

# DENEY 1 ELEKTROKARDIOGRAM (ECG) ÖLÇÜMÜ

## A. Yüksek Geçirgen Filtrenin (HPF) Ölçüm Karakteristiği

Tablo 1.1 HPF'nin ölçülen çıkış genlik değerleri

(a) Kesim frekansı = 1 Hz

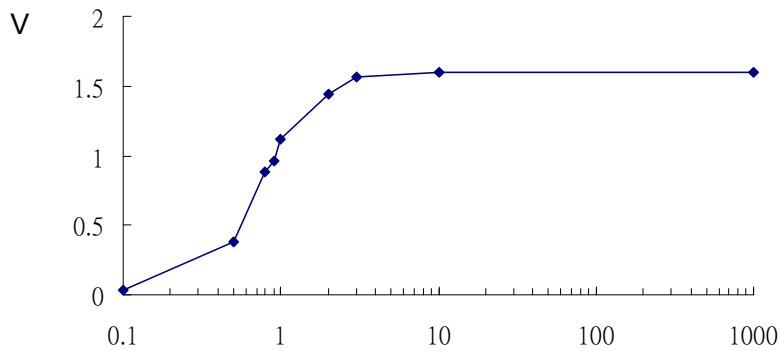
Giriş Frekansı	1KHz	10Hz	3Hz	2Hz	1Hz	0.9Hz	0.8Hz	0.5Hz	0.1Hz
HPF Çıkışı (Vpp)	1.60	1.60	1.56	1.44	1.12	0.96	0.88	0.38	0.03

(b) Kesim frekansı = 0.1 Hz

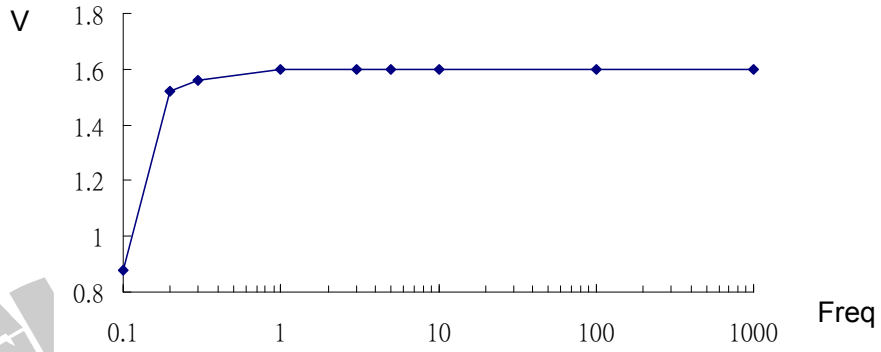
Giriş Frekansı	1KHz	100Hz	10Hz	5Hz	3Hz	1Hz	0.3Hz	0.2Hz	0.1Hz
HPF Çıkışı (Vpp)	1.60	1.60	1.60	1.60	1.60	1.60	1.56	1.52	0.88

Tablo 1.2 HPF'nin karakteristik eğrisi

(a) Kesim frekansı = 1 Hz



(b) Kesim frekansı = 0.1 Hz<sup>®</sup>



### B. Anfi Karakteristiğinin Ölçümü

Tablo 1.3 Anfi'nin ölçülen çıkış genlik değerleri<sup>®</sup>

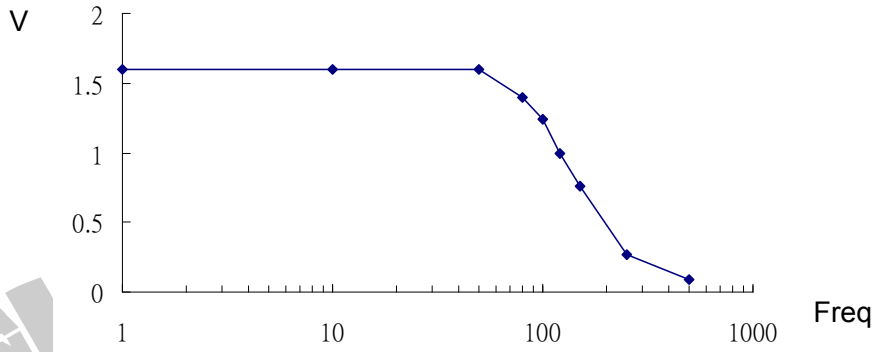
VR1 Konumu	Anfi çıkış gerilimi (Vpp)
Saatın tersi yönünde Minimum	100 mV
Maksimum distorsiyonsuz çıkış	20 V

### C. Alçak Geçirgen Filtrenin (LPF) Ölçüm Karakteristiği

Tablo 1.4 LPF'nin ölçülen çıkış genlik değerleri

Giriş Frekansı	1Hz	10Hz	50Hz	80Hz	100Hz	120Hz	150Hz	250Hz	500Hz
LPF Çıkışı (Vpp)	1.60	1.60	1.60	1.40	1.24	1.00	0.76	0.27	0.09

Tablo 1.5 LPF'nin karakteristik eğrisi

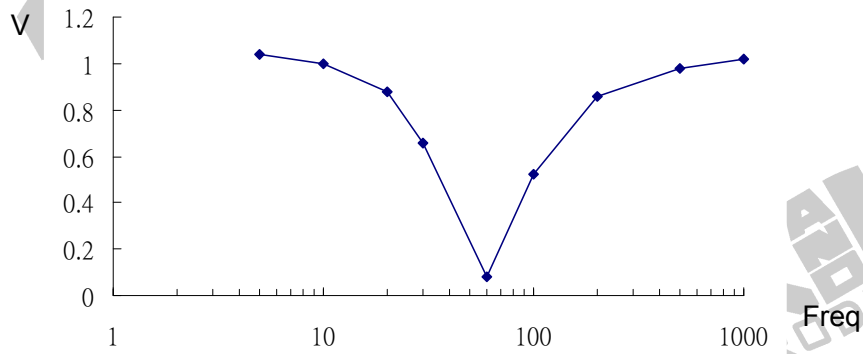


#### D. Band Geçirmeyen Filtrenin (BRF) Ölçüm Karakteristiği

Tablo 1.6 BRF'nin ölçülen çıkış genlik değerleri.(Merkez frekansı=60Hz)

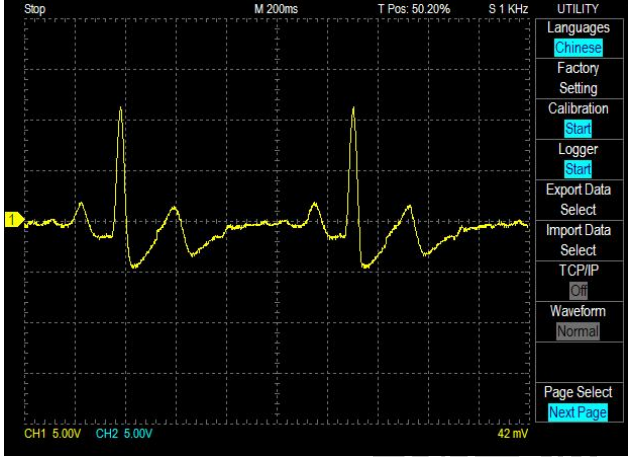
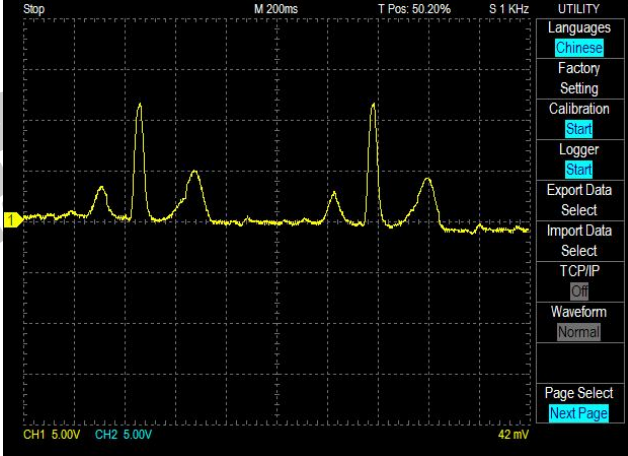
Giriş Frekansı	5Hz	10Hz	20Hz	30Hz	60Hz	100Hz	200Hz	500Hz	1KHz
BRF Çıkışı (Vpp)	1.04	1.00	0.88	0.66	0.08	0.52	0.86	0.98	1.02

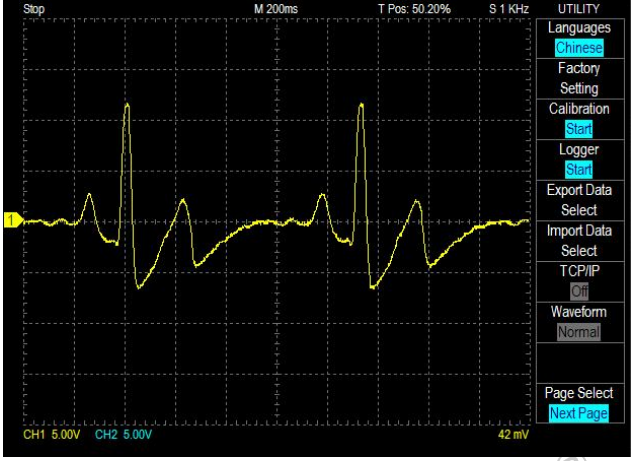
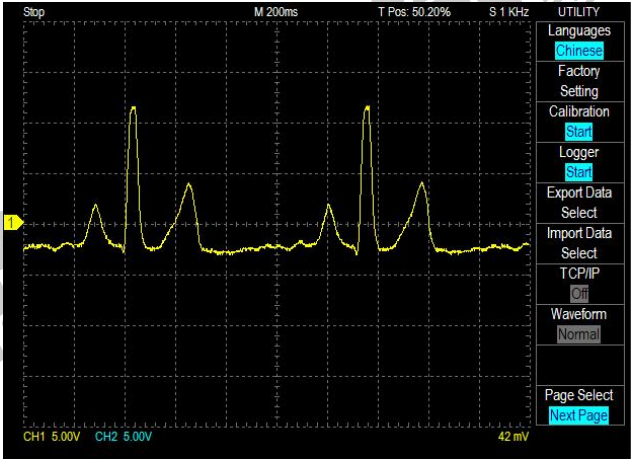
Tablo 1.7 BRF'nin karakteristik eğrisi.(Merkez frekansı=60Hz)

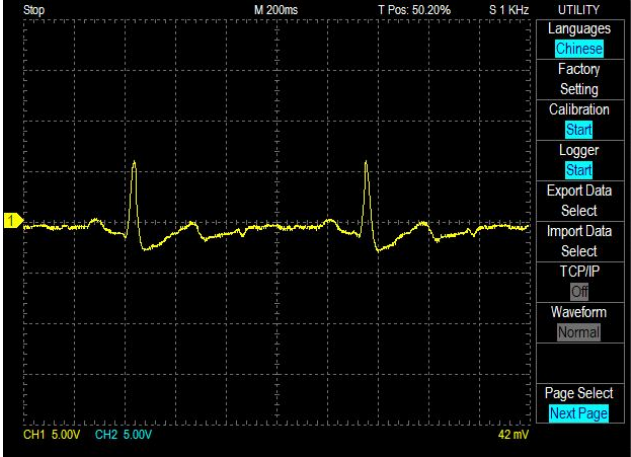
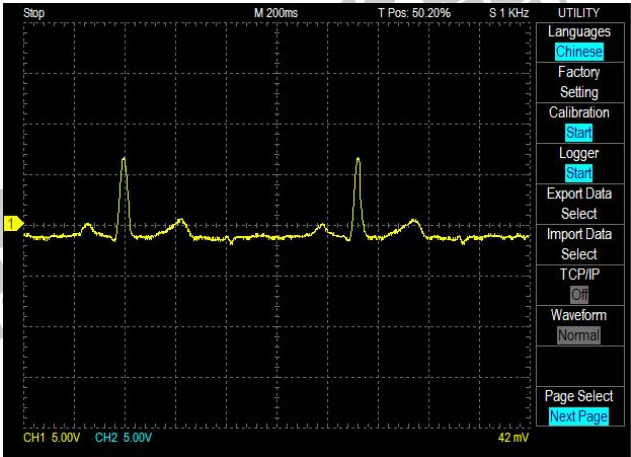


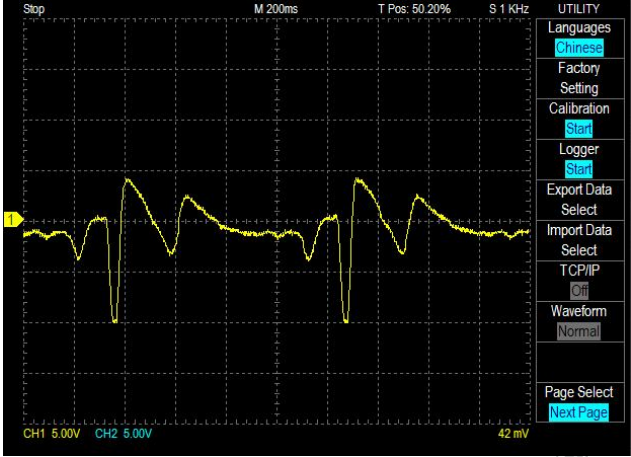
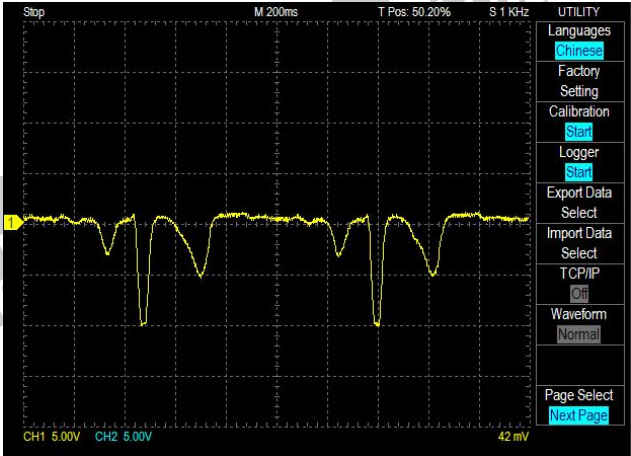
## E. ECG Simulatörü Kullanılarak ECG Ölçümü

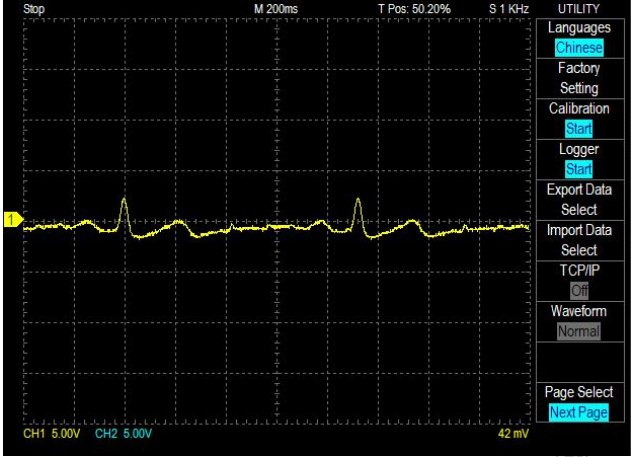
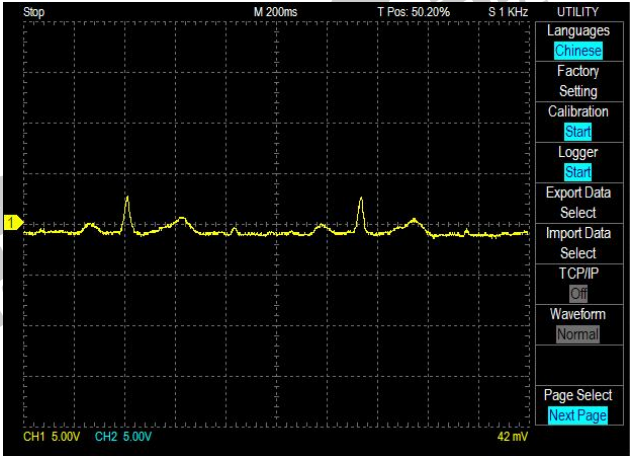
Tablo 1.8 ECG Simulatörü tarafından üretilen ECG sinyalinin ölçümü

HPF Kesim Frekansı	Ölçüm Ucu I Dalga Şekli
1 Hz	 <p>CH1 5V 200ms</p>
0.1 Hz	 <p>CH1 5V 200ms</p>

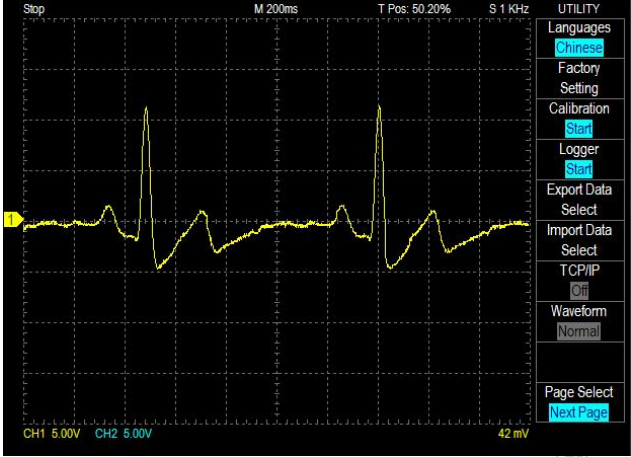
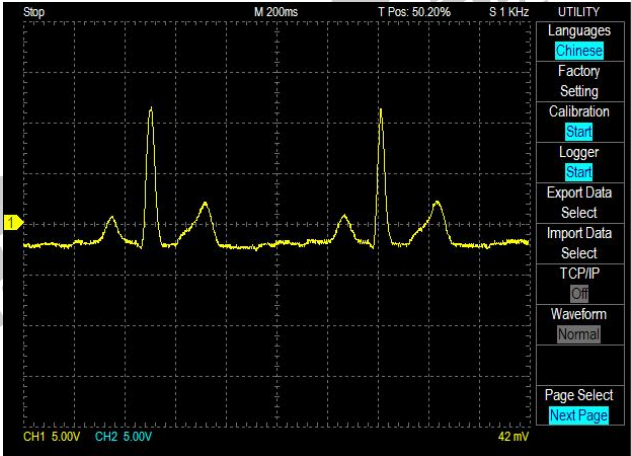
HPF Kesim Frekansı	Ölçüm Ucu II Dalga Şekli
1 Hz	 <p>CH1 5V 200ms</p>
0.1 Hz	 <p>CH1 5V 200ms</p>

HPF Kesim Frekansı	Ölçüm Ucu III Dalga Şekli
1 Hz	 <p>CH1 5V 200ms</p>
0.1 Hz	 <p>CH1 5V 200ms</p>

HPF Kesim Frekansı	aV <sub>R</sub> Dalga Şekli
1 Hz	 <p>CH1 5V 200ms</p>
0.1 Hz	 <p>CH1 5V 200ms</p>


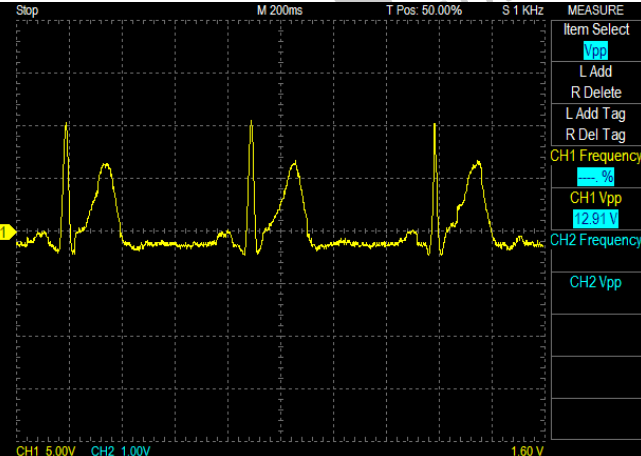
HPF Kesim Frekansı	aVL Dalga Şekli
1 Hz	 <p>CH1 2V 200ms</p>
0.1 Hz	 <p>CH1 2V 200ms</p>

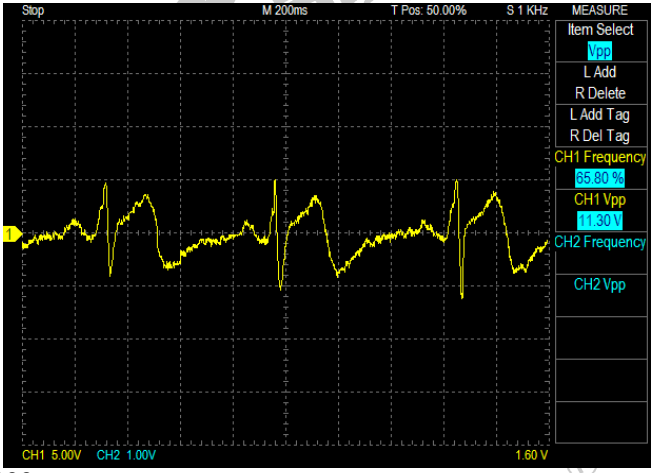



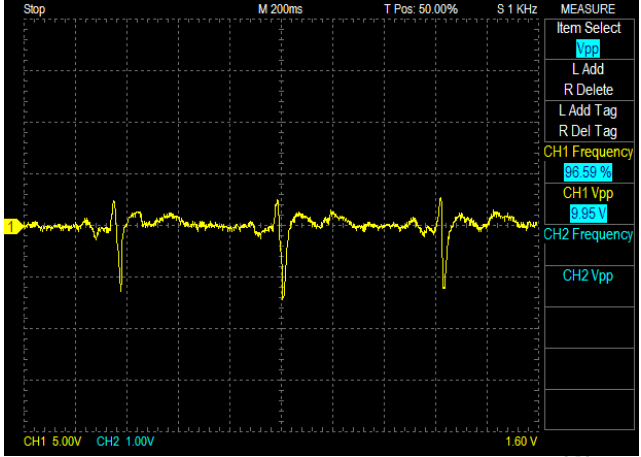
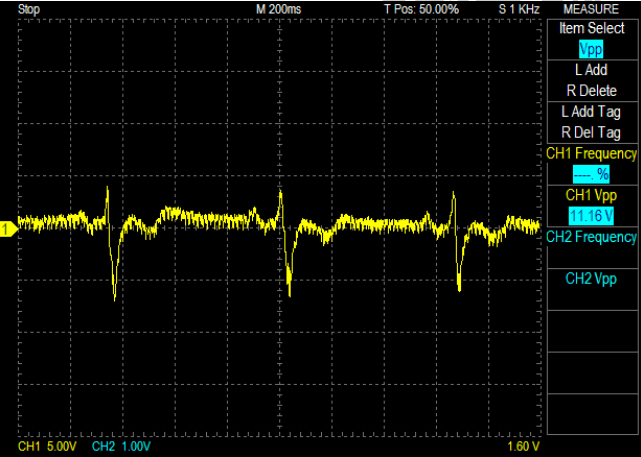
HPF Kesim Frekansı	aV <sub>F</sub> Dalga Şekli
1 Hz	 <p>CH1 5V 200ms</p>
0.1 Hz	 <p>CH1 5V 200ms</p>


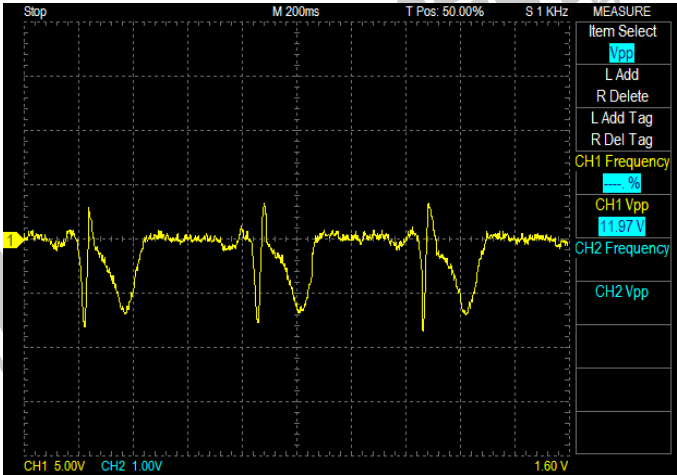
## F. Osiloskop Kullanarak İnsan ECG Ölçümü

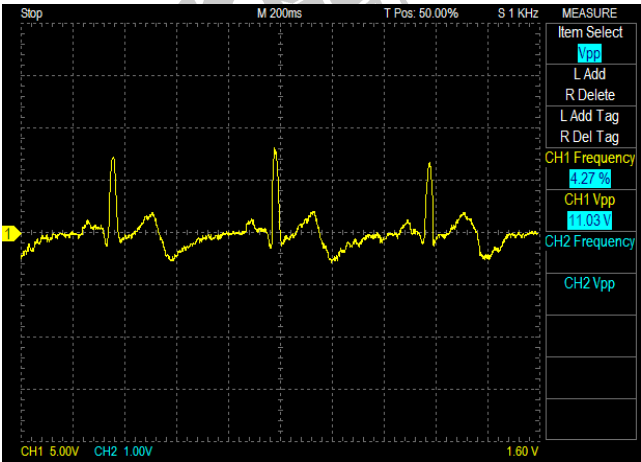
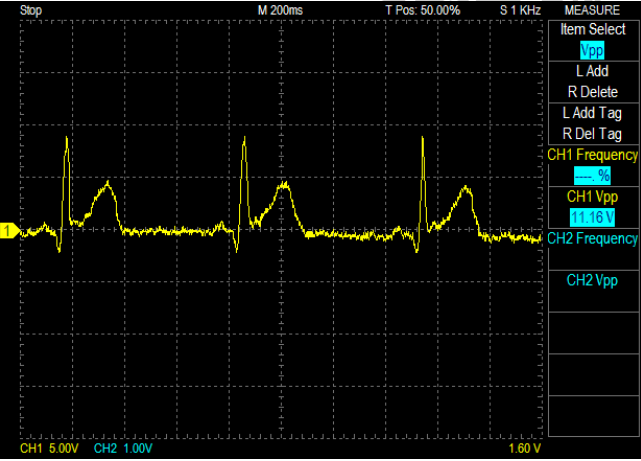
Tablo 1.9 Ölçülen İnsan ECG sinyali

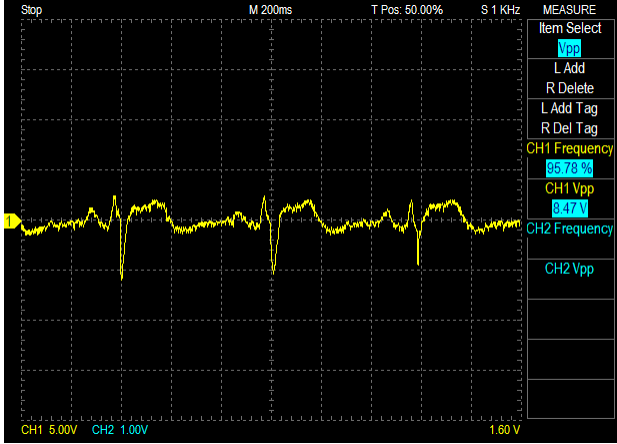
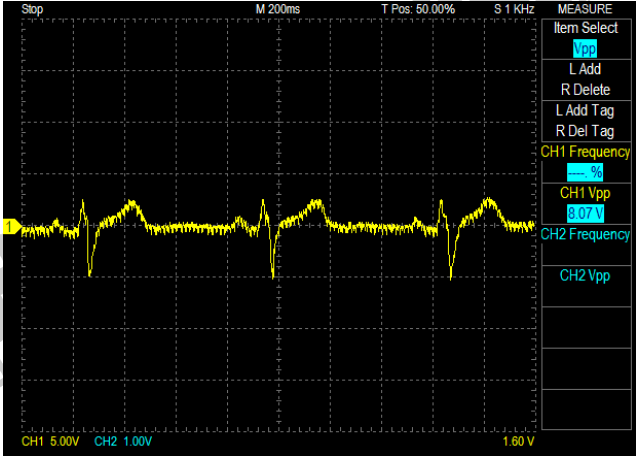
HPF Kesim Frekansı	Ölçüm Ucu I Dalga Şekli
1 Hz	 <p>CH1 5V 200ms</p>
0.1 Hz	 <p>CH1 5V 200ms</p>

HPF Kesim Frekansı	Ölçüm Ucu II Dalga Şekli
1 Hz	 <p>CH1 5V 200ms</p>
0.1 Hz	 <p>CH1 5V 200ms</p>

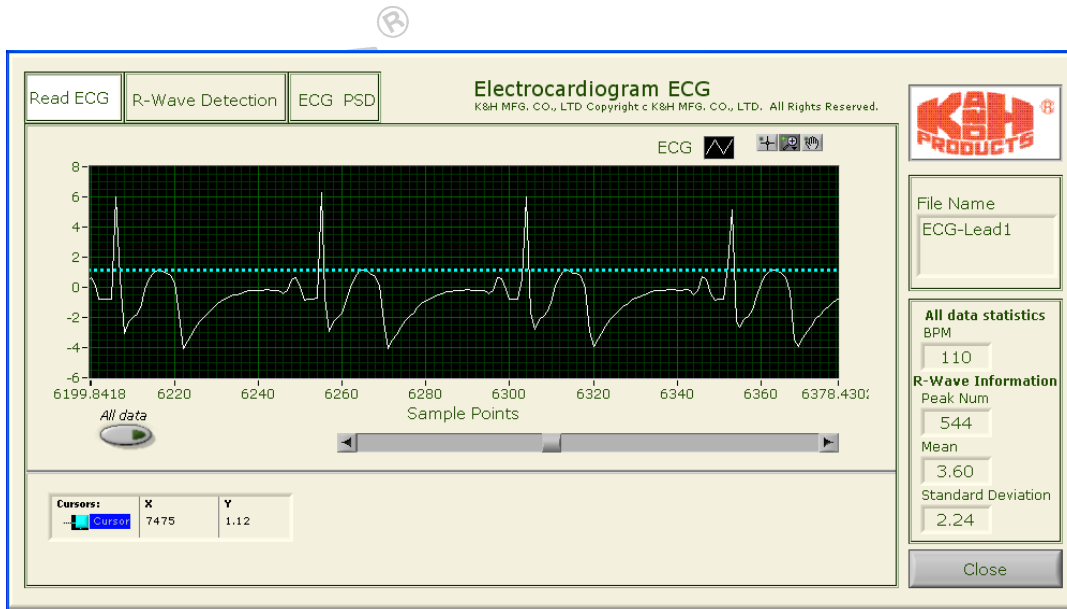
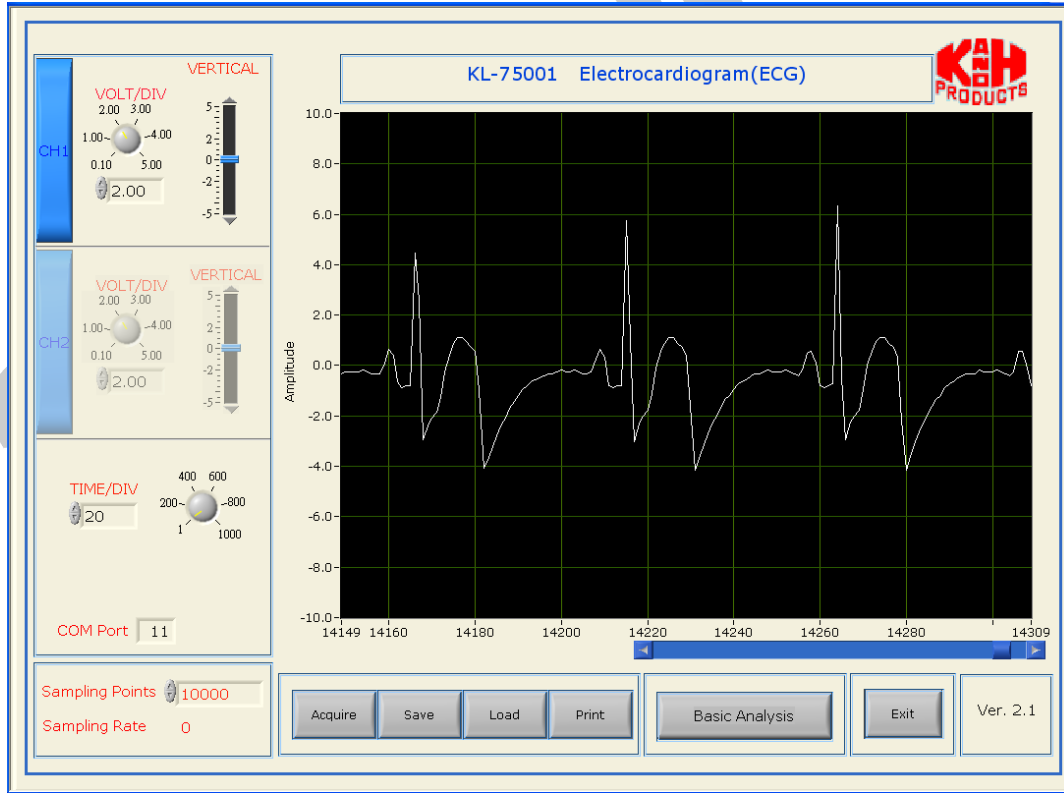
HPF Kesim Frekansı	Ölçüm Ucu III Dalga Şekli
1 Hz	 <p>CH1 5V 200ms</p>
0.1 Hz	 <p>CH1 5V 200ms</p>

HPF Kesim Frekansı	aV <sub>R</sub> Dalga Şekli
1 Hz	 <p>CH1 5V 200ms</p>
0.1 Hz	 <p>CH1 5V 200ms</p>

HPF Kesim Frekansı	aVL Dalga Şekli
1 Hz	 <p>CH1 5V 200ms</p>
0.1 Hz	 <p>CH1 5V 200ms</p>

HPF Kesim Frekansı	aV <sub>F</sub> Dalga Şekli
1 Hz	 <p>CH1 5V 200ms</p>
0.1 Hz	 <p>CH1 5V 200ms</p>

## G. KL-730 Yazılımı Kullanarak İnsan ECG Ölçümü <sup>®</sup>



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