 Daya Mekanik Motor V/F *Open Loop Dual Inverter* (Beban 0, 5, 10, 15 Nm)
 Beban 0 Nm



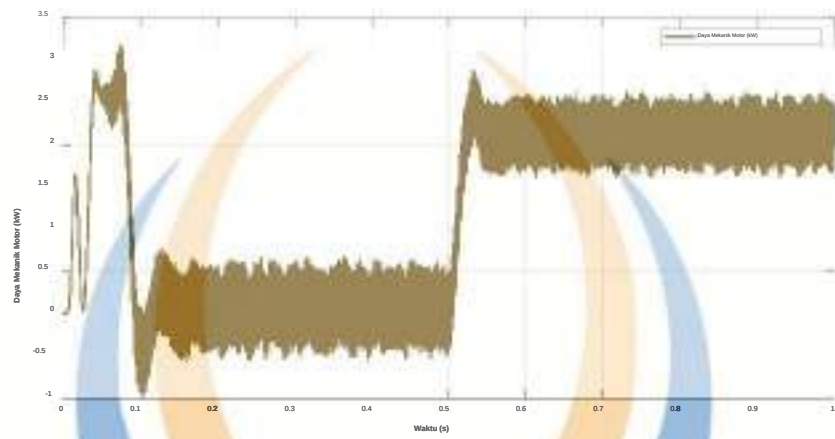
Beban 5 Nm



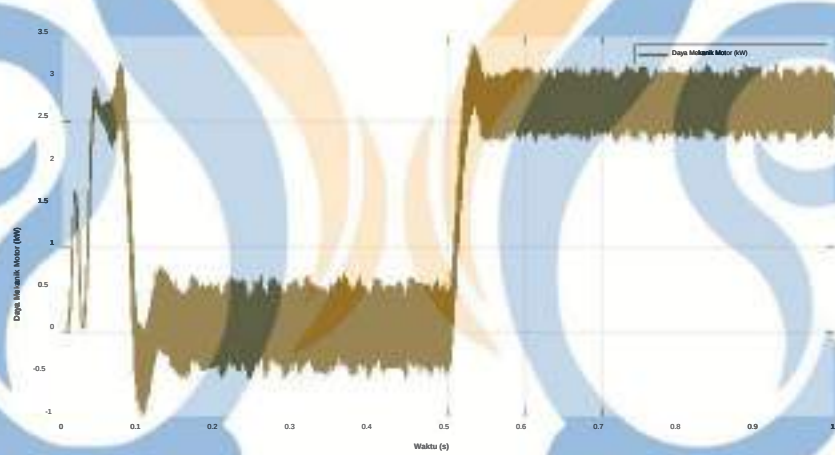
Beban 10 Nm



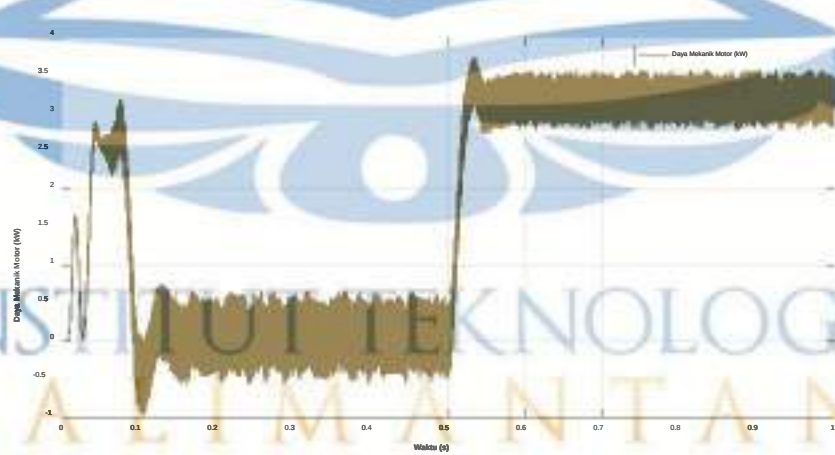
Beban 15 Nm



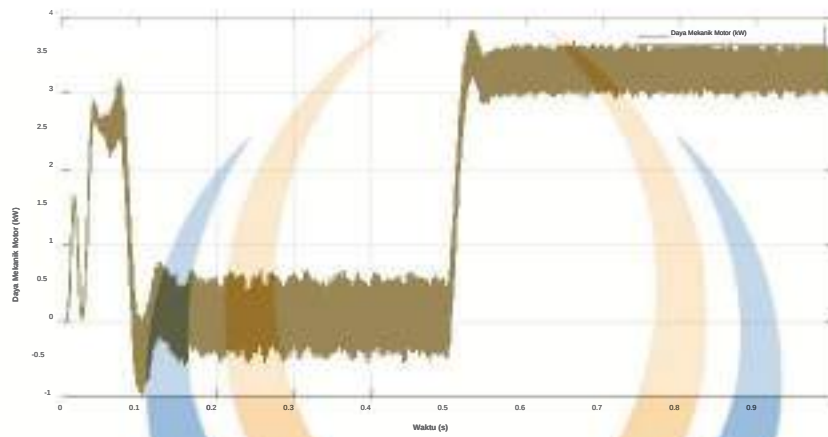
Beban 20 Nm



Beban 25 Nm



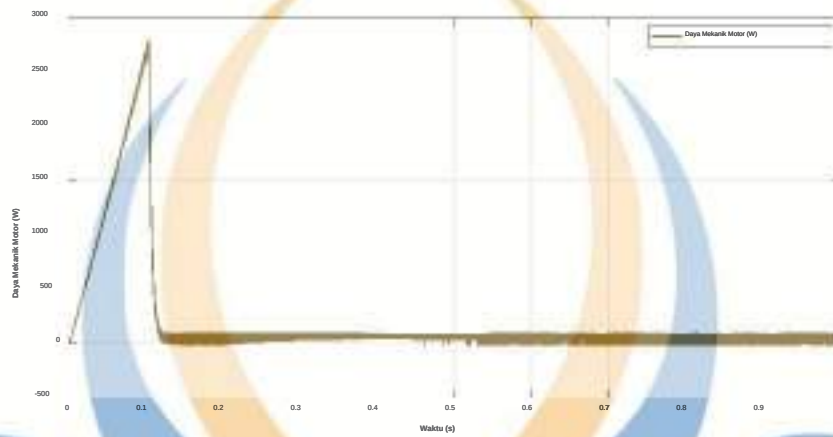
Beban 26.71 Nm



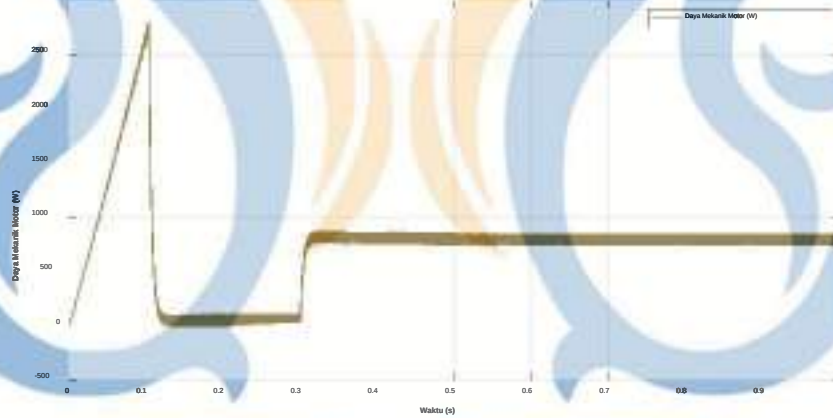
INSTITUT TEKNOLOGI
KALIMANTAN

Lampiran G-3 Daya Mekanik Motor *Single Inverter DTC HBPWM* Beban (0, 5, 10, 15 Nm)

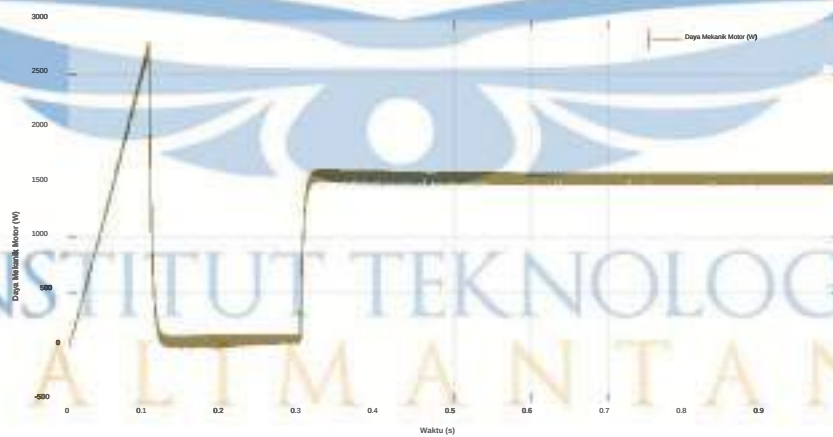
Beban 0 Nm



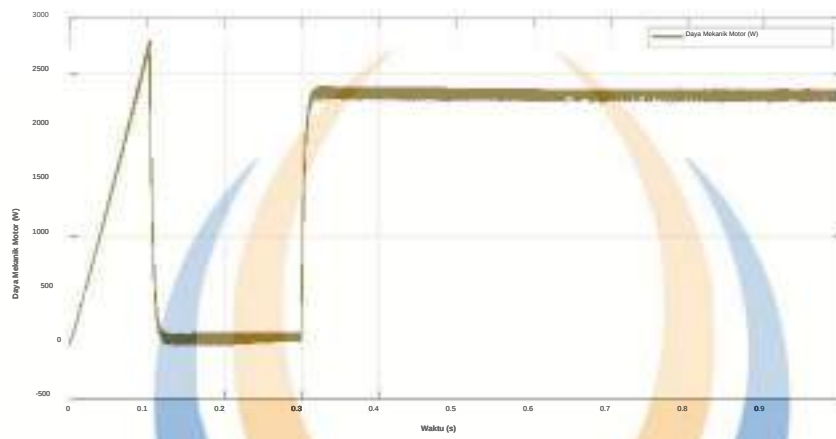
Beban 5 Nm



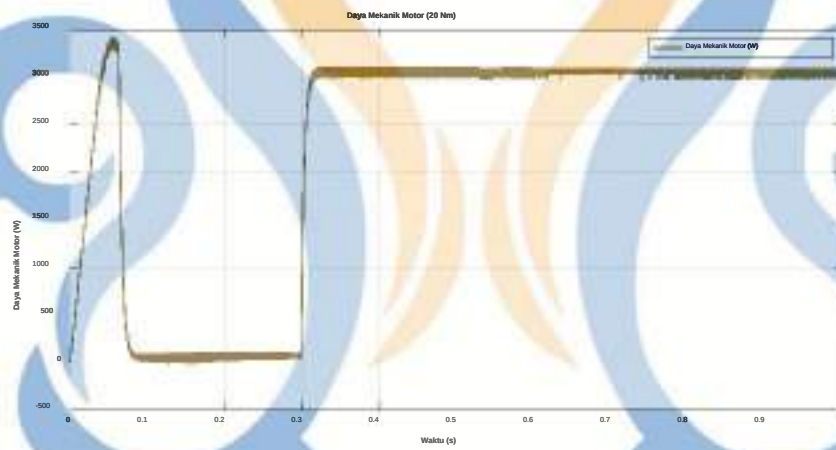
Beban 10 Nm



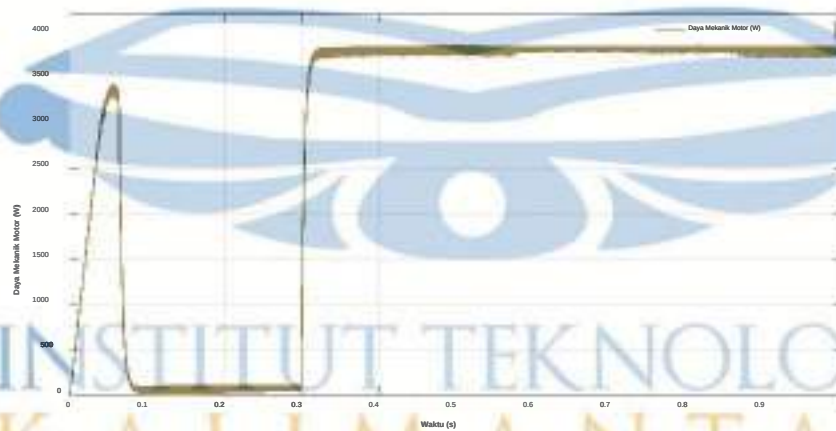
Beban 15 Nm



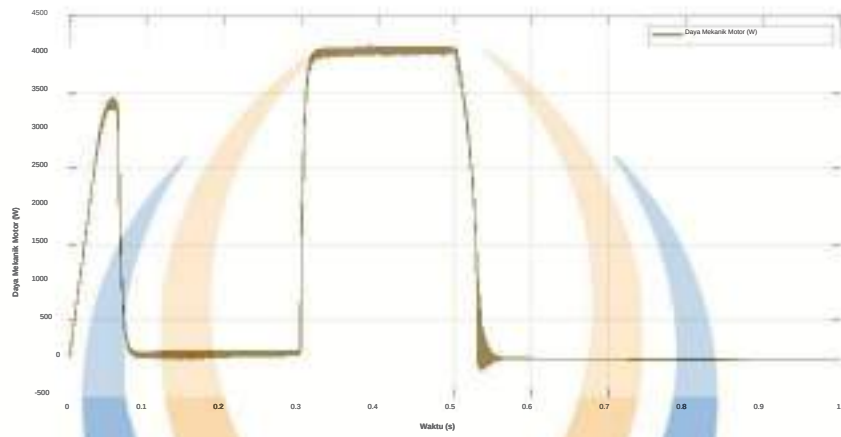
Beban 20 Nm



Beban 25 Nm

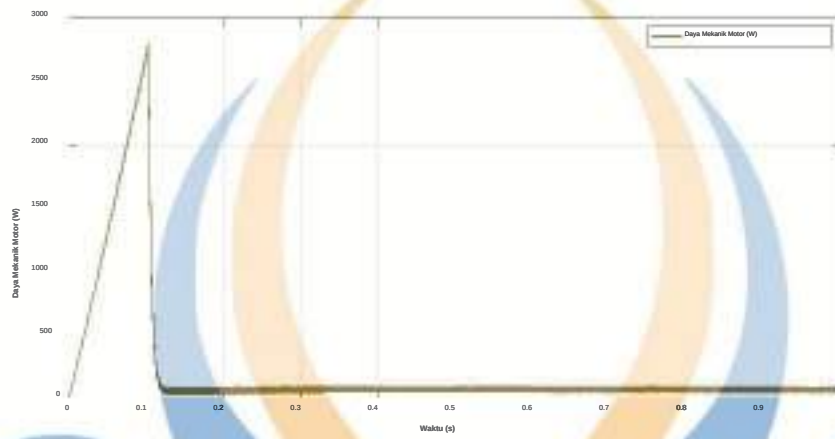


Beban 26.71 Nm

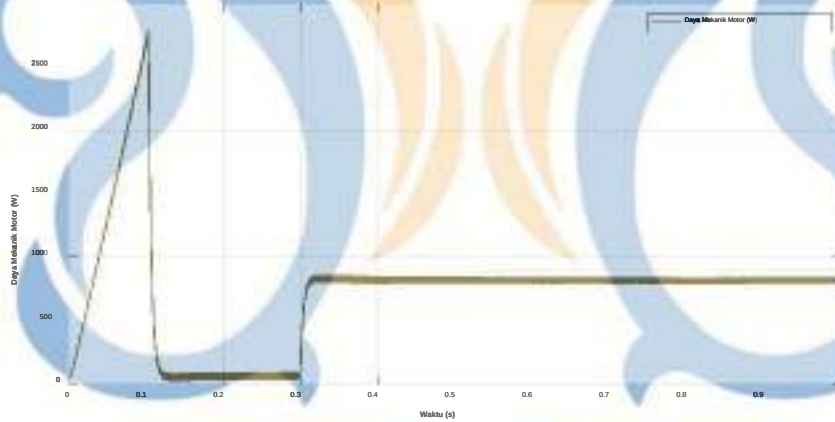


INSTITUT TEKNOLOGI
KALIMANTAN

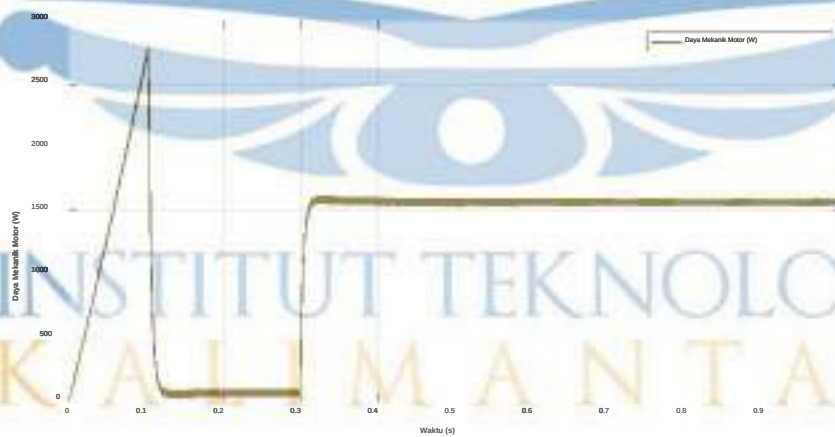
Lampiran G-4 Daya Mekanik Motor *Dual Inverter* DTC HBPWM Beban (0, 5, 10, 15 Nm)
 Beban 0 Nm



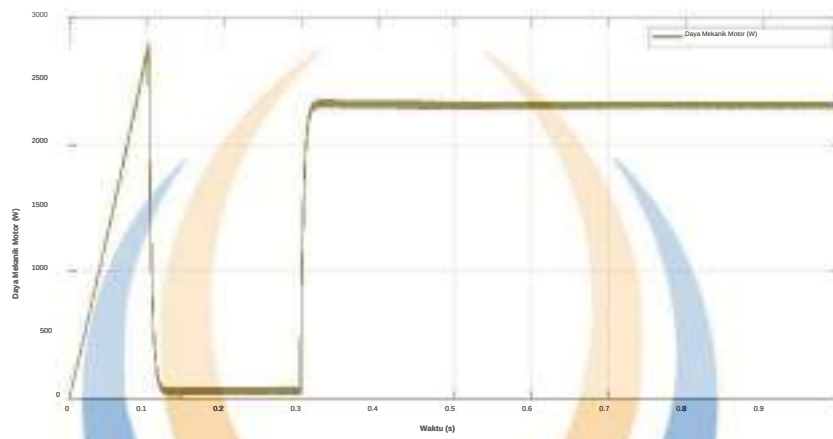
Beban 5 Nm



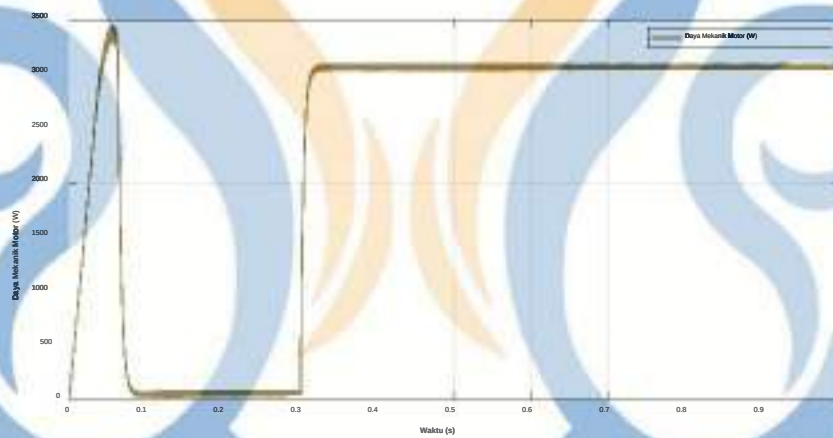
Beban 10 Nm



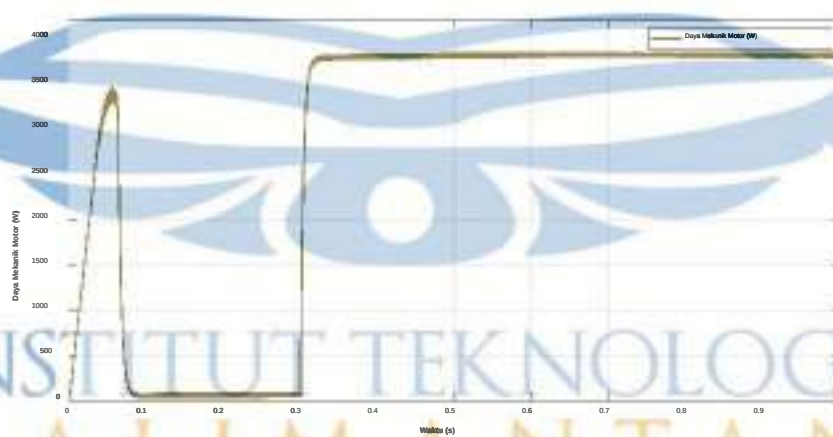
Beban 15 Nm



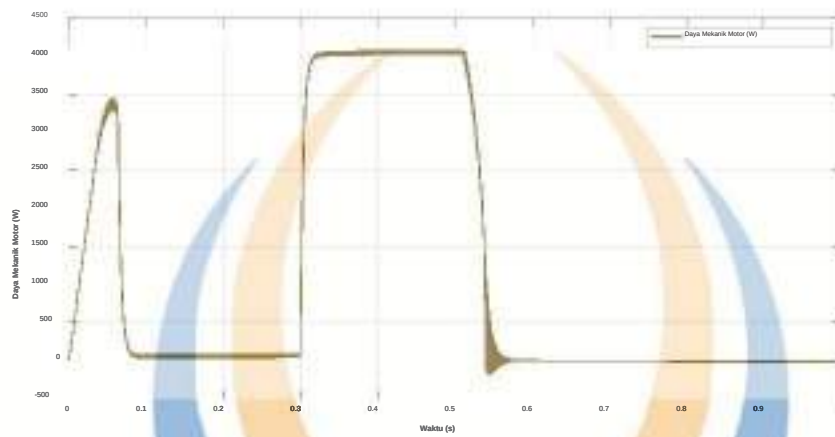
Beban 20 Nm



Beban 25 Nm



Beban 26.71 Nm

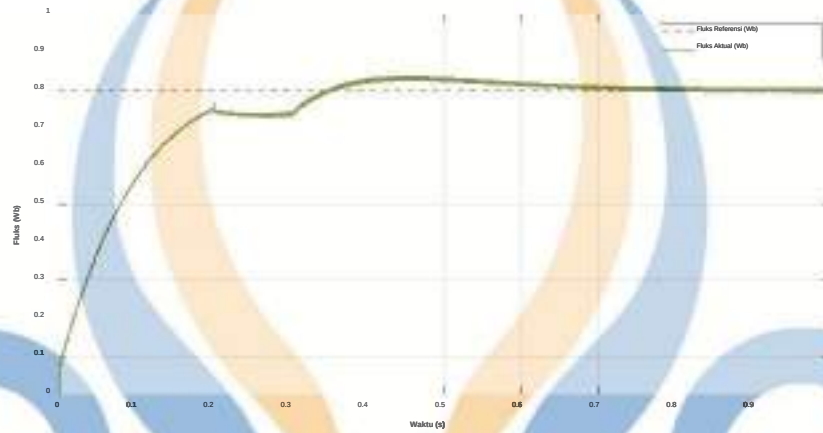


INSTITUT TEKNOLOGI
KALIMANTAN

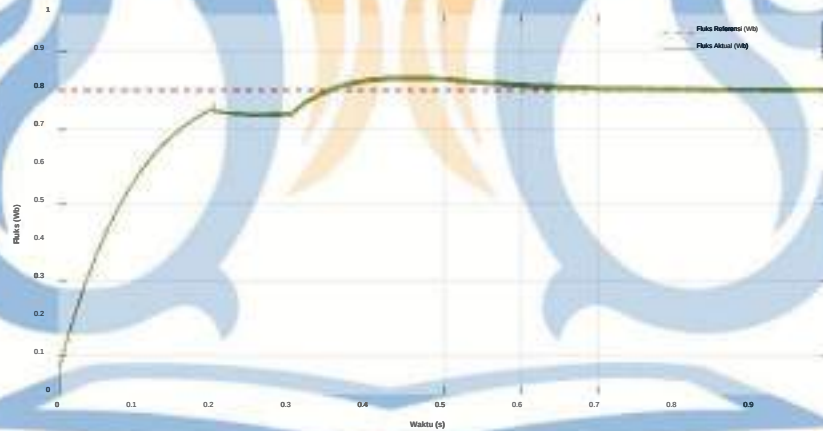
LAMPIRAN H

Lampiran H-1 Fluks Stator *Single Inverter* DTC-HBPWM (Beban 0, 5, 10, 15 Nm)

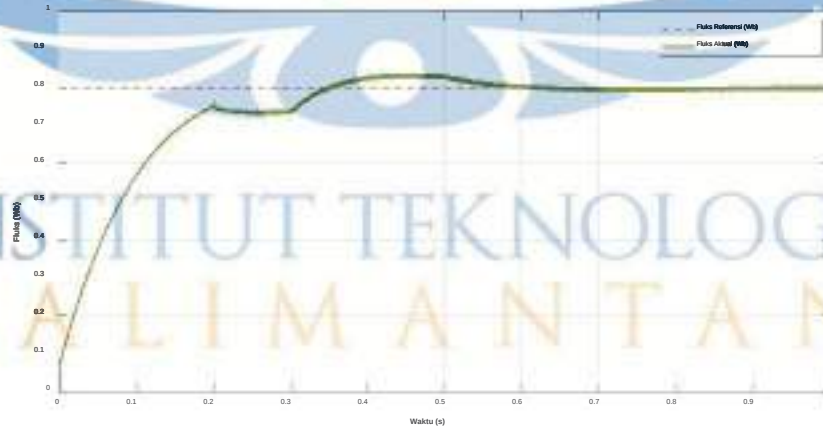
Beban 0 Nm



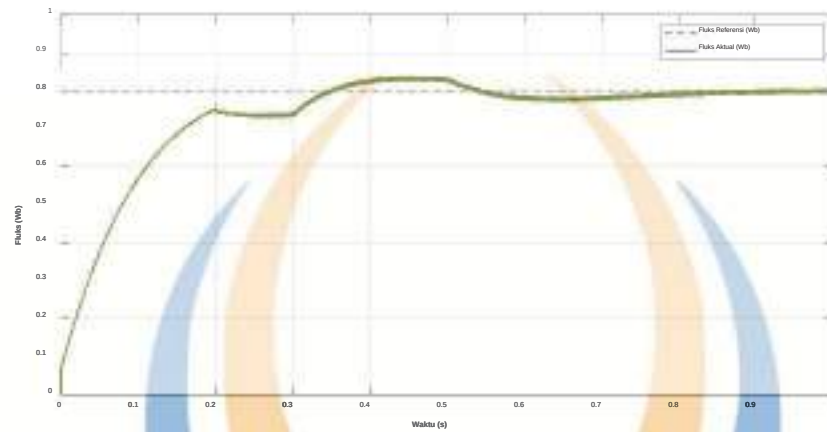
Beban 5 Nm



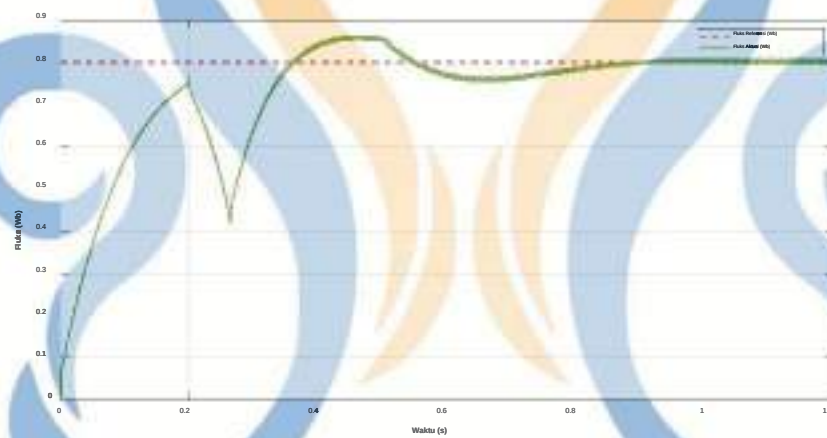
Beban 10 Nm



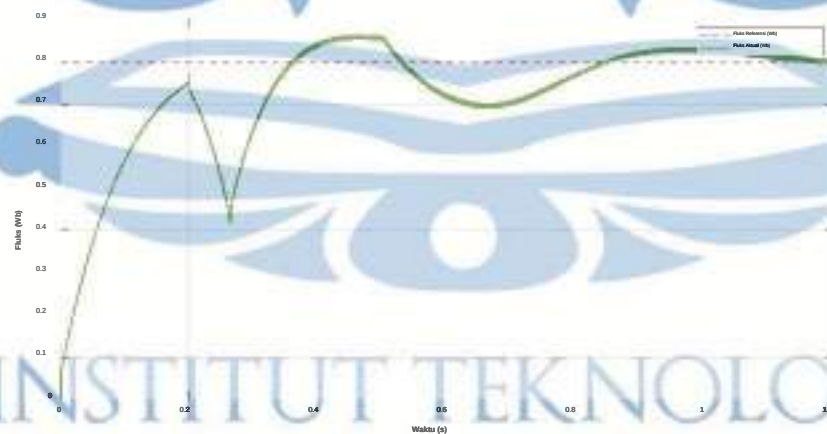
Beban 15 Nm



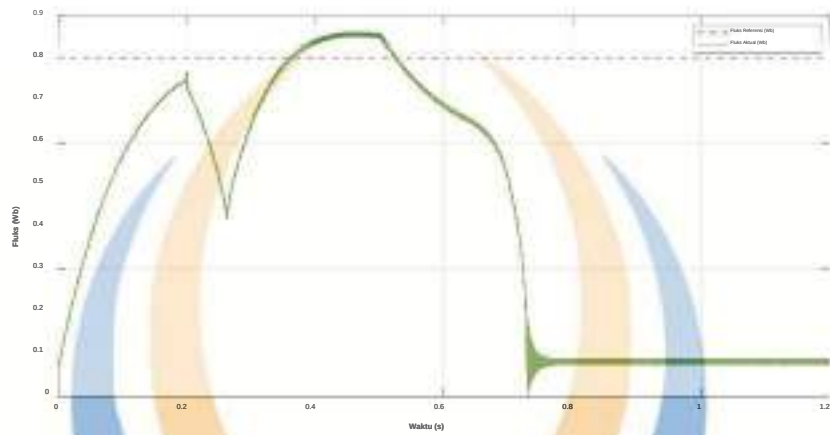
Beban 20 Nm



Beban 25 Nm

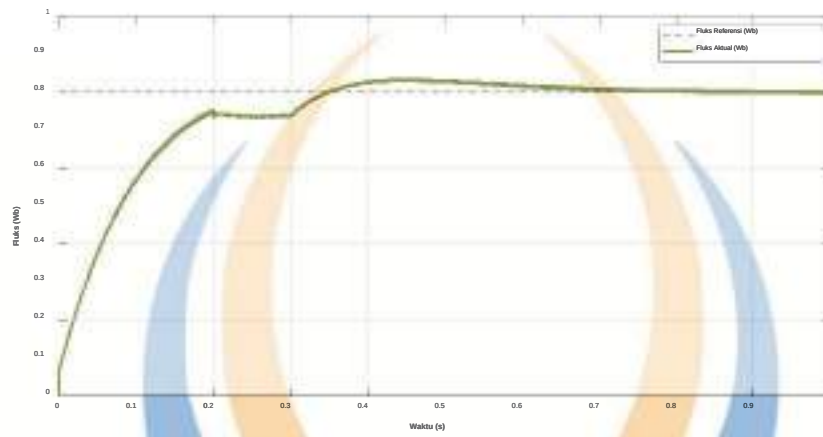


Beban 26.71 Nm

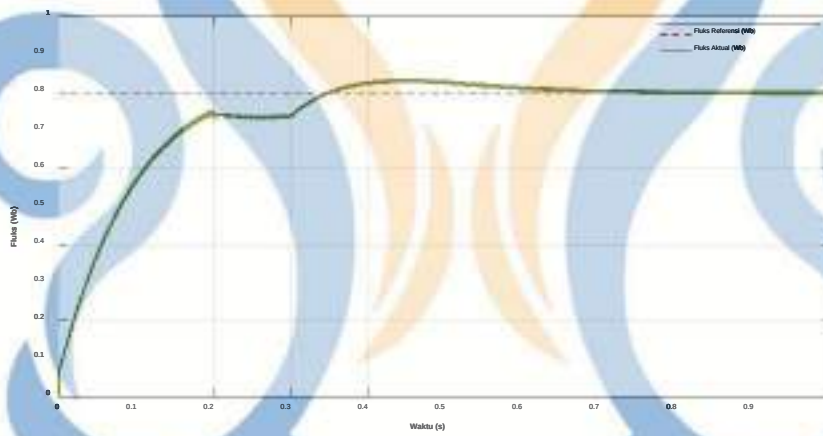


INSTITUT TEKNOLOGI
KALIMANTAN

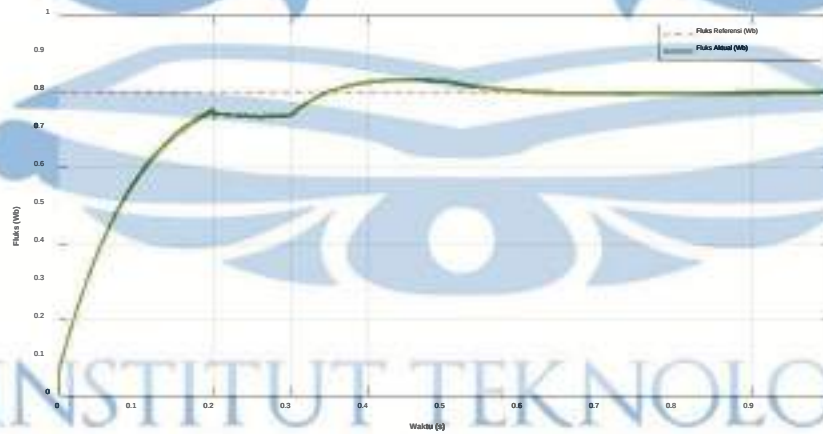
Lampiran H-2 Fluks Stator *Dual Inverter* DTC-HBPWM (Beban 0, 5, 10, 15 Nm)
 Beban 0 Nm



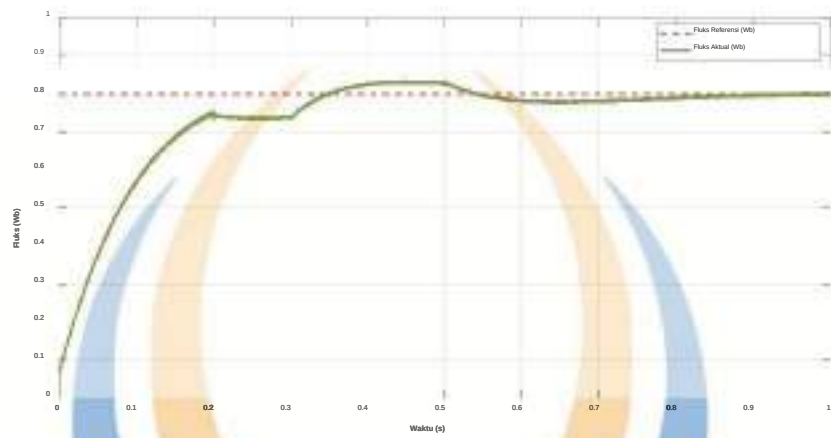
Beban 5 Nm



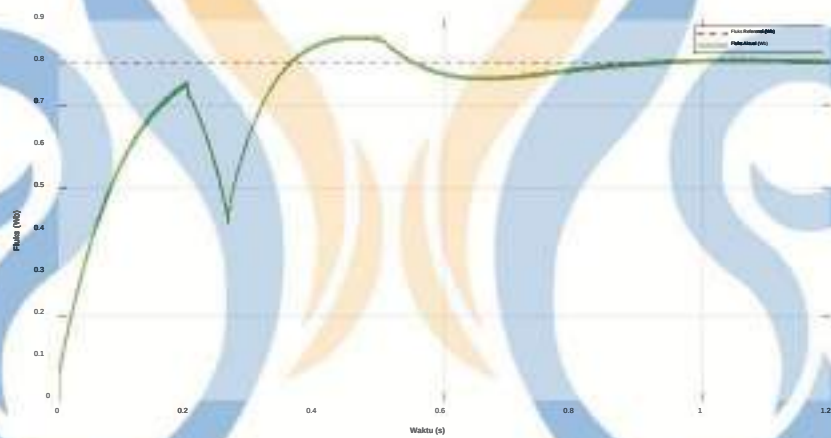
Beban 10 Nm



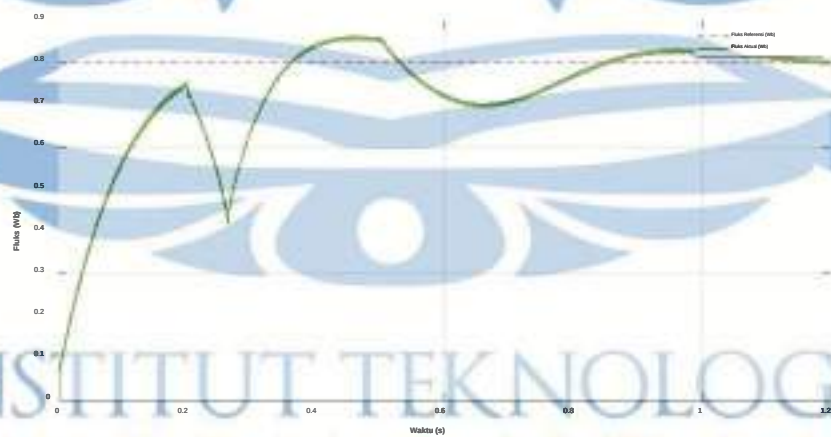
Beban 15 Nm



Beban 20 Nm

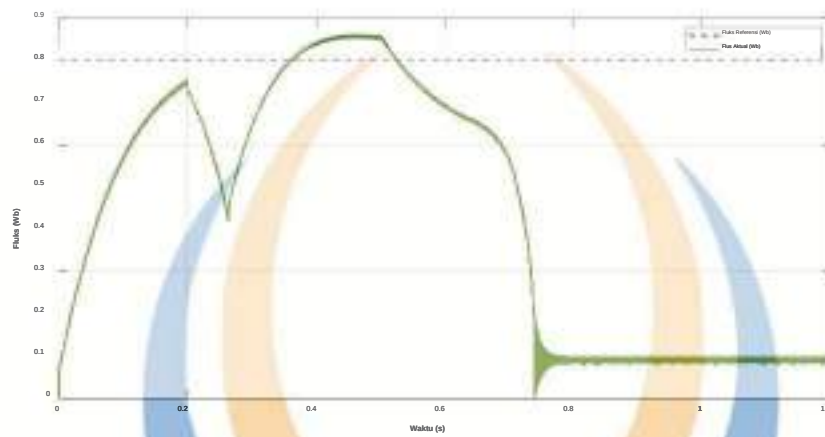


Beban 25 Nm



INSTITUT TEKNOLOGI
KALIMANTAN

Beban 26.71 Nm



INSTITUT TEKNOLOGI
KALIMANTAN