Student 1 – Name **Student 1 – Name** **Group Date/hour**

3th LABORATORY
FREQUENCY MODULATED SIGNALS WITH HARMONIC CARRIER SIGNAL

A, B, C) Determination of the modulator characteristic $\beta(A_m)$:

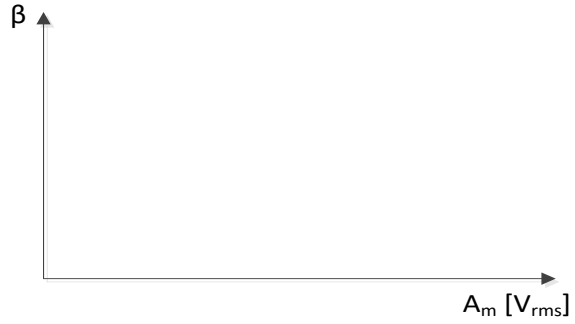
ΔΩ=15kHz

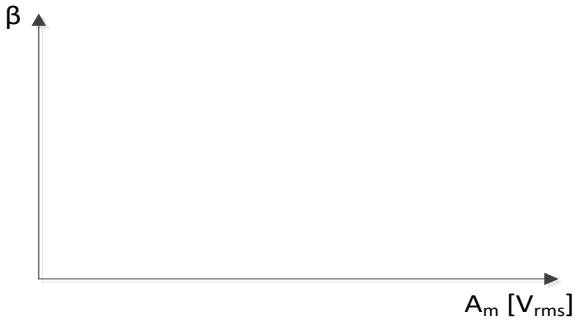
A_m [V_{rms}]	0			
β	0	2,4	5,52	8,65

ΔΩ=60kHz

A_m [V_{rms}]	0			
β	0	2,4	5,52	8,65

The characteristic of the frequency modulator $\beta(A_m)$ ΔΩ=15kHz (left) ΔΩ=60kHz (right)





ΔΩ=15kHz $K_F =$ ΔΩ=60kHz $K_F =$

Observations:

D) Harmonic signal β=0,3 ΔΩ=15kHz A_m [V_{rms}]=

N	-3	-2	-1	0	1	2	3
f [kHz]							
C_N[dBm]							

E) Rectangular signal β=0,3 ΔΩ=15kHz A_m [V_{rms}]=

N	-3	-2	-1	0	1	2	3
F [kHz]							
C_N[dBm]							

Triangular signal β=0,3 ΔΩ=15kHz A_m [V_{rms}]=

N	-3	-2	-1	0	1	2	3
f [kHz]							
C_N[dBm]							

F) & N) Harmonic signal β=1 ΔΩ=15kHz A_m [V_{rms}]= $A_0 =$

N	-3	-2	-1	0	1	2	3
f [kHz]							
$C_N^{exp.}$ [dBm]							
$C_N^{experimental}$ [V]							
$C_N^{theoretical}$ [V]							

G) Harmonic signal β=4 ΔΩ=15kHz A_m [V_{rms}]=

N	-8	-7	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7	8
f [kHz]																	
C_N[dBm]																	

H) Harmonic signal β=9 ΔΩ=15kHz A_m [V_{rms}]=

N	-14	-13	-12	0	12	13	14
f [kHz]							
C_N[dBm]							

I) The bandwidth of the frequency modulated signal generator: $B =$

J) What's to be observed?

K) Draw on the millimeter paper $B_{MF} =$

L) Theoretical calculation $A_0 =$

$C_1^{theoretical} =$ $C_2^{theoretical} =$ $C_3^{theoretical} =$

M) Draw on the millimeter paper

Rectangular signal: $B_{MF} =$ triangular signal: $B_{MF} =$

Observations:

N) experimental $B_{MF} =$ theoretical $B_{MF} =$
Comparison:

O) $P_{theoretical} =$ $P_{experimental} =$

P) experimental $B_{MF} =$ theoretical $B_{MF} =$
Explanation:

R) experimental $B_{MF} =$ theoretical $B_{MF} =$