

- -

* ..

.

.

.

.

:

- *

(80%)

χ_s

F

χ_s

F

() (Matlab FFT analyze)

$$R_s = \frac{F}{\chi \cdot \delta} = \frac{F}{\chi_s}$$

[1]: -2

((IEC815) 1986))

(1)

(IEC 815)

:1

<i>mm/kV</i>		
16		-I
20		-II
25		-III
31		-IV

$$U_{L_f} = K_f \chi_s^{-n_x}$$

[2]:

-3

:

: U_{L_f}

: χ_s

: K_f

: n_x

$$(0.3) \quad (n_x)$$

$$U_{L_f} = K_f \chi_s^{-n_x}$$

· ($1\mu S < \chi_s < 100\mu S$)

:

: U_{L_f}

: χ_s

: K_f

: n_x

(IEC507)

$$(0.3) \quad (n_x)$$

$$\chi_s = F G_s = F (1/R_s)$$

· ($1\mu S < \chi_s < 100\mu S$)

:

: F

: $G_s = (1/R_s)$

(IEC507)

(χ_s)

:

-4

-1

-2

-3

[3]

$$T H D = \frac{\sqrt{\sum_{n=2}^{n=\infty} I_n^2}}{I_1} 100\%$$

-5

$$T H D = \frac{\sqrt{\sum_{n=2}^{n=\infty} V_n^2}}{V_1} 100\%$$

[5] [4]

(IEC507)

-6

)
(IEC507)

.(

.kV765 V1

.[6] [5]

(IEC507)

() kV(20) : (a)

: (b)

(1mm)

(30cm) (2)

(80cm 120cm) .[3]

: -7

()

(44cm) (12cm)

()

(IEC507)

:2

(50cm 20cm 30cm)

$\chi (\mu S)$	$S_a (g / m^3 / day)$	
8	2	I
8-15	2-3.5	II
15-30	3.5-8	I
>30	>8	IV

()

(40bar)

: 1-7

(10bar)

() (NaCl)

(IEC507)

(IEC507)

(1)

(295 g/m³)

150cm)

(120cm 100cm

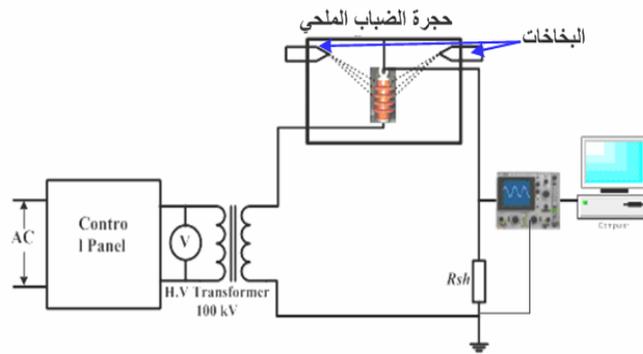
:

2-7

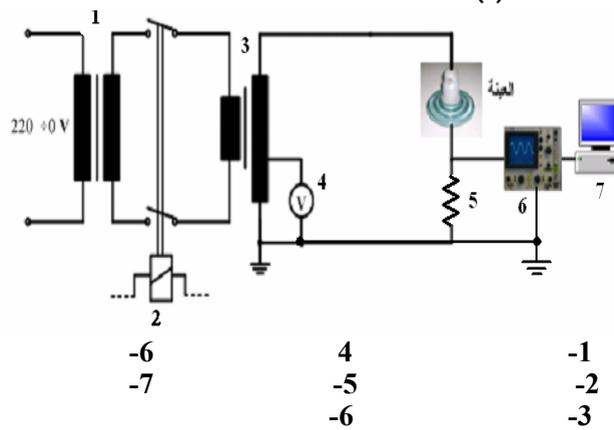
$(0 \div 100)kV$ $(5^{\circ}c)$

$(40^{\circ}c)$

(2)



(1)

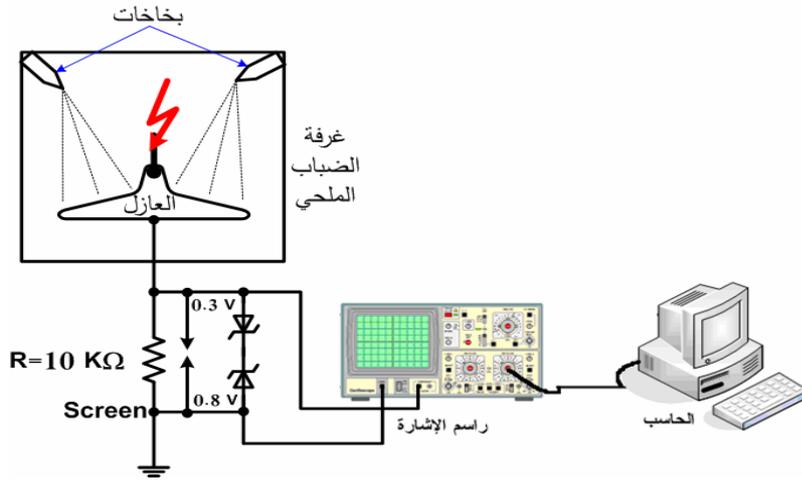


$(0 \div 100)kV$
(2)

(Matlab FFT analyze)

(3)

()



:(3)

: 3-7

: 1-3-7

)
 .(730μs 1000μs 1450μs) ((NaCl)

(Matlab ()

FFT analyze)

.(4) longrod

: 2-3-7

)

.(- -

125 mm	:	
255 mm		
265 mm		
210 mm		

(4)

: 3-3-7

20kV

(IEC507)

(3th, 5th, 7th)

:

1-3-3-7

:

(

(3)

5.3%

(

)

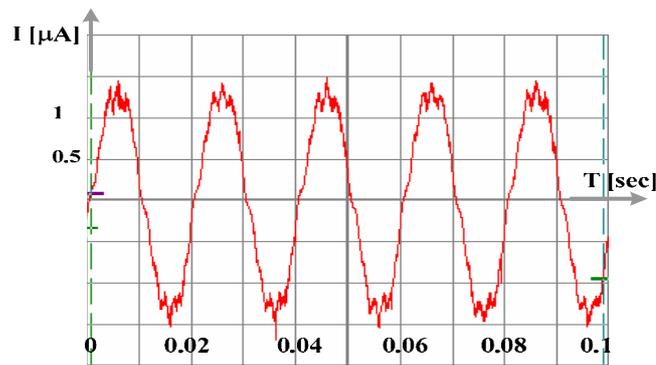
1.4μA

20kV

(6)

(5)

:



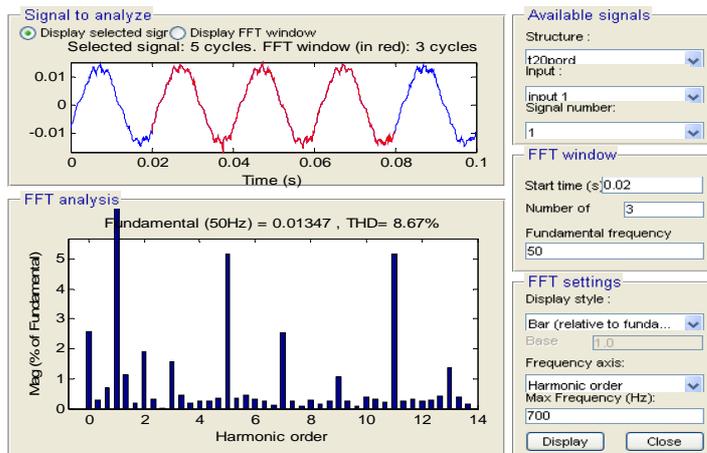
(1.4μA)

(5)

20kV

(6)

(Matlab FFT analyze)



20kV

(6)

(Matlab FFT analyze)

....)

(3th, 5th, 7th)

30kV

((7)) 2 μA

()

4.85%

:(8)

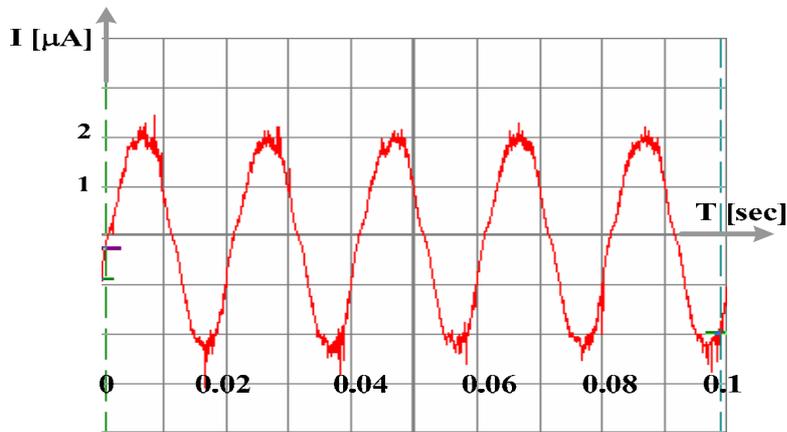
.(5)

(8)

(Matlab FFT

.30kV

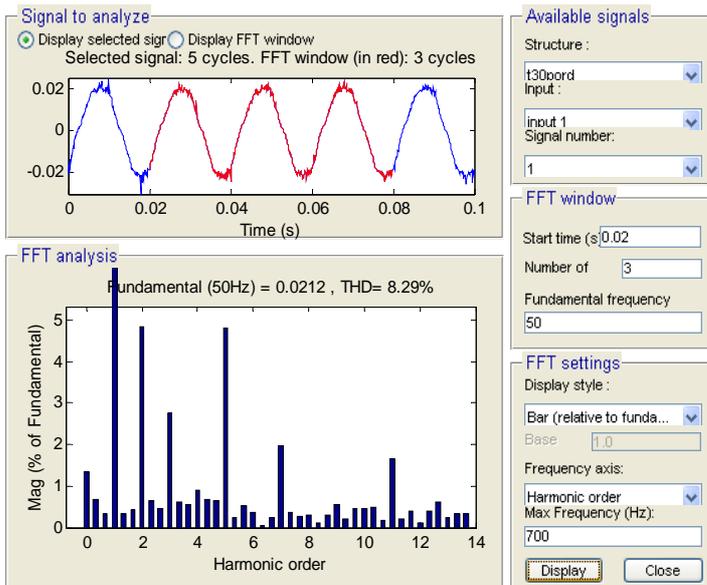
.analyze)



.30kV

2 μA

:(7)



.30kV

:(8)

(10)

(3)

8 6

20kV

(Matlab FFT analyze)

730μs

2-3-3-7

30kV

730μs

3.6 A

(11)

(12)

20kV 730μs

2.2μA

730μs

(10)

(9)

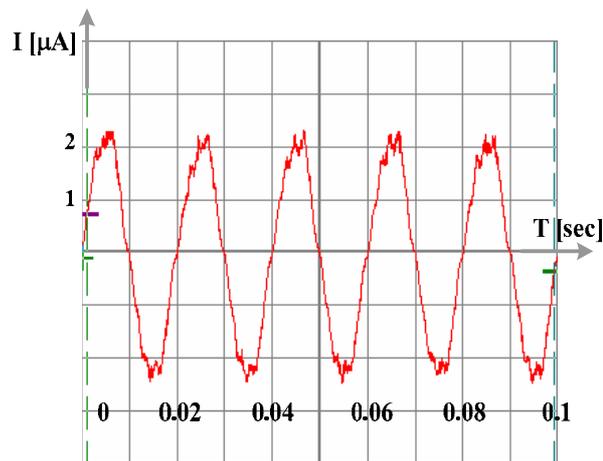
730μs

(3th, 5th, 7th)

5.2%

(5)

(3th, 5th,)

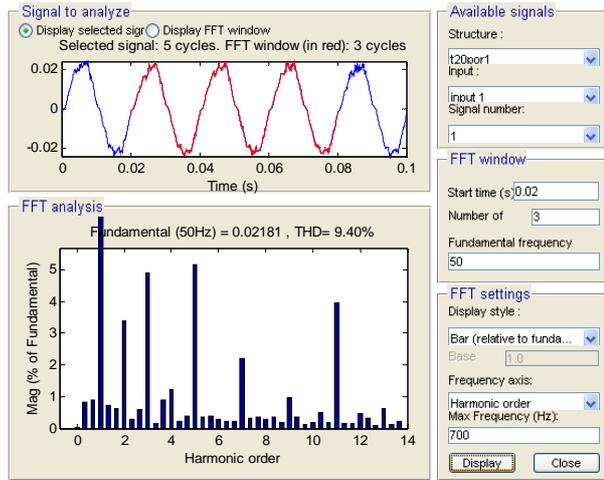


20kV

2.2μA

730μs

(9)

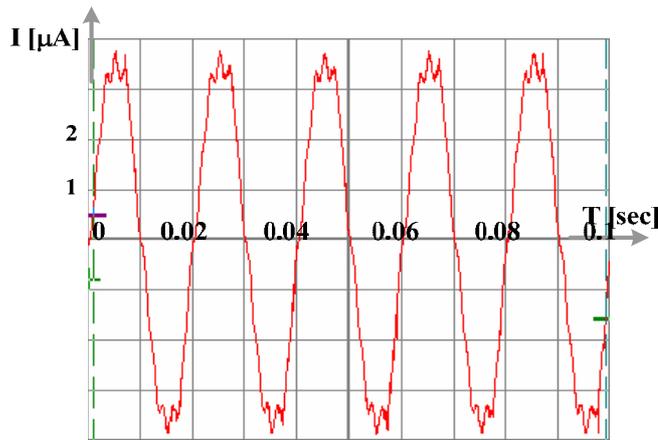


730μS
.730μs

20kV
30kV

.3.6μA

:(10)
(11)



.730μs

30kV

3.6μA

:(11)

.1000μs

30kV

14

12

14

.(Matlab FFT analyze)

730μs

20kV

3-3-3-7

.1000μs

:

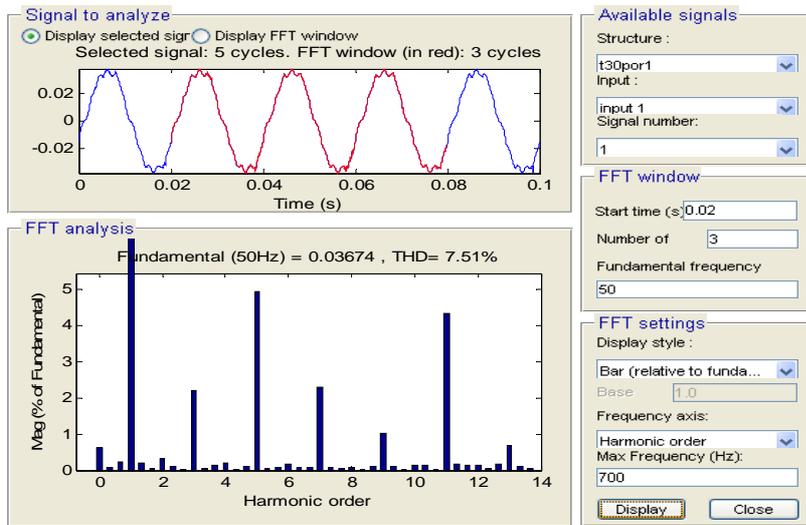
30kV

.(15)

20kV

1000μs

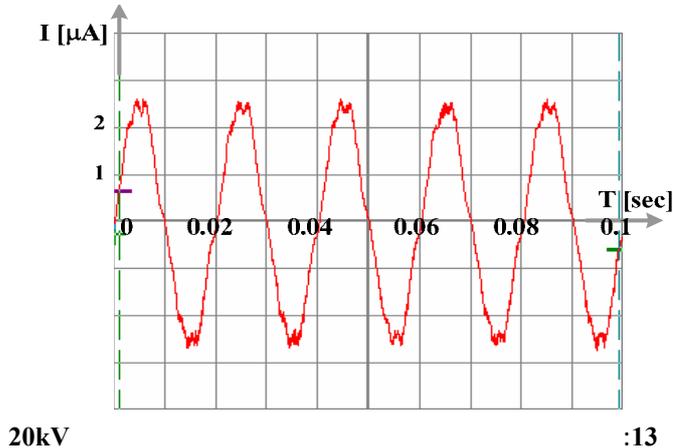
(13)



730 μ s

30kV

:12

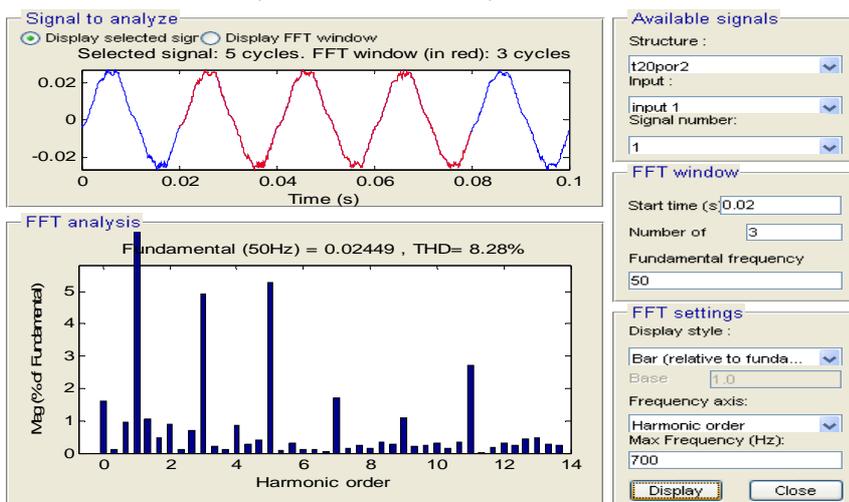


20kV

:13

.25 μ A

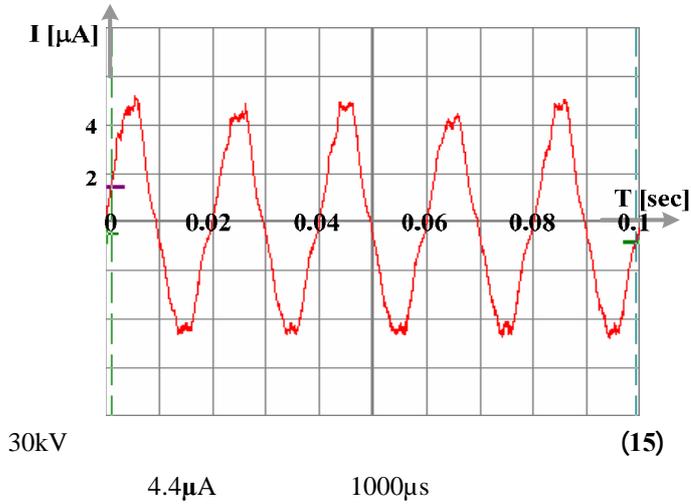
1000 μ s



:14

.1000 μ s

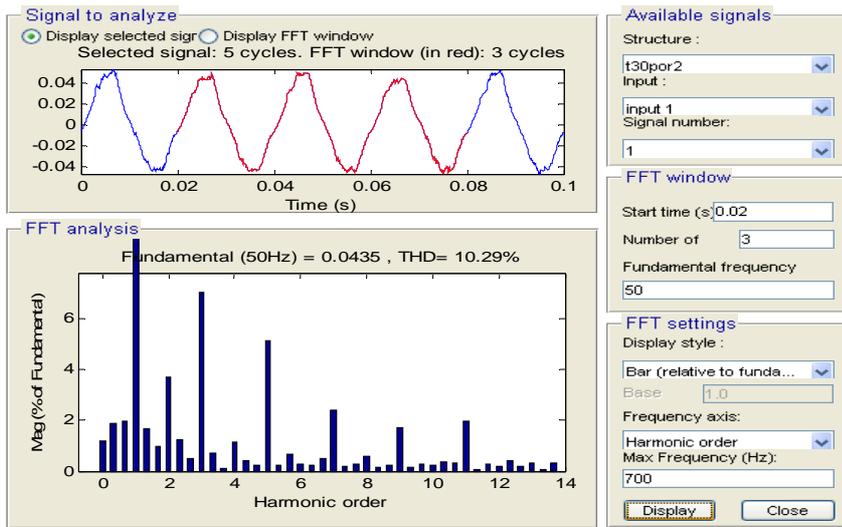
20kV



30kV

16

.1000μs



:16

1000μs

30kV

16 14

4-3-3-7

18

:

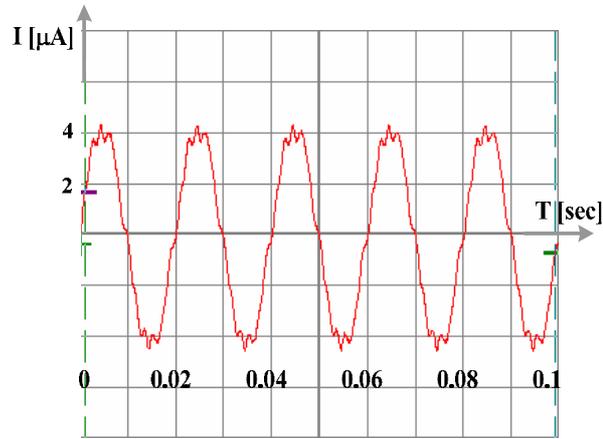
1450μs

.1450μs

20kV

(17)

20kV

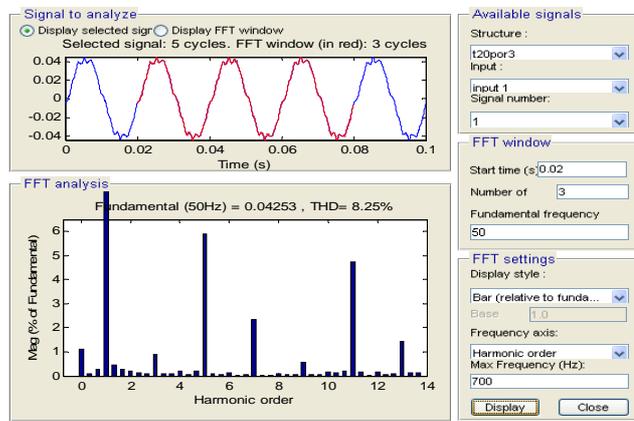


4 μ A

1450 μ s

20kV

:17



20kV

1450 μ s

:18

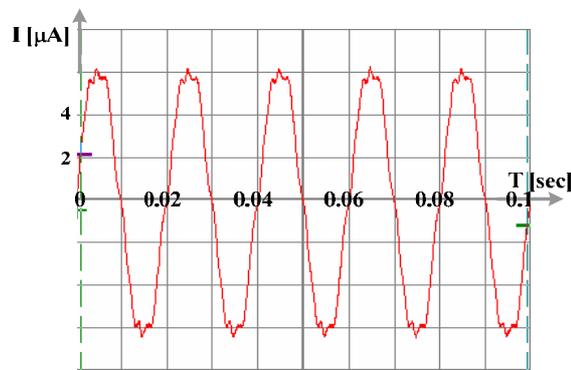
.1450 μ s

30kV

30kV

(20)

.(19)

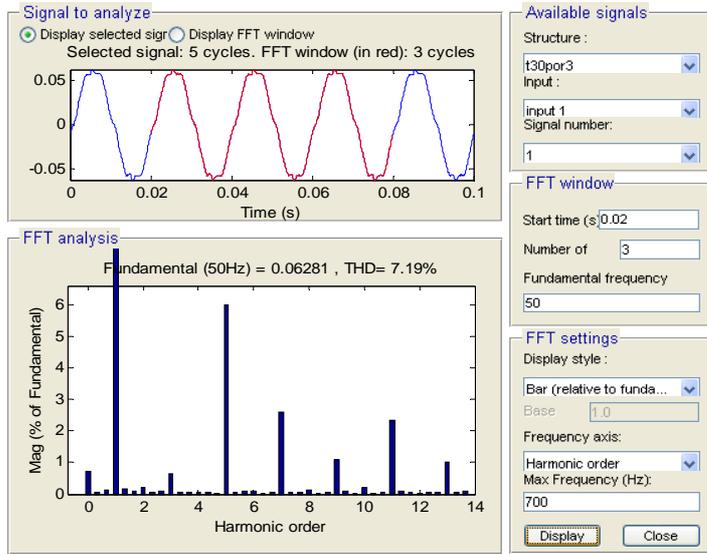


1450 μ s

30kV

6 μ A

:19



30kV :20

4 . :

30kV 3

. 20kV

.20kv :3

3	5	7	9	11	
1.8%	5.3%	2.8%	1.2%	5.2%	
5%	5.3%	2.5%	1.2%	4%	730μs
5%	5.3%	1.8%	1.2%	2.8%	1000μs
0.9%	5.8%	2.3%	0.5%	4.8%	1450μs

20kV :4

THD	()			
8.67%	(11 Th) (5 Th)		1.4μA	
4.09%	(3 Th) (5 Th)		2.2μA	730 s
8.28%	(3 Th) (5 Th)		2.5μA	1000 s
8.25%	(11 Th) (5 Th)		4μA	1450 s

(4 3)

5

.30kv

THD = 8%

THD = 10%

6

30Kv

(6 5)

(THD)

30kv

:5

3	5	7	9	11	
2.8%	4.85%	2.2%	0.8%	1.75%	
2.4%	5.2 %	2.3%	1.1%	4.4%	730μs
7%	5.2 %	2.4%	1.8%	2%	1000μs
0.5%	6 %	2.5%	1%	2.3%	1450μs

30kV

:6

THD	()			
8.29%	(3 Th) (5 Th)		2μA	
7.51%	(5 Th) (11 Th)		3.6μA	730□s
10.29%	(5 Th) (3 Th)		4.4μA	1000□s
7.19%	(7 Th) (5 Th)		6μA	1450□s

(23)

.30Kv 20kV

THD

:(21)

20kV

(3) 730μs

(2)

(1):

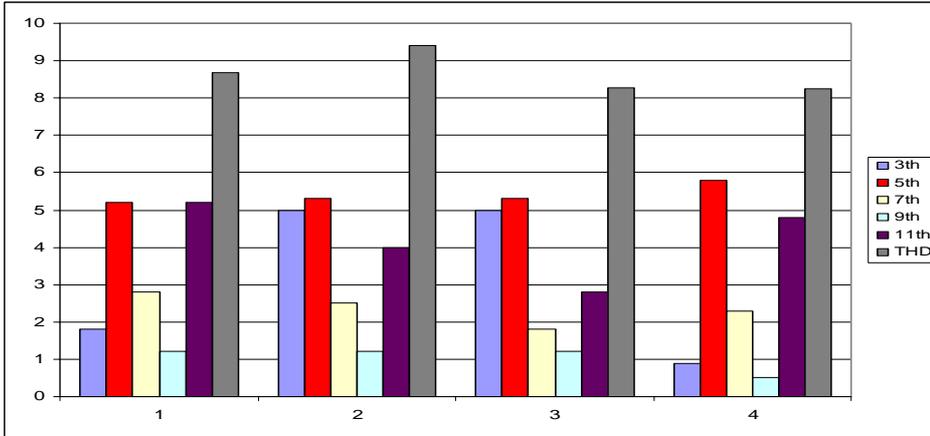
:(22)

.1450μ

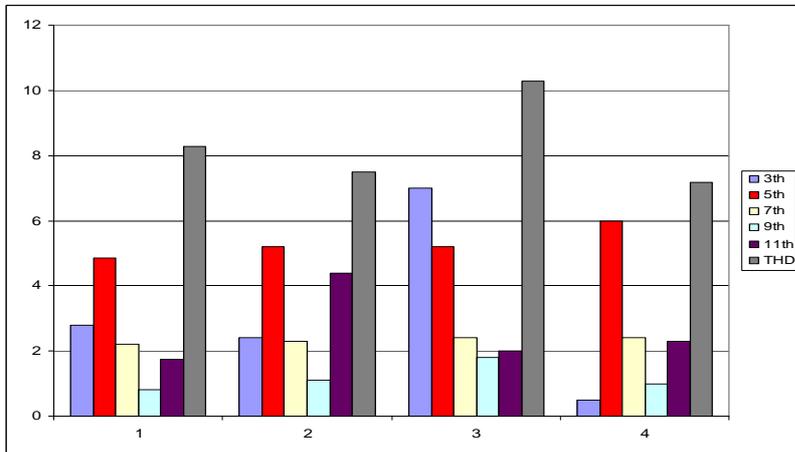
(4) 1000μs

THD

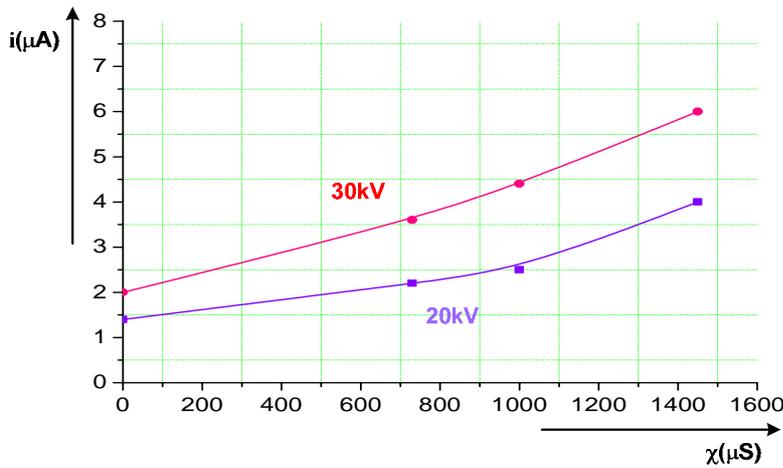
30kV



: 20kV THD : (21)
 .1450μs (4) 1000μs (3) 730μs (2) (1)



(1) : 30kV THD : (22)
 .1450μs (4) 1000μs (3) 730μs (2)



.30Kv 20kV : (23)

(8

:

(1

:

30kV

20kV

()

(8÷9)% (THD)

20kV

:

(2

20kV

30kV

(3

(4

(THD

(THD)

(5

(6

(6) (4)

(7

(5) (3)

*

: . . . : . . . [1]
.[1992-1993] "(3) "

[2]

"

[1992-1993]"

[3]

"

[1982-1981]"

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