

Student 1 – name and surname

Student 2 – name and surname

Group

Date/time

Table

**Worksheet
Laboratory 3 rev 6**

Board no verified,
prof.

A. 1. $f_0 =$ $f_{CK} =$ $T_{CK} =$

$T_{conv0} =$ [s] $T_{conv\ meas} =$ [s] $f_{s\ meas} =$ [Sa/s]

$f_{s\ oscilloscope} =$ [Sa/s] type ADC oscilloscope: $f_{sine\ max\ 1} =$
[Hz]

2. $V_{REF} =$ $V_{REF/2} =$ $V_{CS} =$ $V_{LSB} =$

3.

<i>N decimal</i>	<i>N binary</i>	<i>V(N) meas.</i> [V]	<i>V_o(N) (calculated)</i> [V]
1			
2			
4			
8			
16			
32			
64			
128			
255			

$\max\ e_{nonlinearity} =$ [V] are loc pentru $N =$

B. CAN $n=4b$ $V_{REF}=4.096V$ $V_{LSB} =$ $V_{FS} =$ offset =

4.

CNA R-2R: $V_{FS\ CNA} =$ $V_{LSB\ CNA} =$

Why is it different from $V_{FS\ CAN}$?

<i>DAC step</i>	<i>V_{DAC} measured</i>	<i>V_{DAC} calculated</i>
0		
1 (LSB)		
2		
4		
8		
15 (FS)		

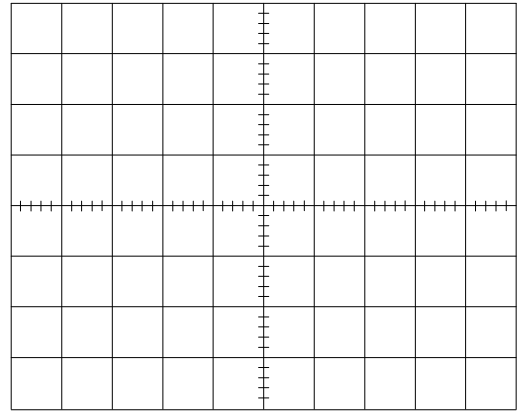
Error sources DAC:

Explanation for choosing the steps for the DAC:

5. $f=1000\text{Hz}$

$N_{steps} =$ $T_{step} =$ $T_{conv\ meas} =$

Explain the connection:



Explain the decrease of the no. of steps:

6.

signal	$U_{RMS\ meas}$ [dB]	$U_{RMS\ noise}$ [dB]	$U_{noise\ RMS\ calc}$ [dB]	$U_{RMS\ meas} - U_{RMS\ noise} =$ SNR [dB]	f_{fundam} [Hz]	SINAD [dB] (distorsiom.)	SNR_q [dB]	$V_{LSB\ DAC}$ [V]
input ADC			-				-	-
b) output DAC 4b								
c) output DAC 3b								

$U_{RMS\ noise\ analogue}$ [dB] =

Explanation:

c) Explanation 4 bits \rightarrow 3 bits: