



Kurdistan Region – Iraq  
Cihan University  
Communication & Computer  
Engineering Department

***INCREASE YOUR KNOWLEDGE BY  
USING YOUR SMART PHONE***



2017 – 2018

Asst. Lecturer

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رَبِّ زِدْنِي عِلْمًا

"O my Lord!

Increase me in  
my knowledge!"

QUR'AN 20:114

اللَّهُمَّ إِنِّي أَسْأَلُكَ عِلْمًا نَافِعًا

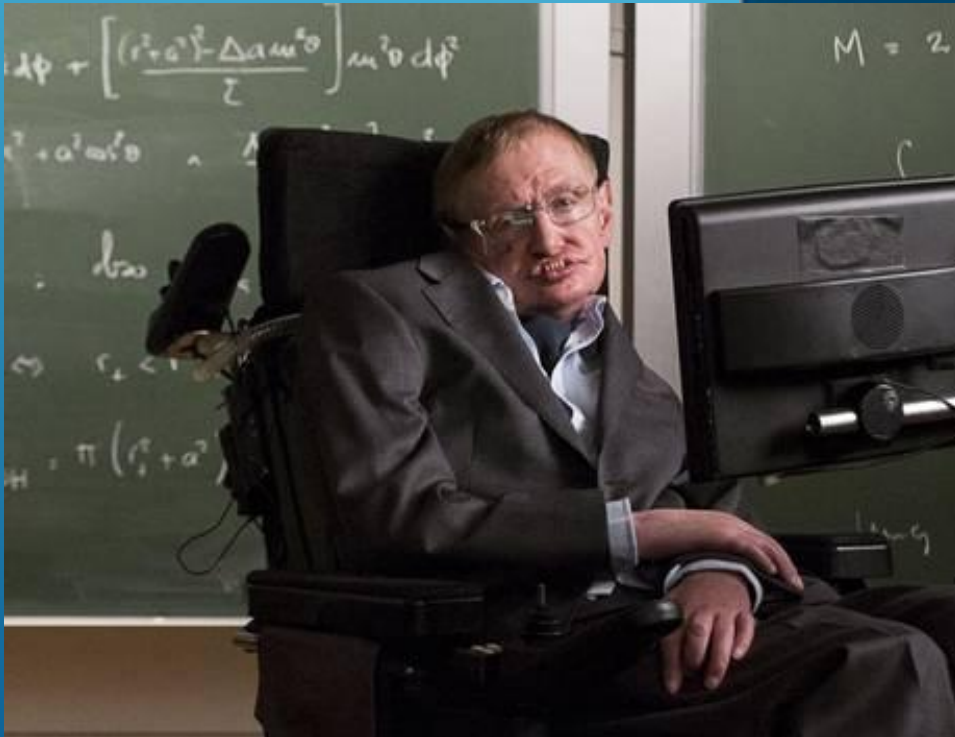
"O Allah!

I ask You  
for knowledge  
that is of benefit"

Knowledge is  
Power

# STEPHEN HAWKING

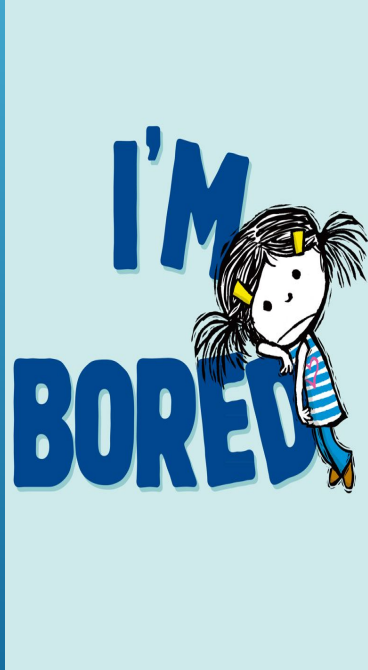
Knowledge is  
Power



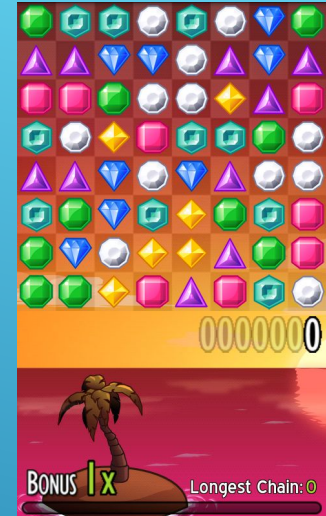
ITMES      HELP ?      DESIGN      TOOLS      BLOCK  
NOTES      SYSTEMS      FORMULA      ANALYSIS      DAIGRAM  
EQUATIONS      UNITS      CONDITIONS      SKILL  
CIRCUITS      CALCULATION      TIME      MEASUREMENTS  
FIGURES      LECTURES      REFERENCES  
PROBLEMS      EXAMINATION  
EXPRESSION      SIMULATION  
EVALUATION



# How do you spend your boring time ?



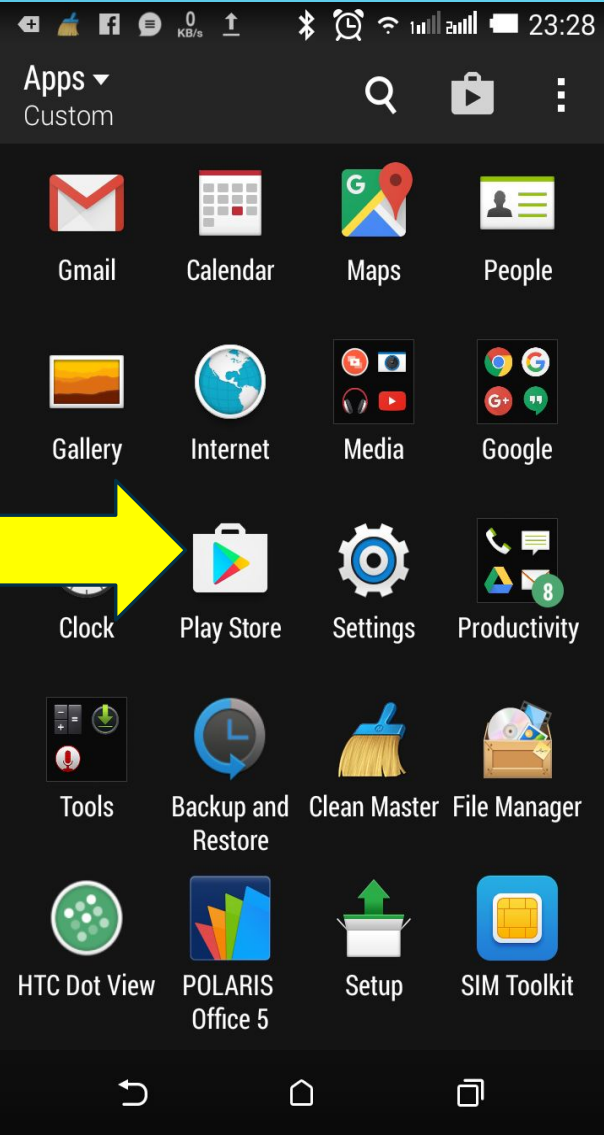
# Games in your phone !!!!!

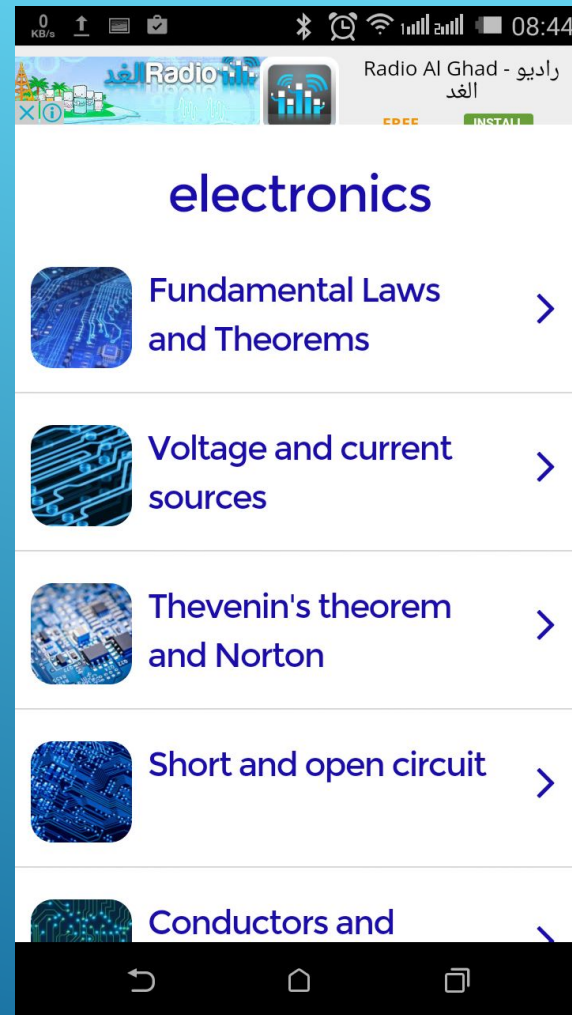
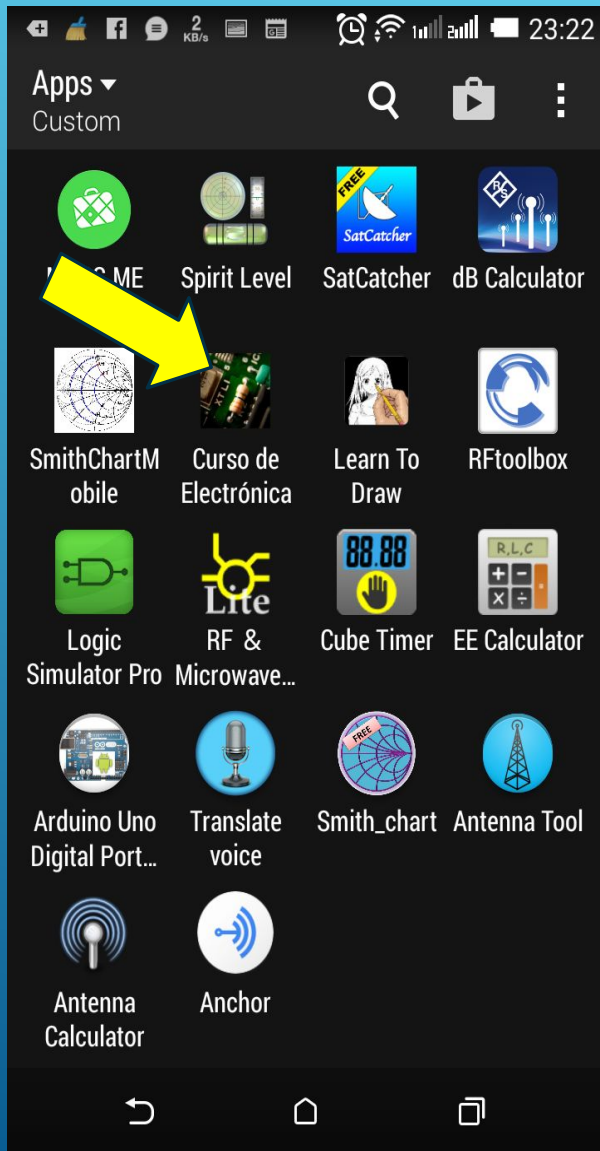


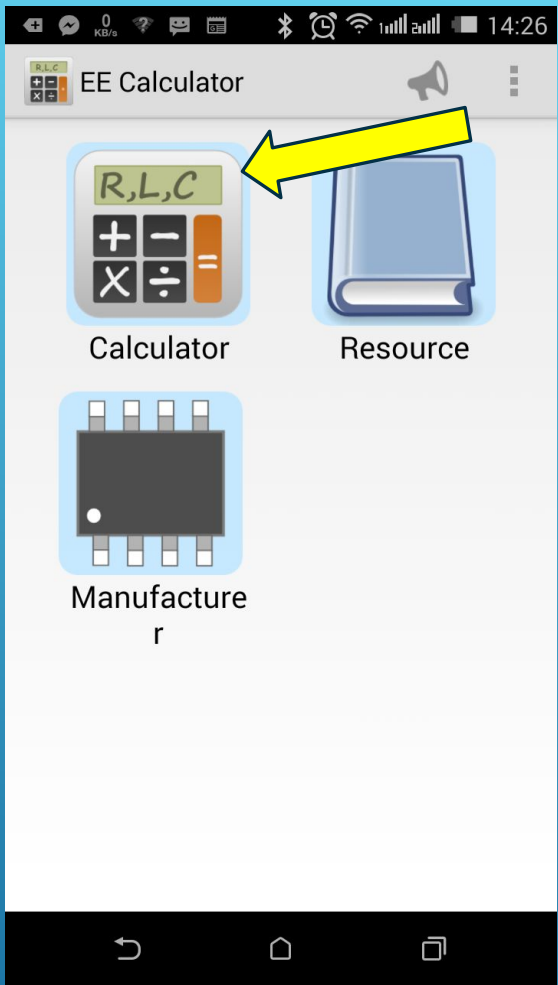
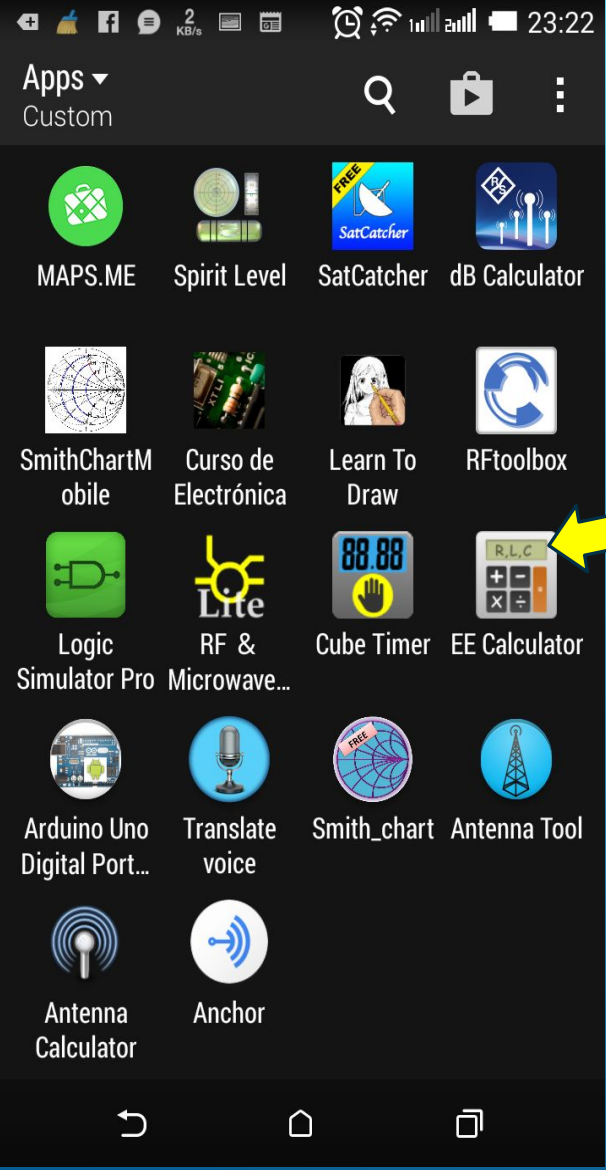
# MOBILE APPLICATION

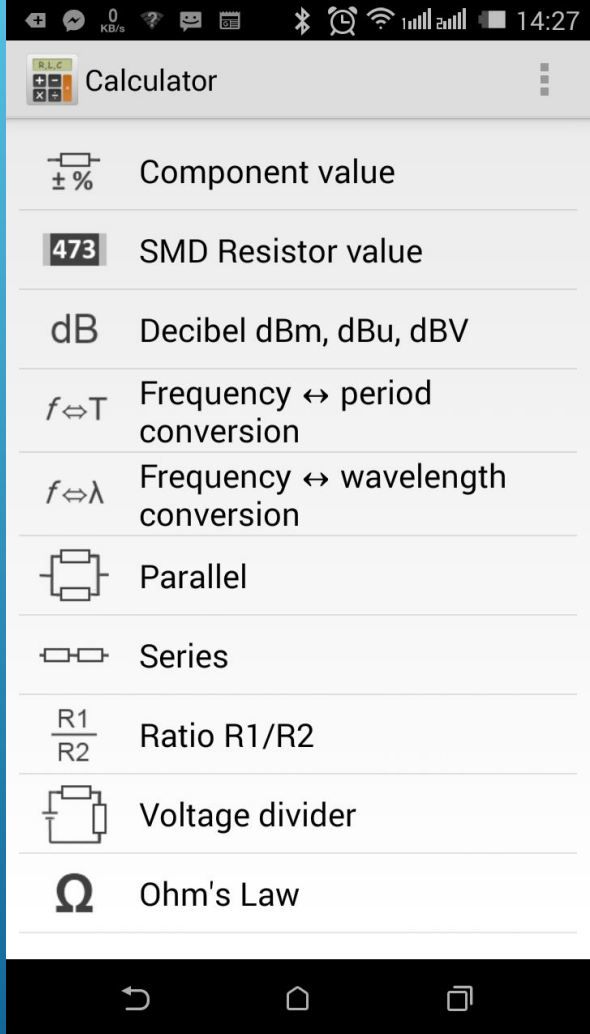
A mobile application is a software application designed to run on mobile devices such as smartphones and tablet computers.







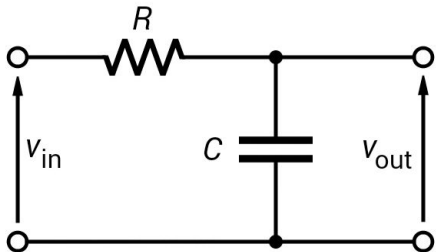




RC Circuit - Filter

LPF    HPF    Cutoff

Low-pass filter

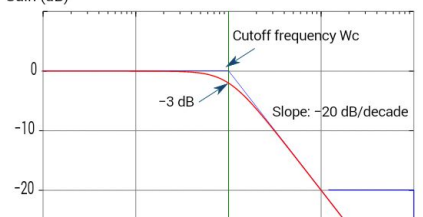


Cutoff Frequency  $f_c$ ,

$$f_c = \frac{1}{2\pi RC}$$


$$\omega_c = 2\pi f_c = \frac{1}{RC}$$

Gain (dB)



RC Circuit - Filter

LPF    HPF    Cutoff

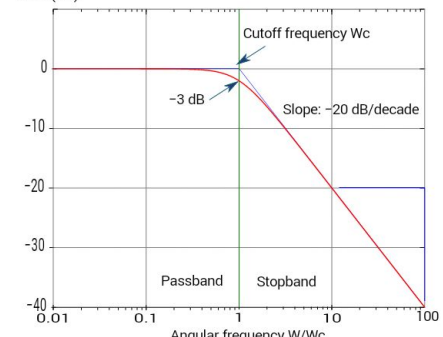


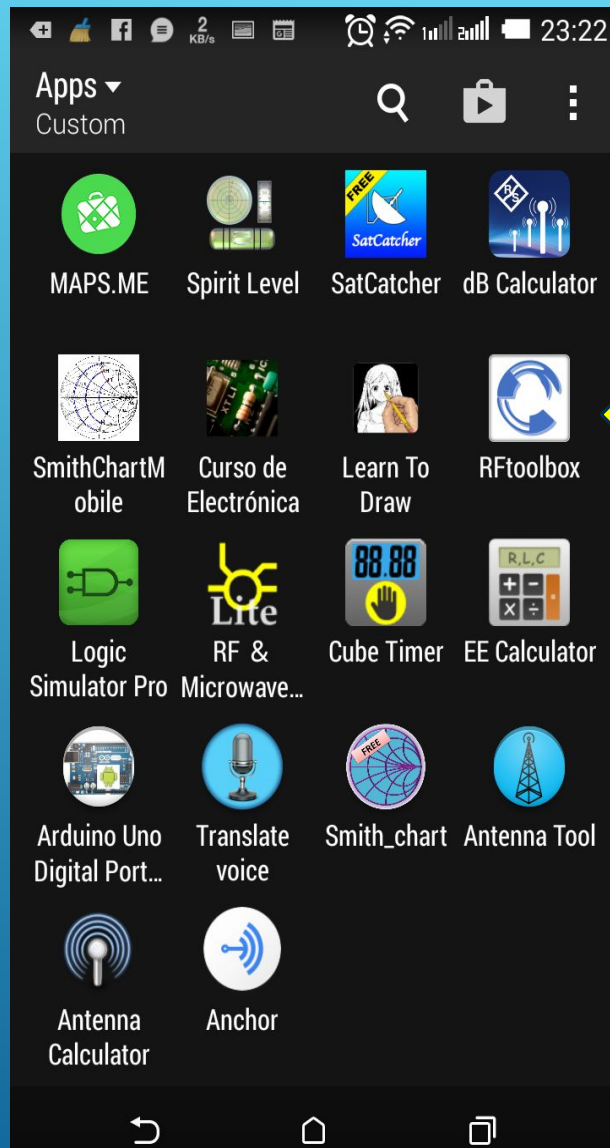
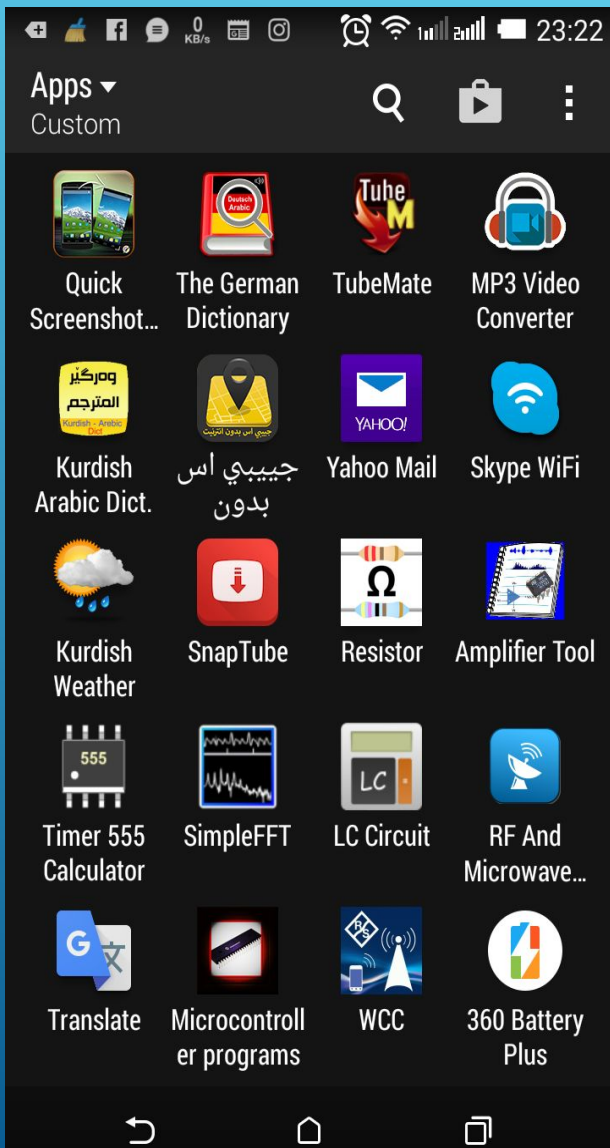
Cutoff Frequency  $f_c$ ,

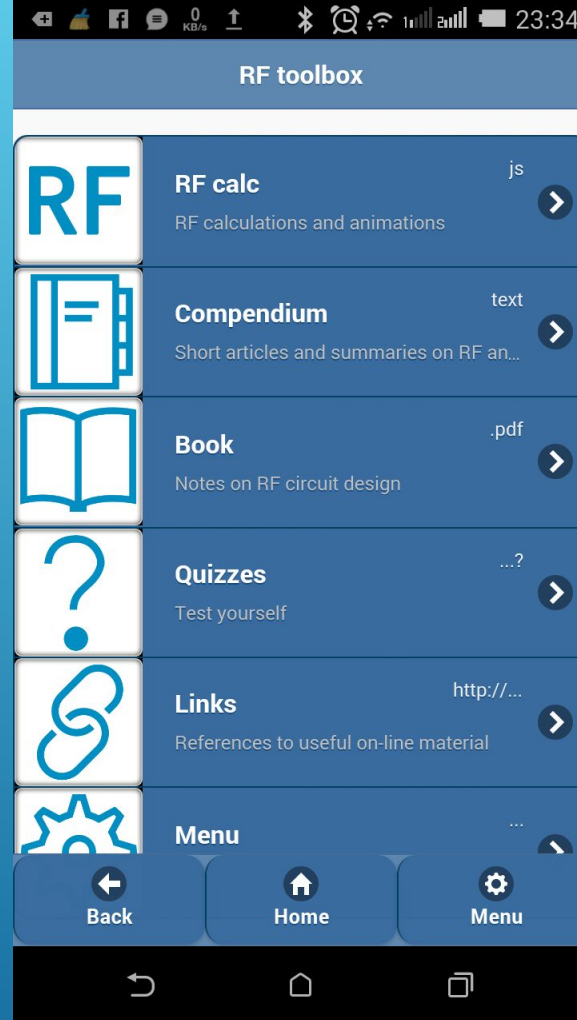
$$f_c = \frac{1}{2\pi RC}$$

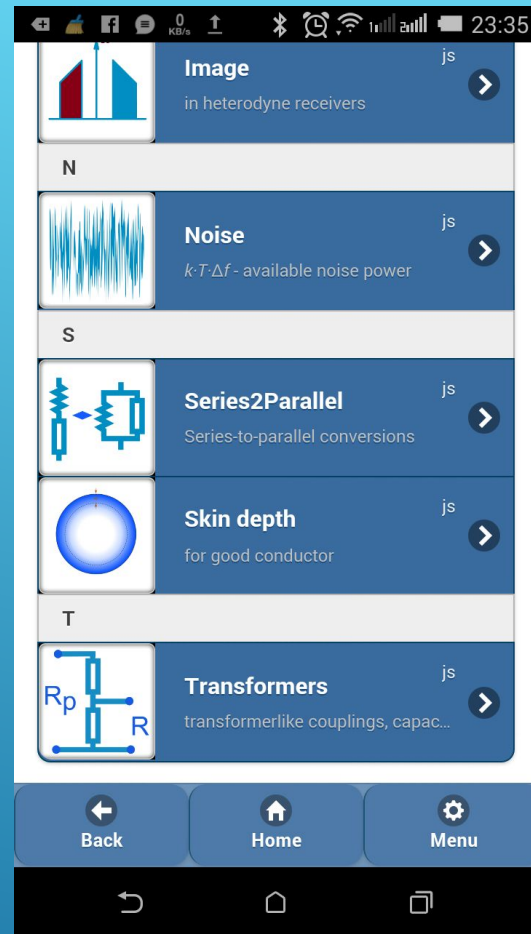
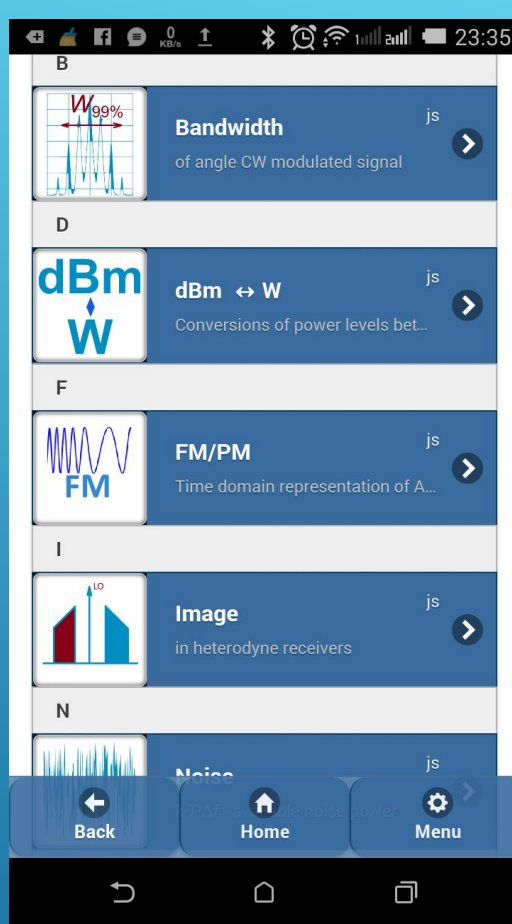
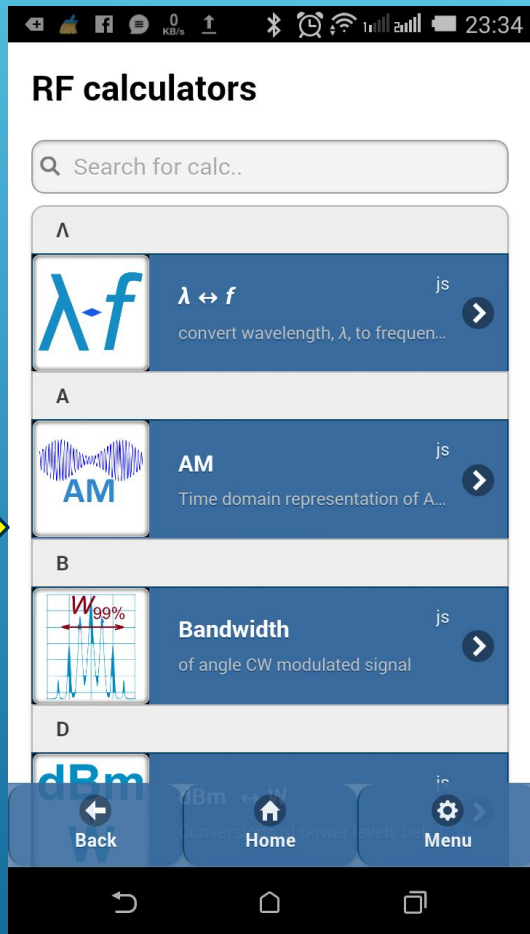
$$\omega_c = 2\pi f_c = \frac{1}{RC}$$

Gain (dB)









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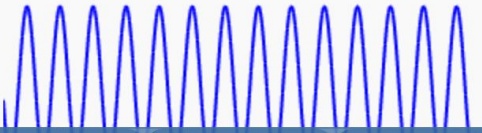
DSB-LC Back

# Double Sideband Large Carrier Amplitude Modulation

Carrier wave:  $A_{c0}\cos(\omega_c t)$

Amplitude:  $A_{c0}$

Frequency:  $\omega_c$



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## Baseband signal, $x(t)$

Choose baseband:

Sine Wave

Amplitude:  $A_x$

Frequency:  $\omega_x$



AM signal with normalized baseband ( $A_x=1$ ):

$$y(t) = A_{c0}(1+m x(t))\cos(\omega_c t)$$

Modulation index  $m = 1$


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0 KB/s 08:29

## AM signal with normalized baseband ( $A_x=1$ ):

$$y(t) = A_{c0}(1+m x(t))\cos(\omega_c t)$$

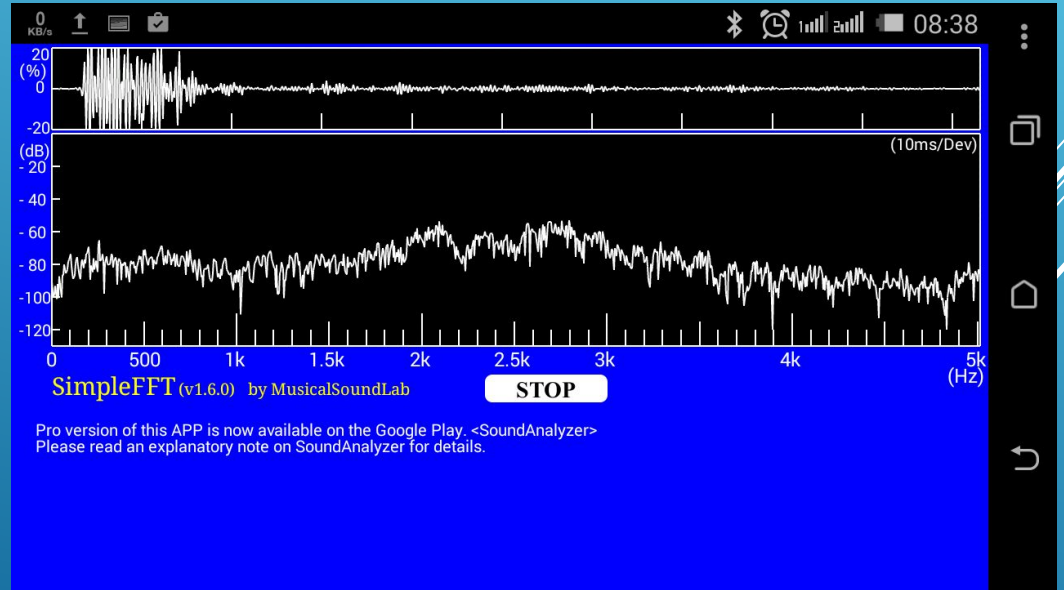
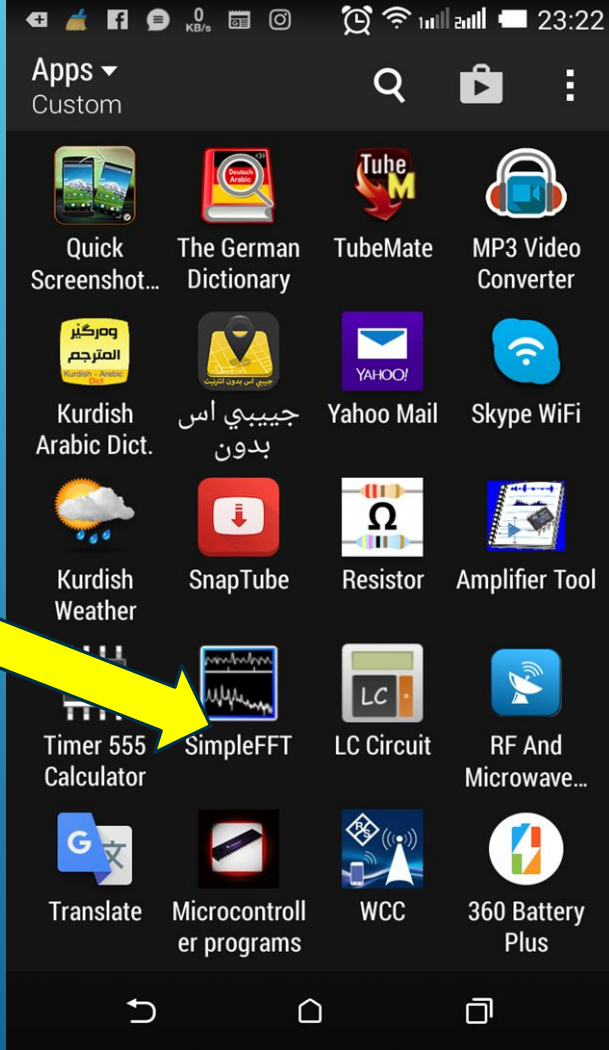
Modulation index  $m = 1$

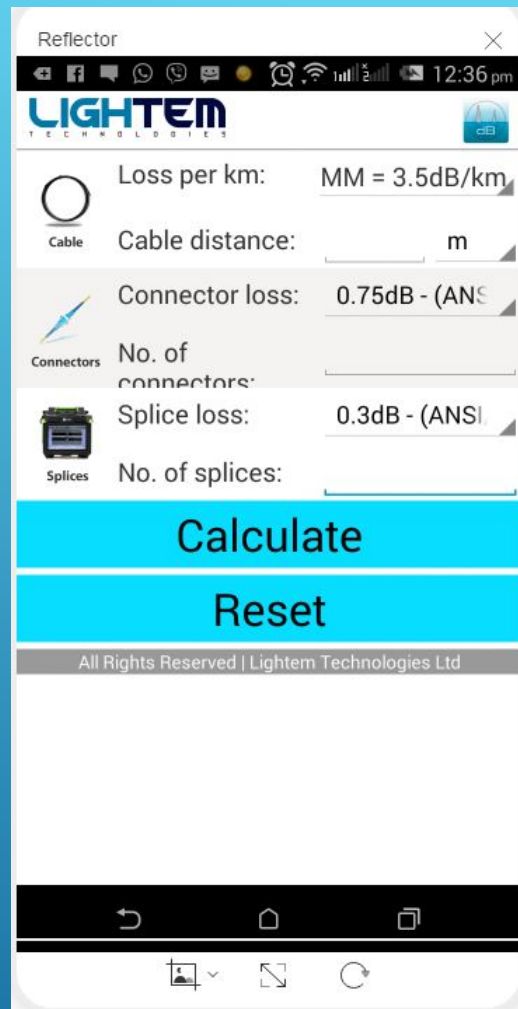
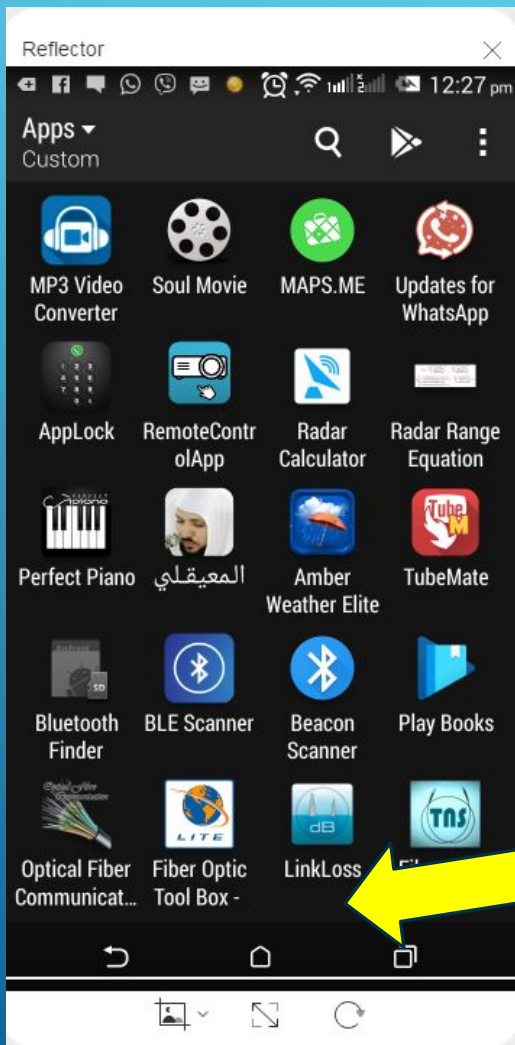


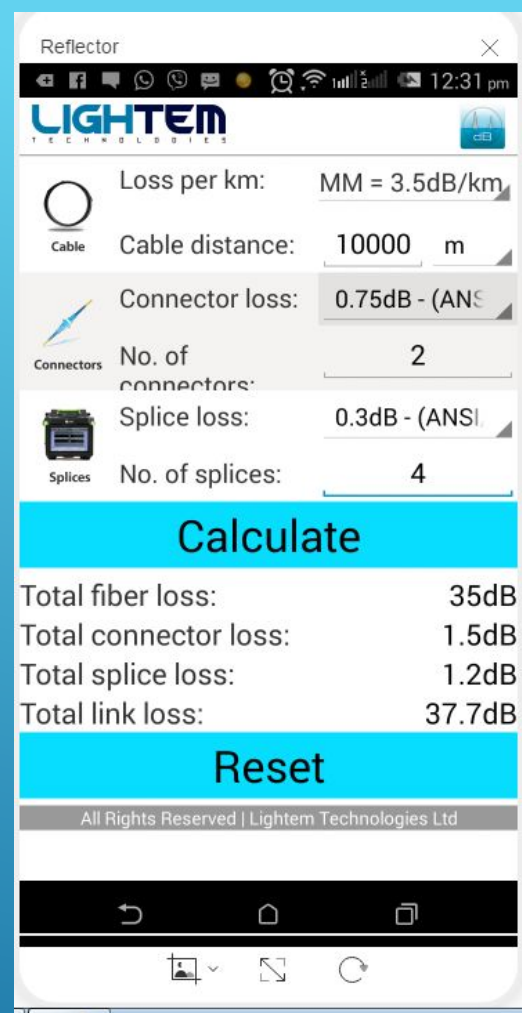
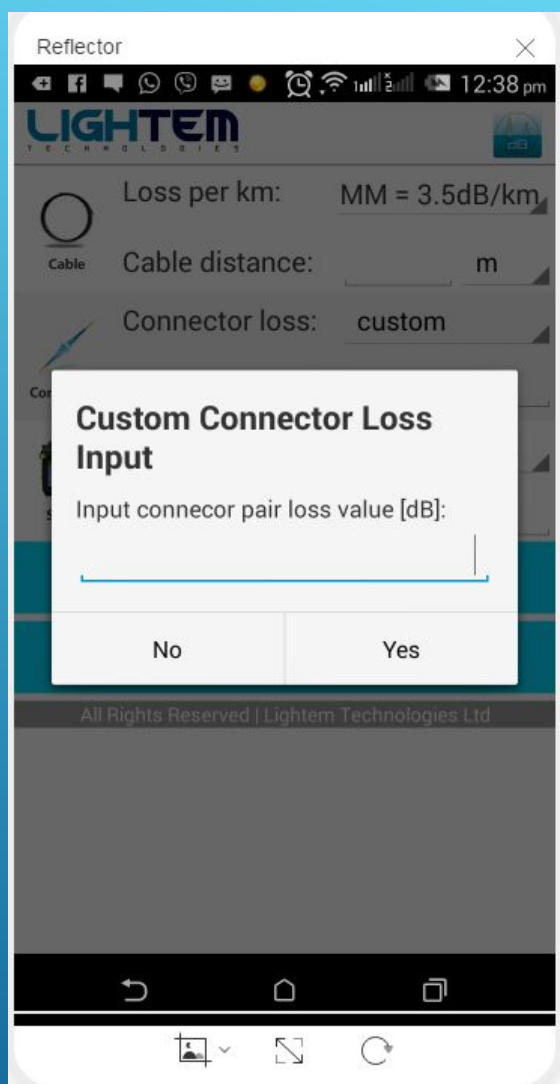
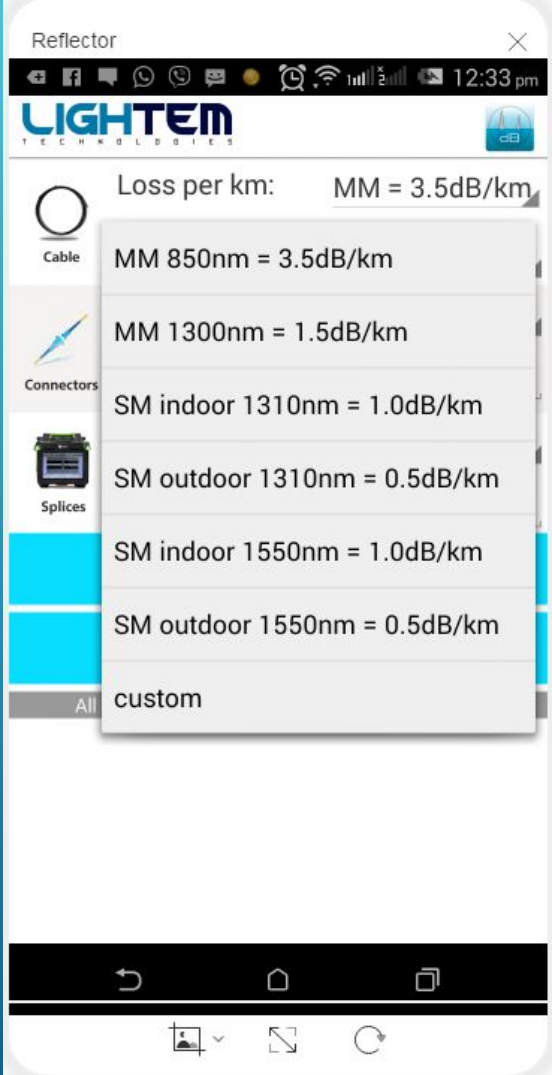
Animation speed : 0.5

Animation ON/OFF

Back Home Menu







Live Show

