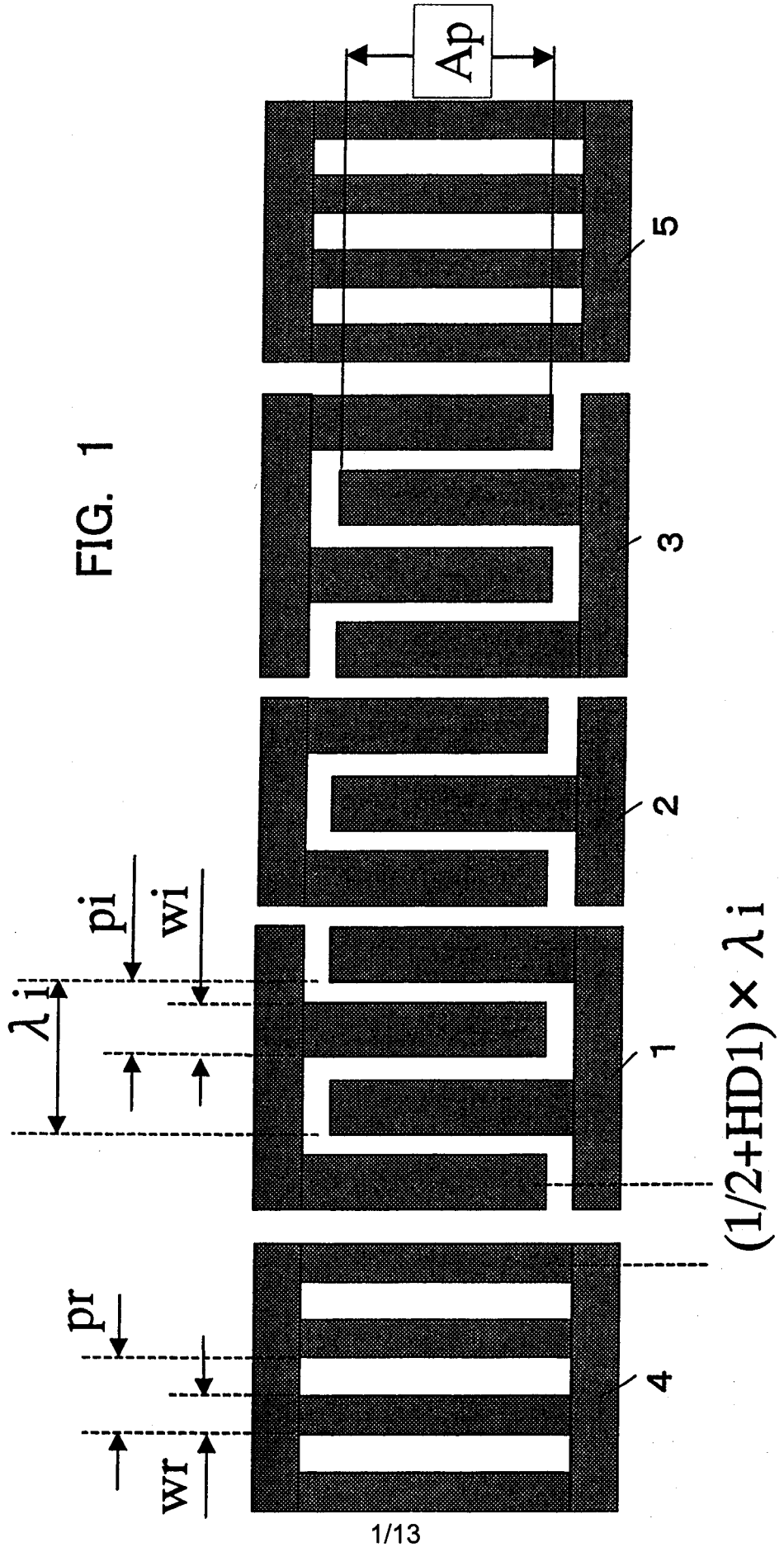
FIG. 1



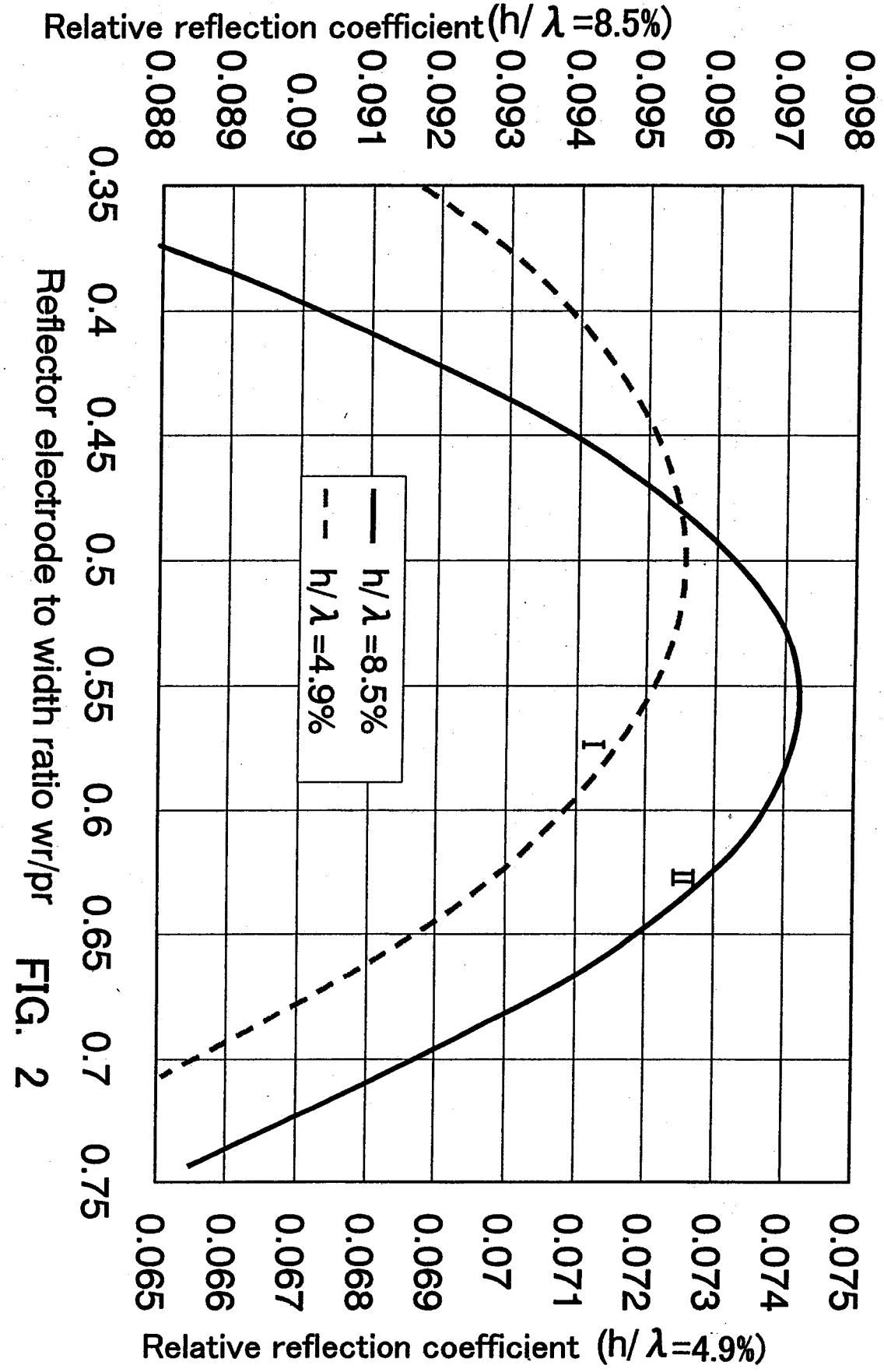

Relative reflection coefficient (h/λ=8.5%)
0.088
0.089
0.09
0.091
0.092
0.093
0.094
0.095
0.096
0.097
0.098
0.35
0.4
0.45
0.5
0.55
0.6
0.65
0.7
0.75
Reflector electrode to width ratio wr/pr
h/λ=8.5%
h/λ=4.9%
I
II
0.065
0.066
0.067
0.068
0.069
0.07
0.071
0.072
0.073
0.074
0.075
Relative reflection coefficient (h/λ=4.9%)

FIG. 2

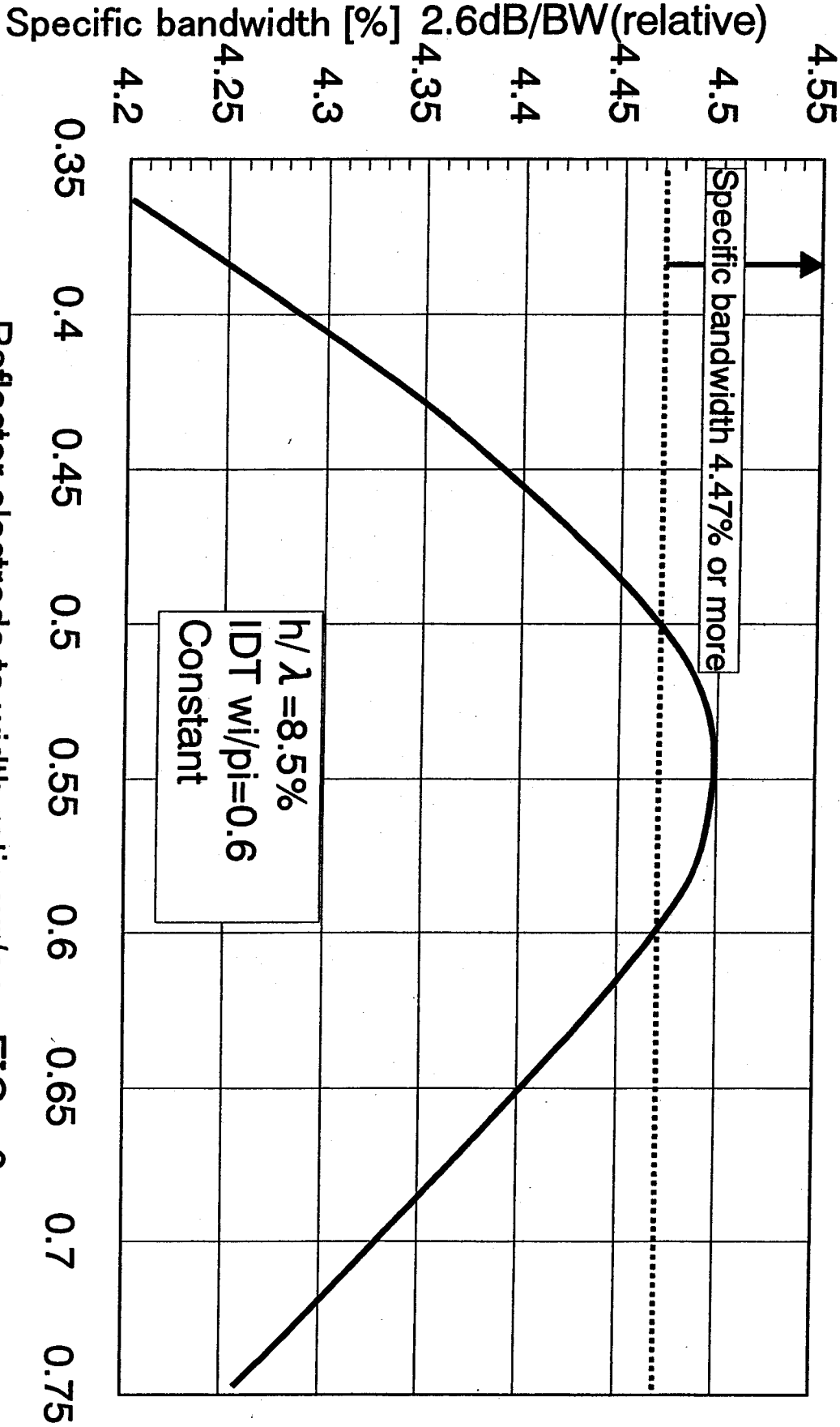

Specific bandwidth [%] 2.6dB/BW(relative)
4.2
4.25
4.3
4.35
4.4
4.45
4.5
4.55
Specific bandwidth 4.47% or more
h/λ =8.5%
IDT wi/pi=0.6
Constant
0.35
0.4
0.45
0.5
0.55
0.6
0.65
0.7
0.75
Reflector electrode to width ratio wr/pr

FIG. 3

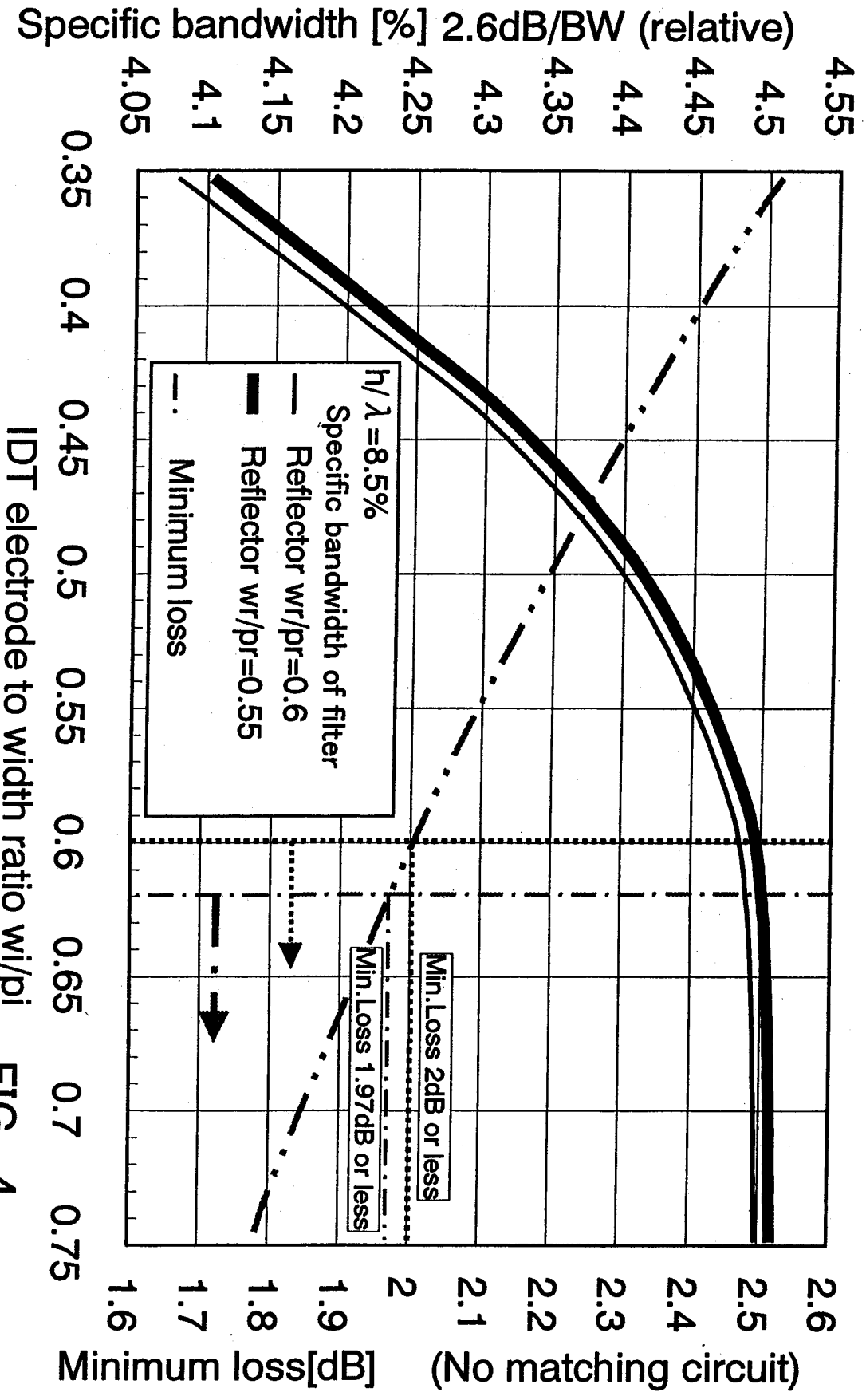

Specific bandwidth [%] 2.6dB/BW (relative)
4.05
4.1
4.15
4.2
4.25
4.3
4.35
4.4
4.45
4.5
4.55
0.35
0.4
0.45
0.5
0.55
0.6
0.65
0.7
0.75
IDT electrode to width ratio wi/pi
h/λ =8.5%
Specific bandwidth of filter
Reflector wr/pr=0.6
Reflector wr/pr=0.55
Minimum loss
Min.Loss 2dB or less
Min.Loss 1.97dB or less
1.6
1.7
1.8
1.9
2
2.1
2.2
2.3
2.4
2.5
2.6
Minimum loss[dB]
(No matching circuit)

FIG. 4

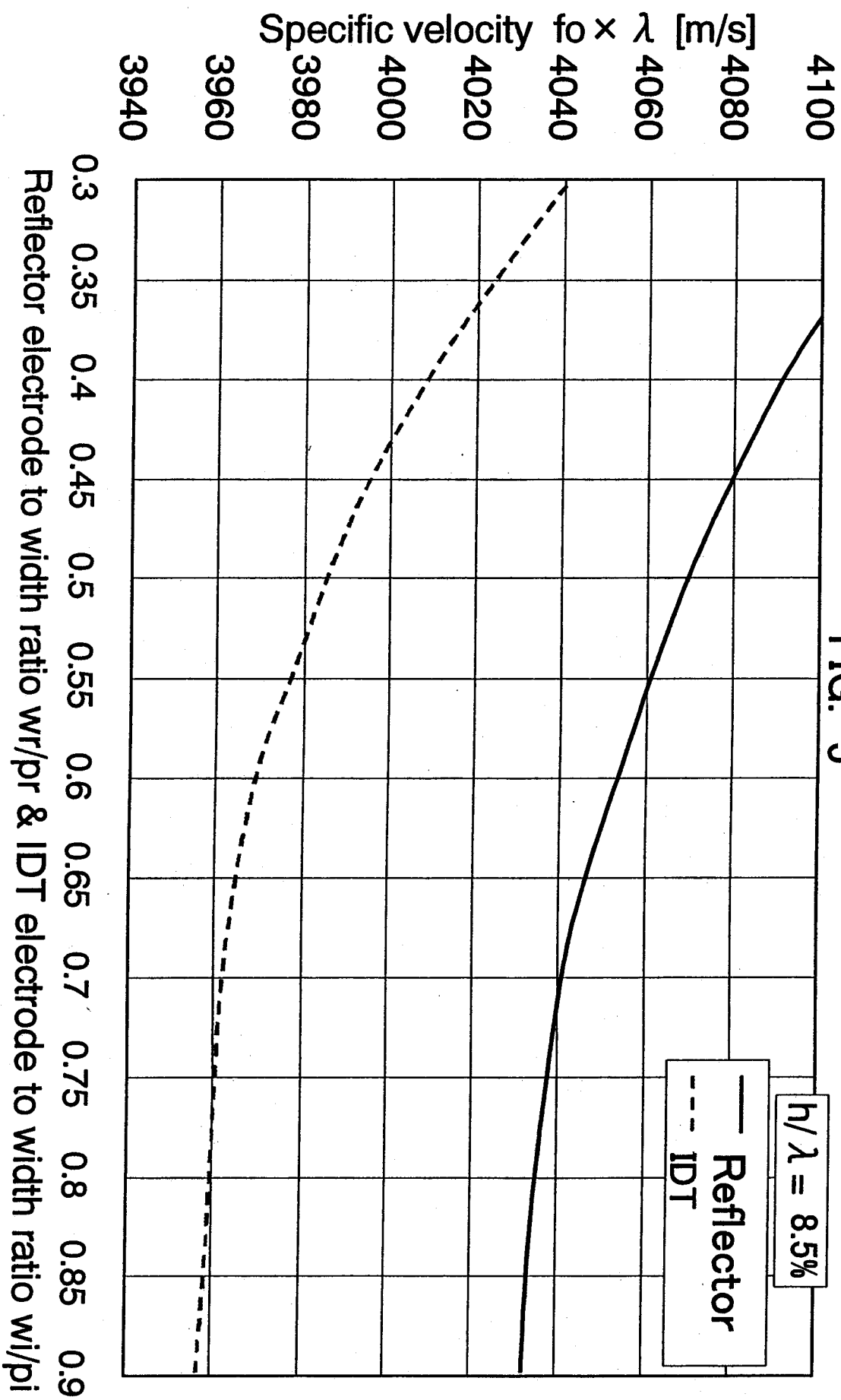
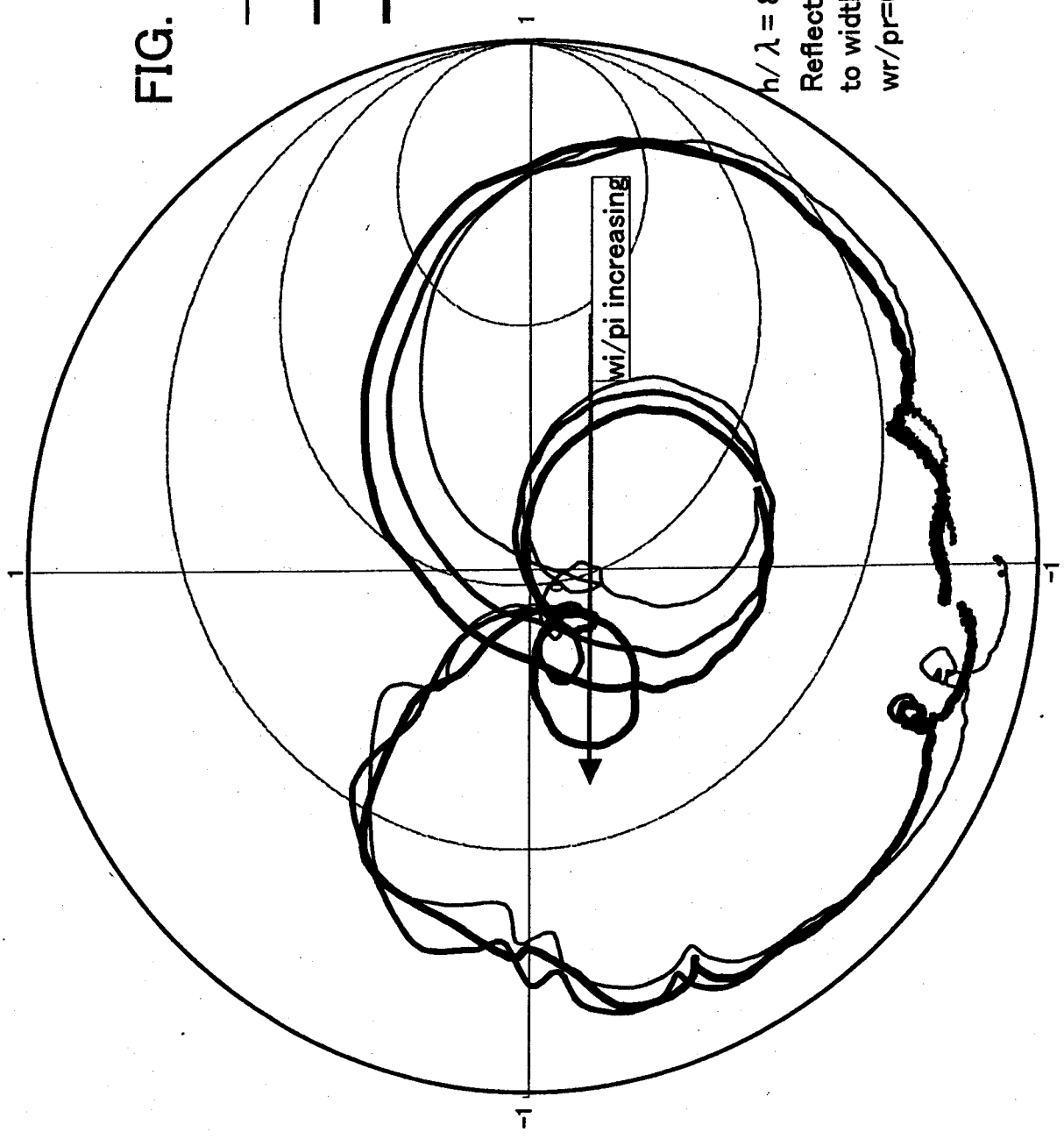

Specific velocity fo × λ [m/s]
4100
4080
4060
4040
4020
4000
3980
3960
3940
0.3 0.35 0.4 0.45 0.5 0.55 0.6 0.65 0.7 0.75 0.8 0.85 0.9
Reflector electrode to width ratio wr/pr & IDT electrode to width ratio wi/pi
h/λ = 8.5%
Reflector
IDT

FIG. 5

FIG. 6


wi/pi=60%
wi/pi=65%
wi/pi=70%
h/ λ = 8.1%
Reflector electrode
to width ratio
wr/pr=60% constant
wi/pi increasing
1
-1
1
-1

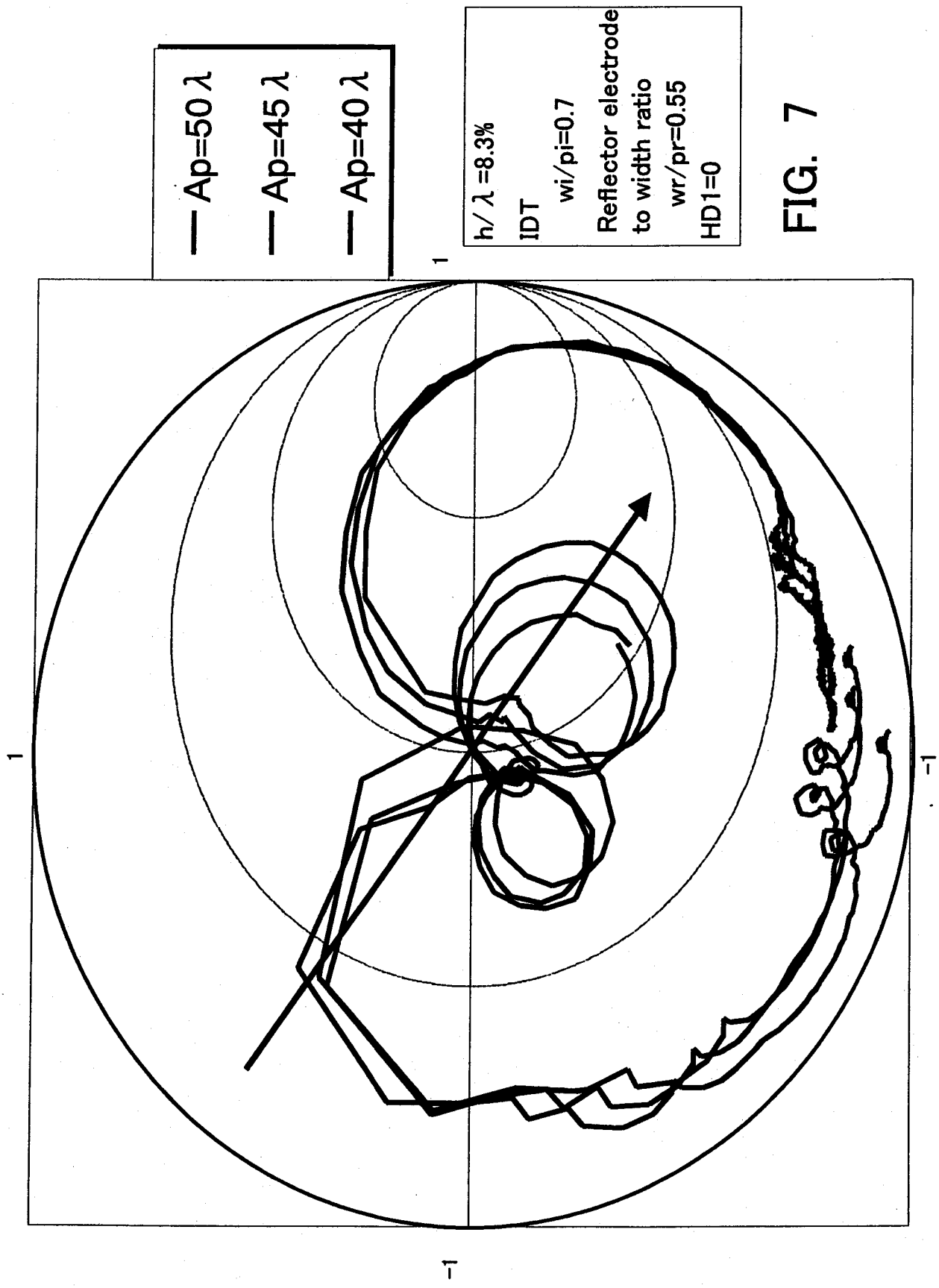

— Ap=50 λ
— Ap=45 λ
— Ap=40 λ
h/ λ =8.3%
IDT
wi/pi=0.7
Reflector electrode
to width ratio
wr/pr=0.55
HD1=0
1
-1
1
-1

FIG. 7

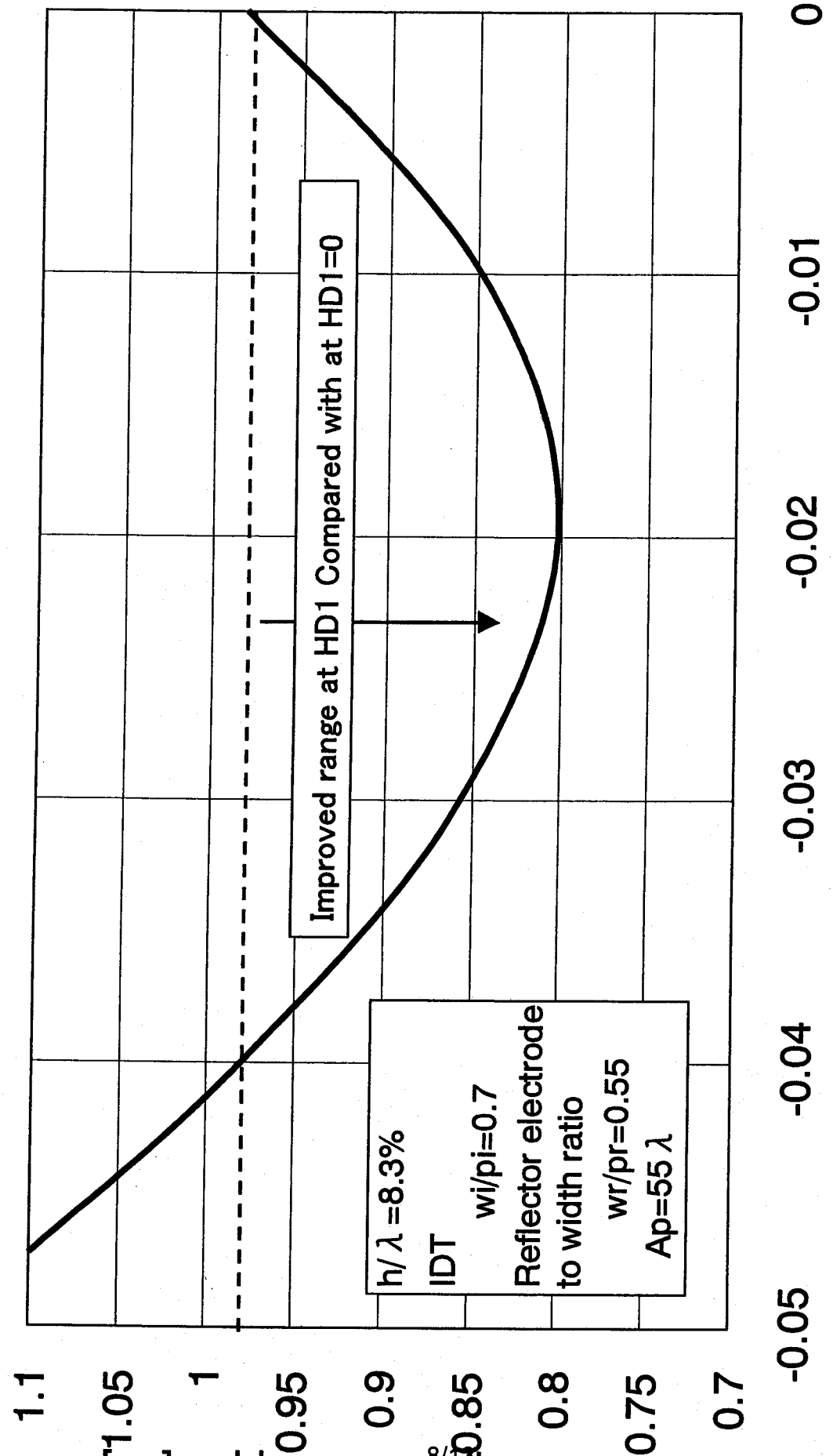

Intra-passband ripple [dB]
1.1
1.05
1
0.95
0.9
0.85
0.8
0.75
0.7
-0.05
-0.04
-0.03
-0.02
-0.01
0
HD1
Improved range at HD1 Compared with at HD1=0
h/λ =8.3%
IDT
wi/pi=0.7
Reflector electrode
to width ratio
wr/pr=0.55
Ap=55 λ

FIG. 8

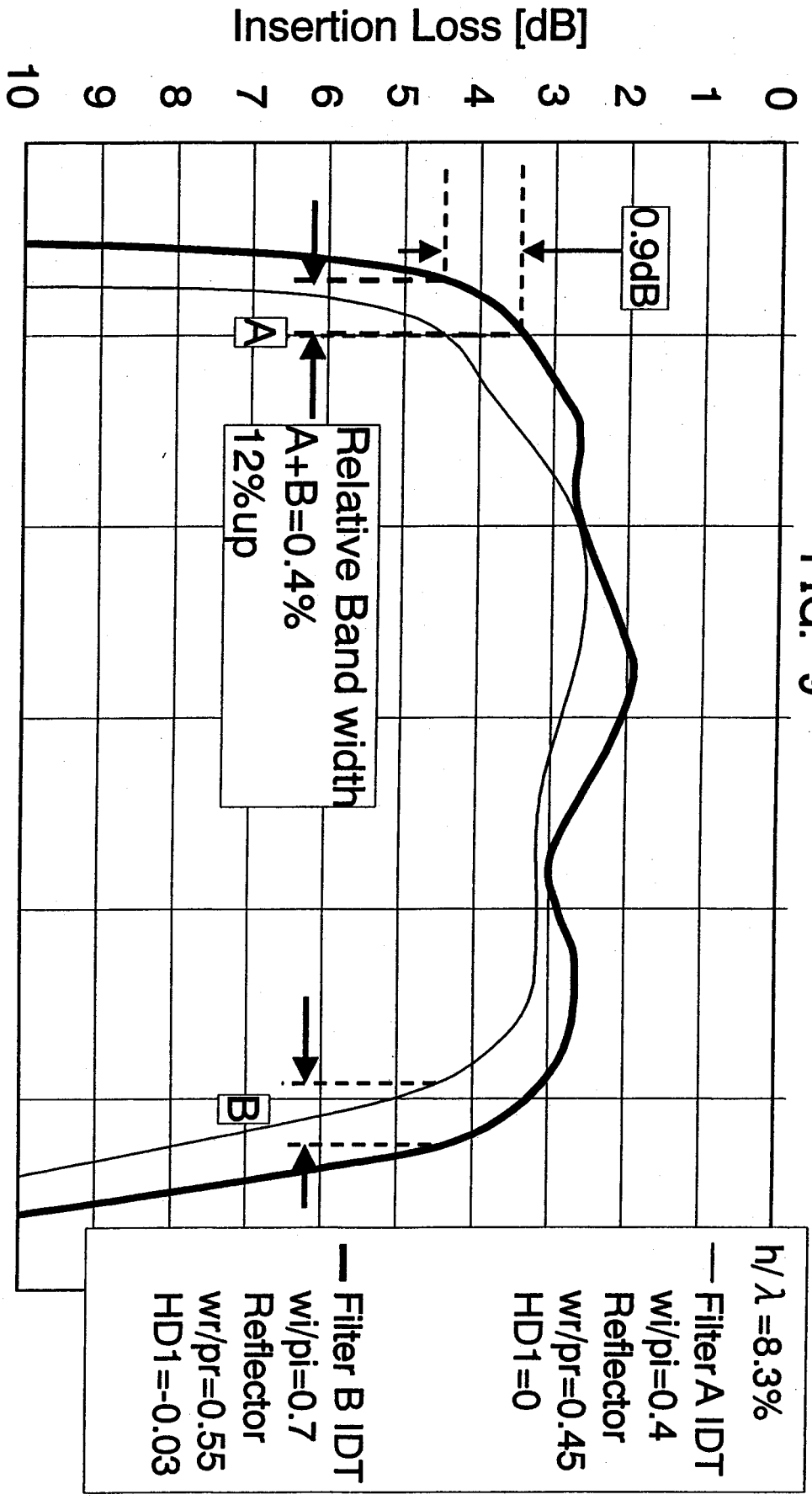

Insertion Loss [dB]
0
1
2
3
4
5
6
7
8
9
10
0.97
0.98
0.99
1
1.01
1.02
1.03
Relative frequency f/fo
0.9dB
A
B
Relative Band width
A+B=0.4%
12%up
h/λ =8.3%
— Filter A IDT
wi/pi=0.4
Reflector
wr/pr=0.45
HD1=0
— Filter B IDT
wi/pi=0.7
Reflector
wr/pr=0.55
HD1=-0.03

FIG. 9

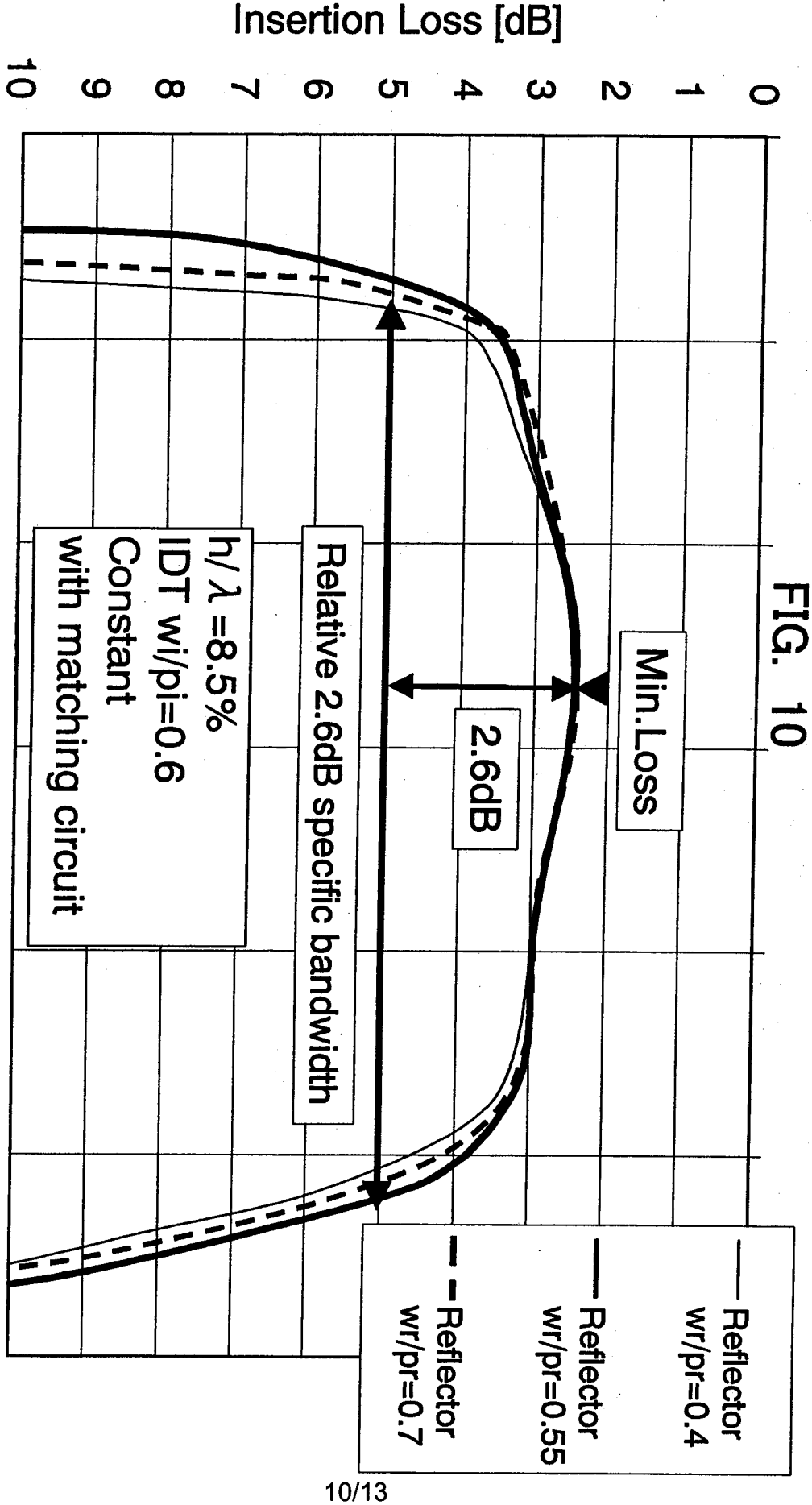

Insertion Loss [dB]
0
1
2
3
4
5
6
7
8
9
10
0.97
0.98
0.99
1
1.01
1.02
1.03
Relative frequency f/fo
Min.Loss
2.6dB
Relative 2.6dB specific bandwidth
h/ λ =8.5%
IDT wi/pi=0.6
Constant
with matching circuit
Reflector
wr/pr=0.4
Reflector
wr/pr=0.55
Reflector
wr/pr=0.7

FIG. 10

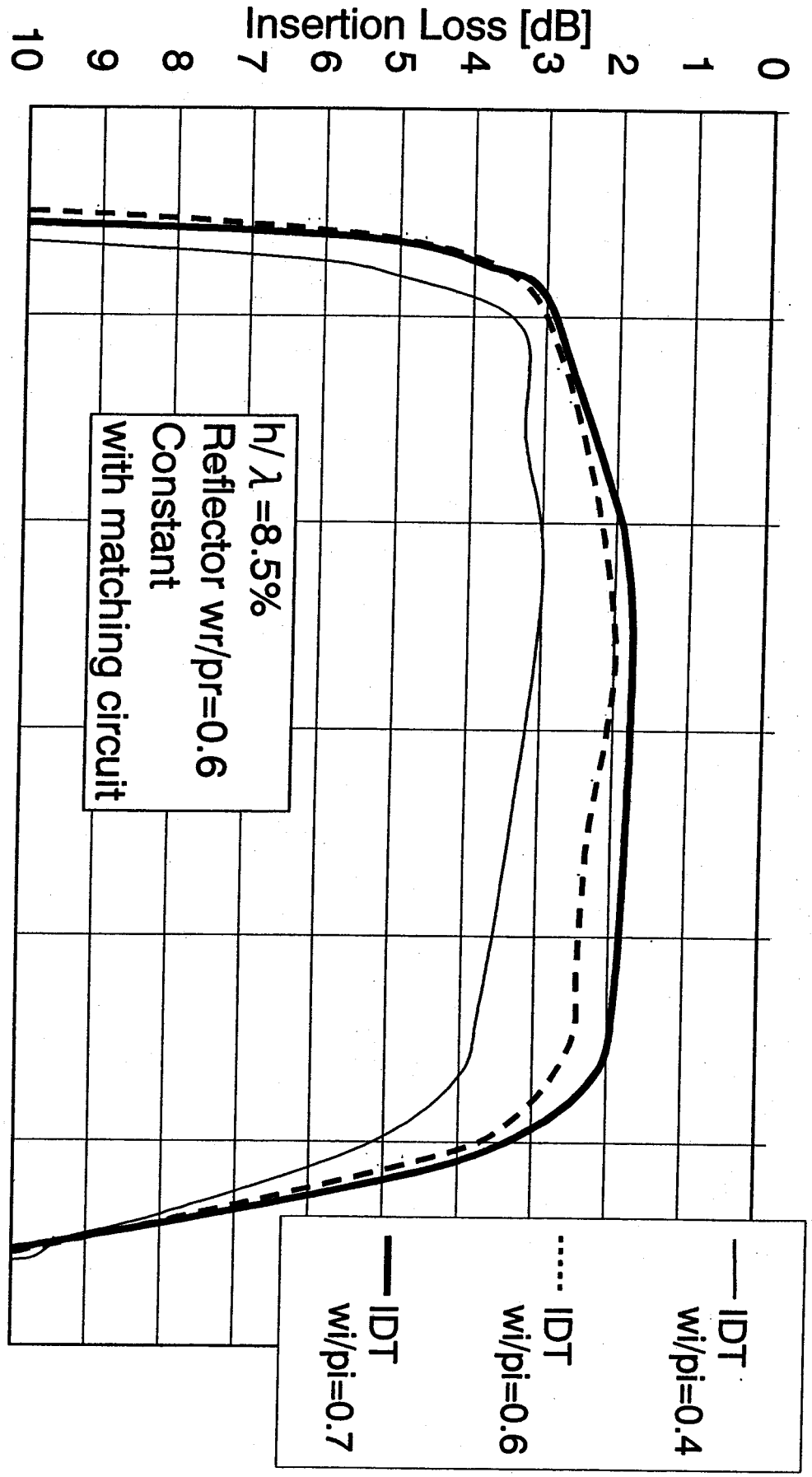

Insertion Loss [dB]
0
1
2
3
4
5
6
7
8
9
10
0.97
0.98
0.99
1
1.01
1.02
1.03
Relative frequency f/fo
h/ λ =8.5%
Reflector wr/pr=0.6
Constant
with matching circuit
IDT
wi/pi=0.4
IDT
wi/pi=0.6
IDT
wi/pi=0.7

FIG. 11

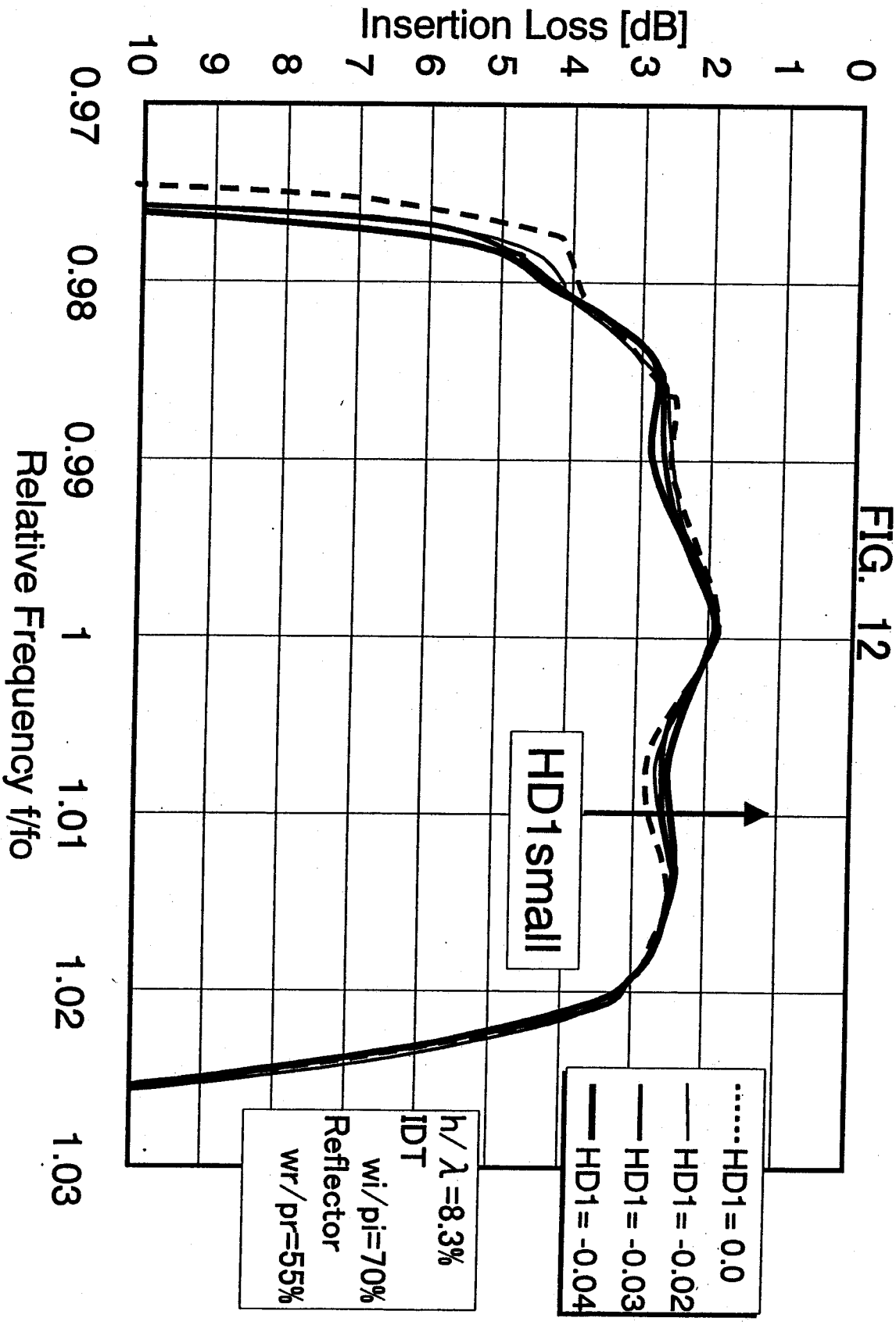

Insertion Loss [dB]
0
1
2
3
4
5
6
7
8
9
10
0.97
0.98
0.99
1
1.01
1.02
1.03
Relative Frequency f/fo
HD1small
HD1= 0.0
HD1= -0.02
HD1= -0.03
HD1= -0.04
h/λ=8.3%
IDT
wi/pi=70%
Reflector
wr/pr=55%

FIG. 12

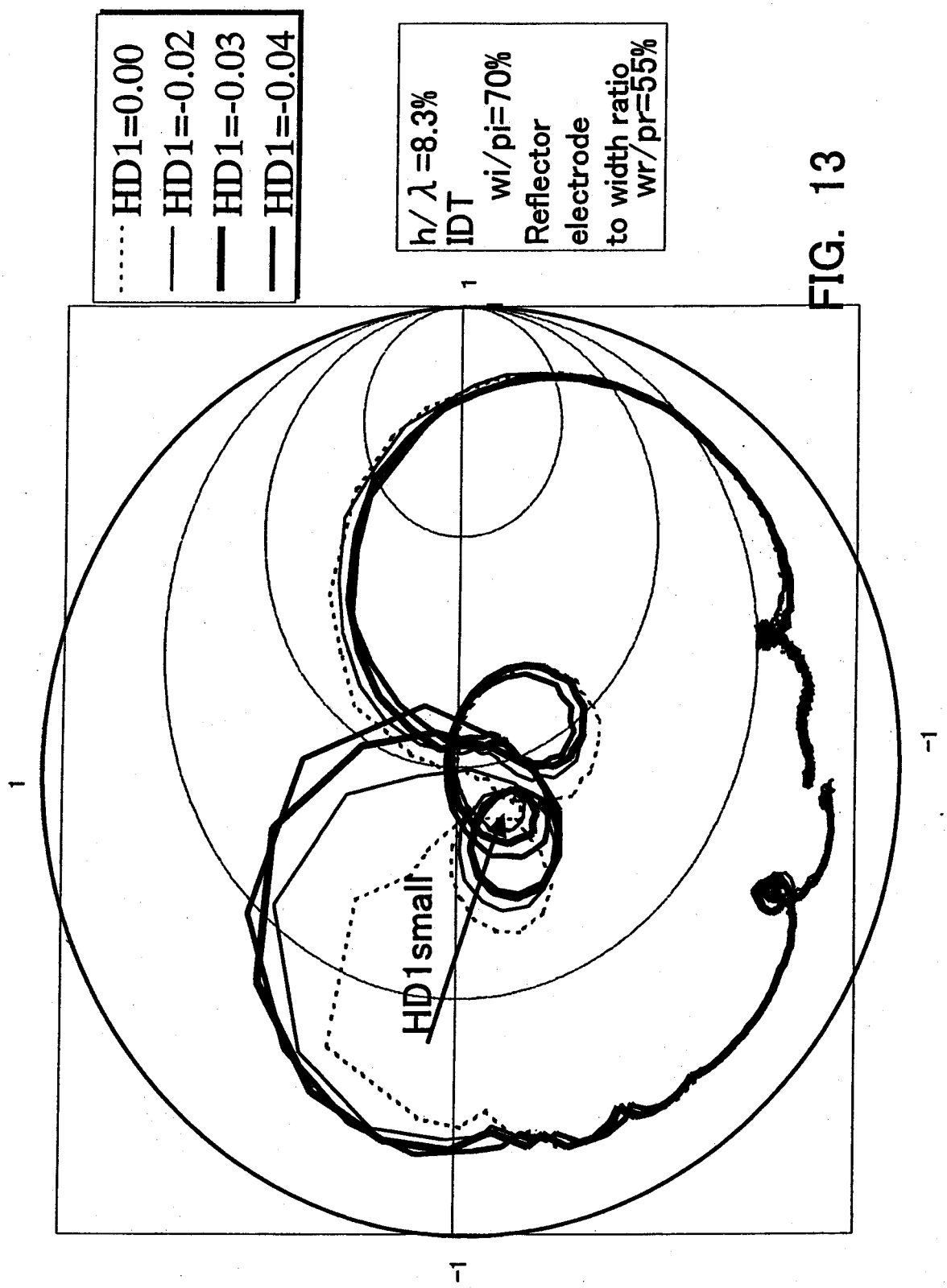

HD1=0.00
HD1=-0.02
HD1=-0.03
HD1=-0.04
h/λ=8.3%
IDT
wi/pi=70%
Reflector
electrode
to width ratio
wr/pr=55%
HD1small
1
-1
1
-1

FIG. 13