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Instituto Federal de São Paulo
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Micro-ondas e Eletromagnetismo Aplicado

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Mechatronics
Engineering



Sociedade Brasileira
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Antena Vivaldi Antipodal com Geometria Fractal com Aplicação em Imagens Médicas



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5 anos
2016 - 2021
INSTITUTO FEDERAL
São Paulo

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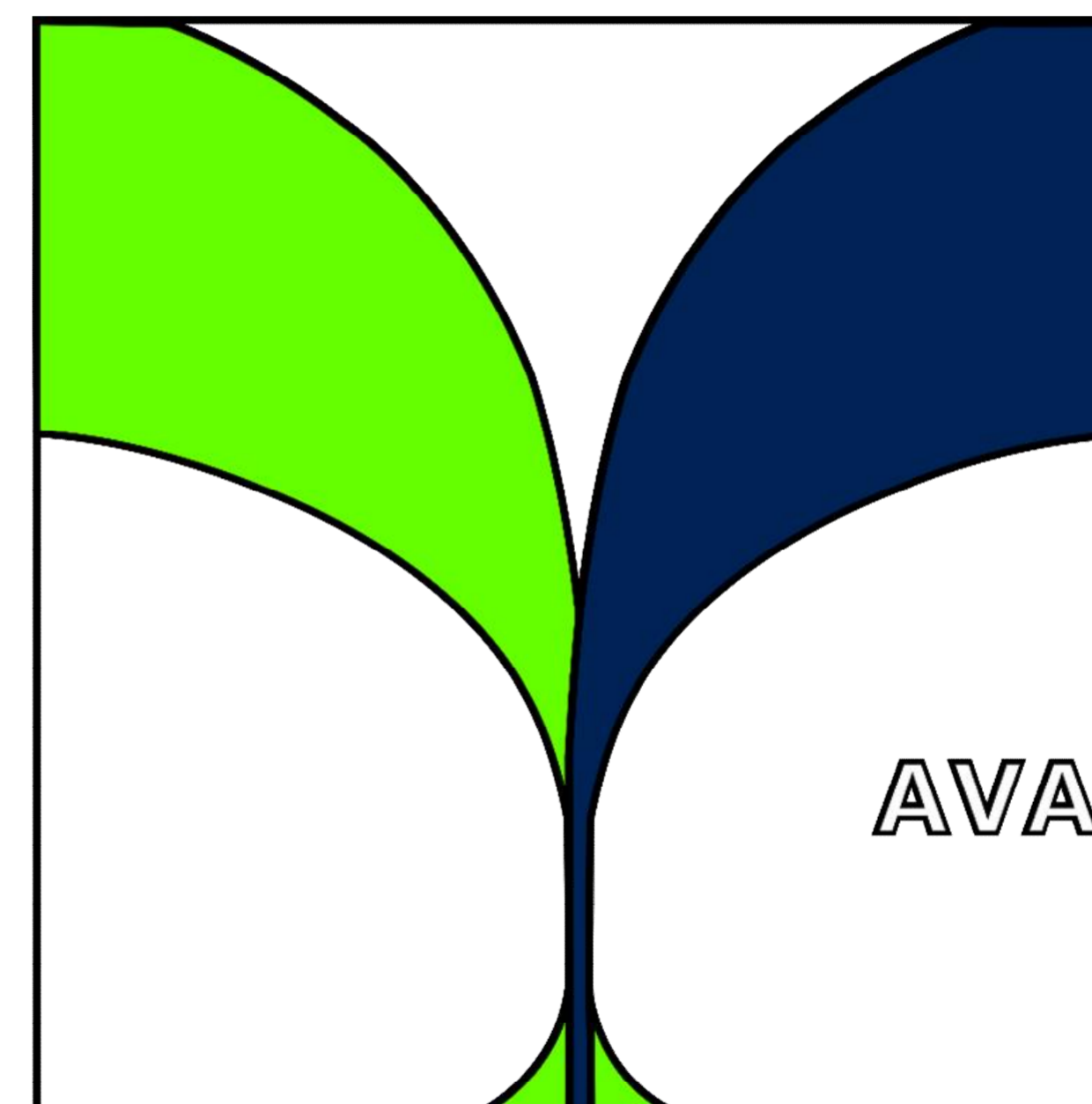
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Paper: A Vivaldi Antenna Palm Tree Class with Koch Square Fractal Slot Edge for Near-Field Microwave Biomedical Imaging Applications

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Introdução

- ✓ Aplicações da AVA;
- ✓ Técnicas Construtivas da AVA;
- ✓ Fractais;
- ✓ Imagens Médicas por Micro-Ondas.



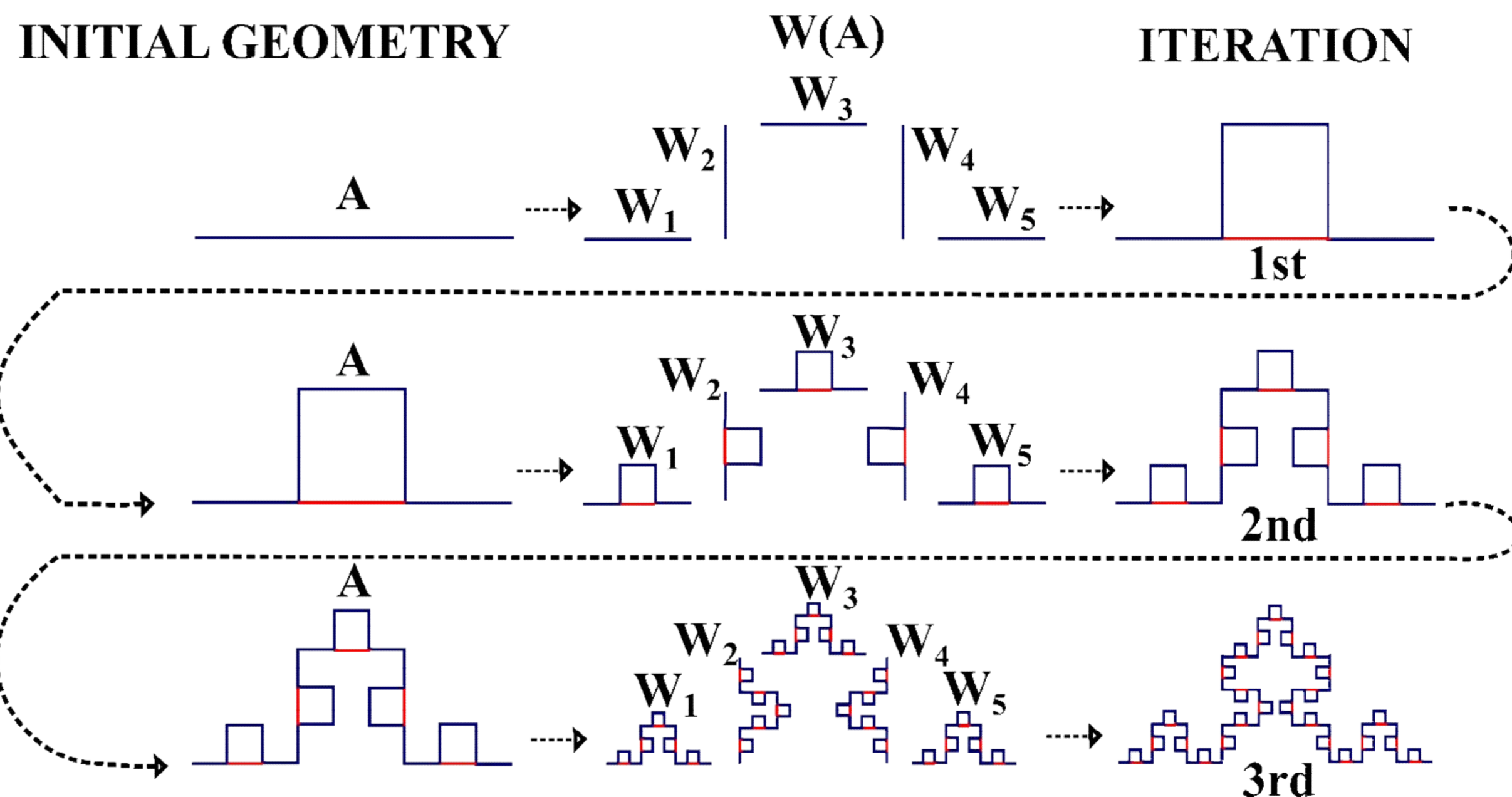


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Fractal



- ✓ Fractal Quadrático de Koch;
- ✓ Dimensão Fractal = 1.46;



Projeto da Antena

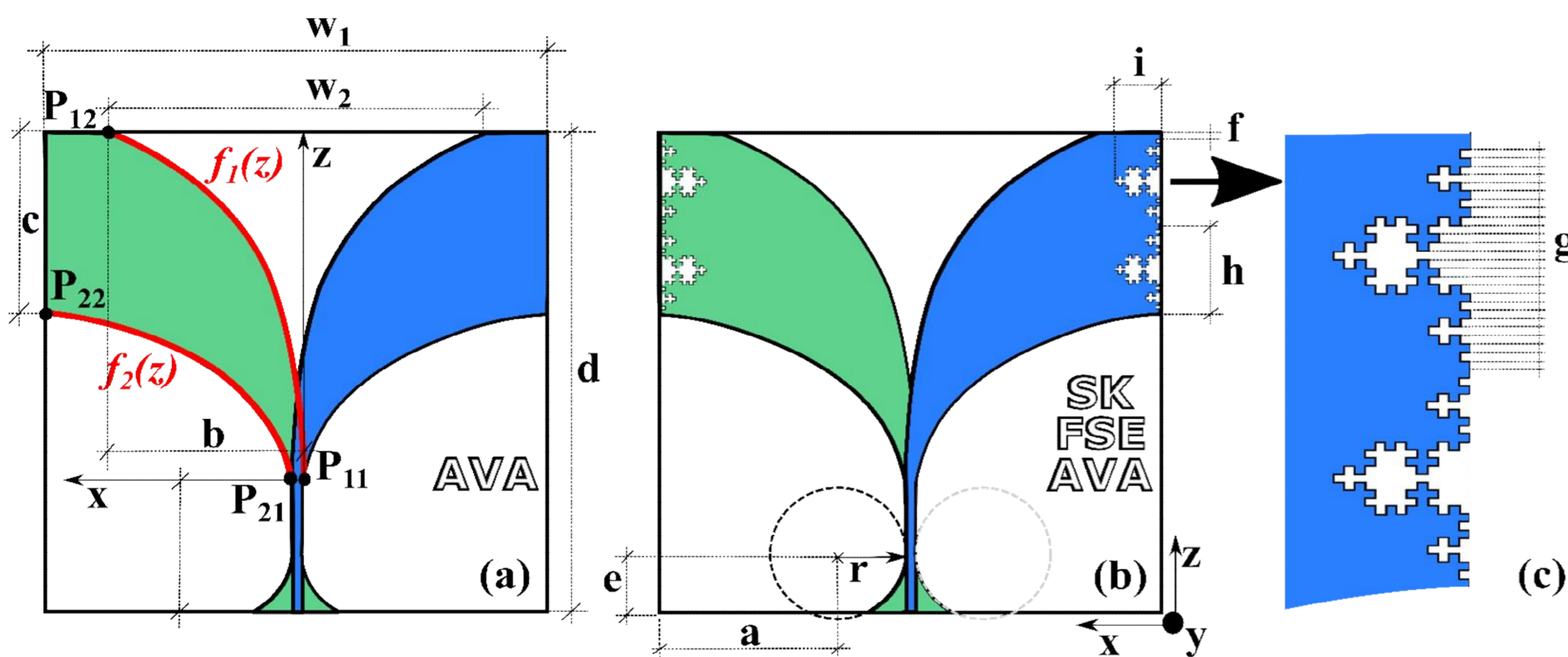


TABLE I. AVA AND SK-FSE-AVA DIMENSION PARAMETERS.

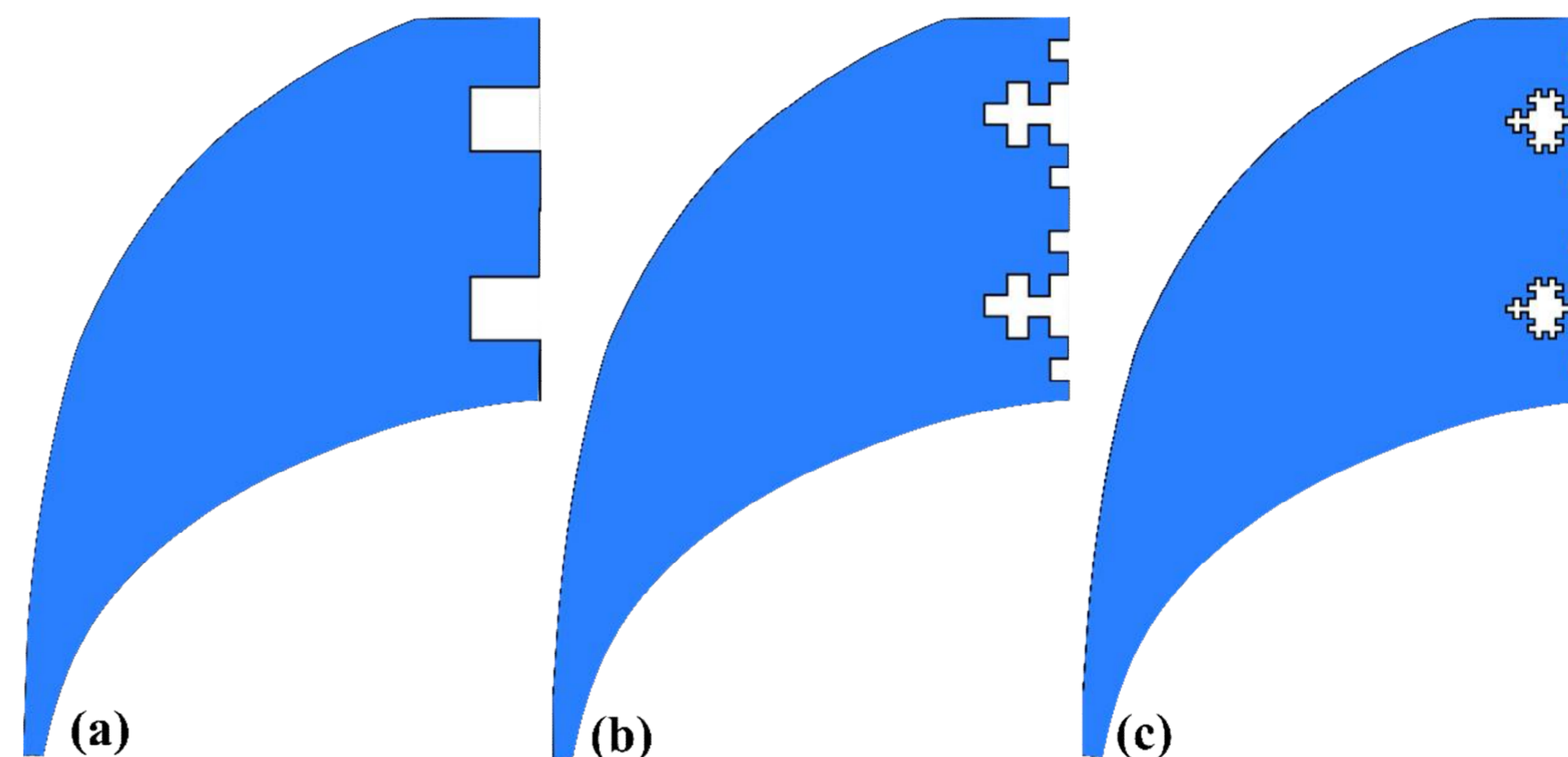
Antenna	Dimension parameters (mm)	
	$a - b - c - d - e - r - w_1 - w_2$	$f - g - h - i$
AVA	53.50 – 58.36 – 55.00 – 150.00 – 18.10 – 20.00 –	-
SK-FSE-AVA	150.00 – 113.71	2.00 – 1.00 – 27.00 – 13.00



Desenvolvimento da SK-FSE-AVA

TABLE II. RESULTADOS DA SK-FSE-AVA COM 1, 2 E 3 ITERAÇÕES DO FRACTAL QUADRANGULAR EM 4GHZ.

Order of Fractal	Parameter Results			
	Gain in dBi	SLL in dB	Squint in degrees	Angular Width in degrees
1 st	8.21	-11.10	-0.10	52.60
2 nd	7.43	-11.00	-0.20	52.01
3 rd	9.23	-13.50	0.20	42.90



Resultados da SK-FSE-AVA

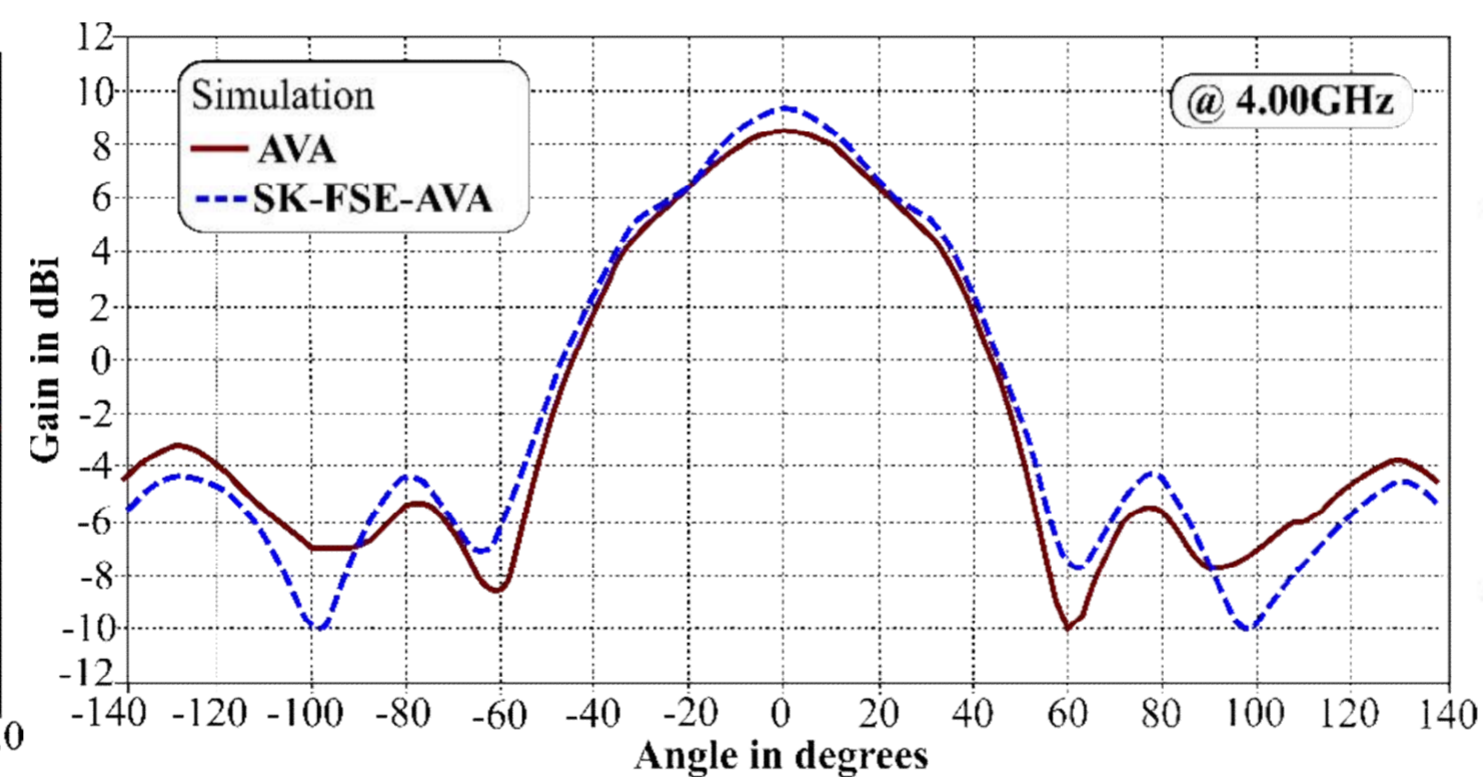
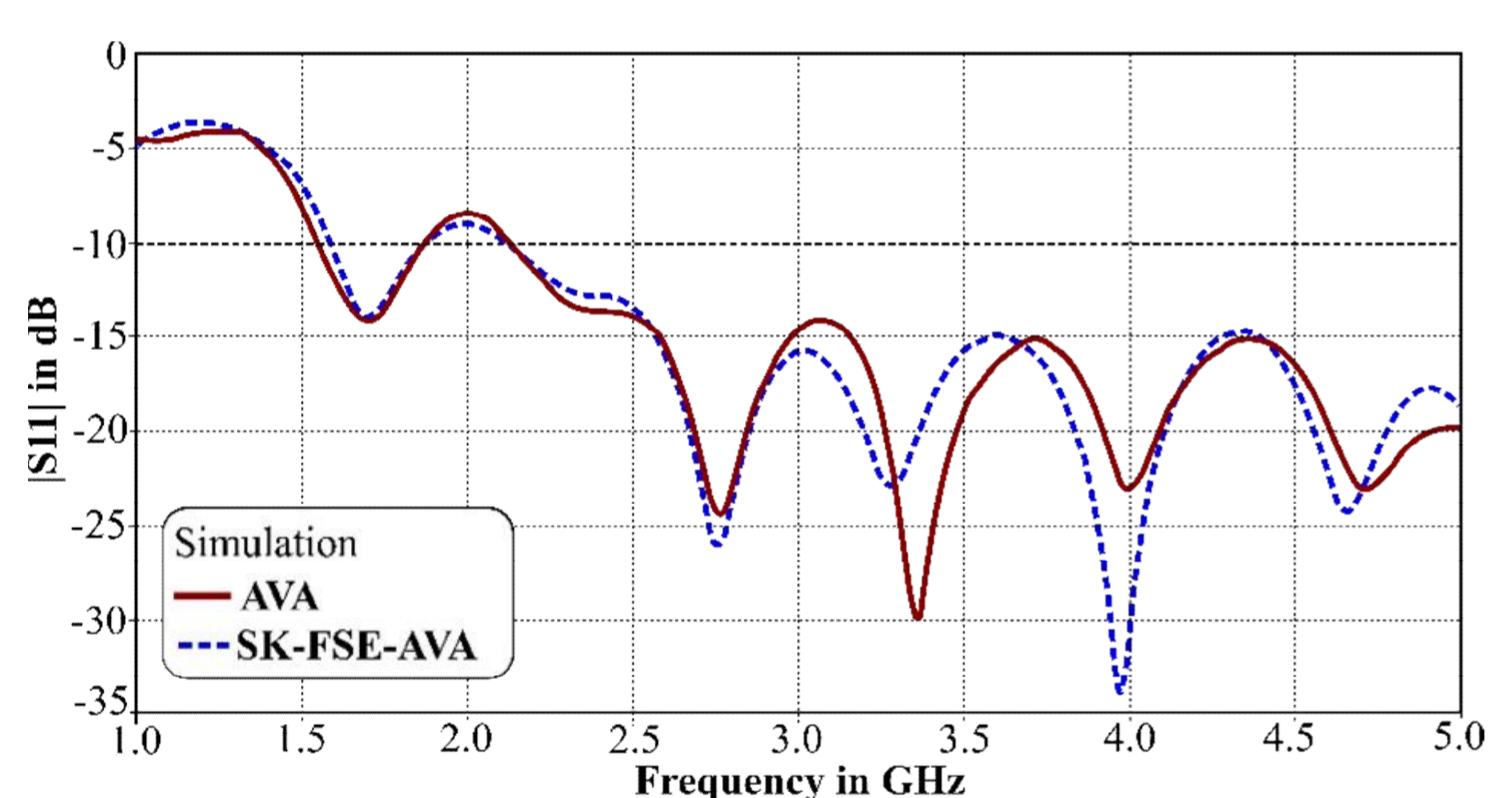
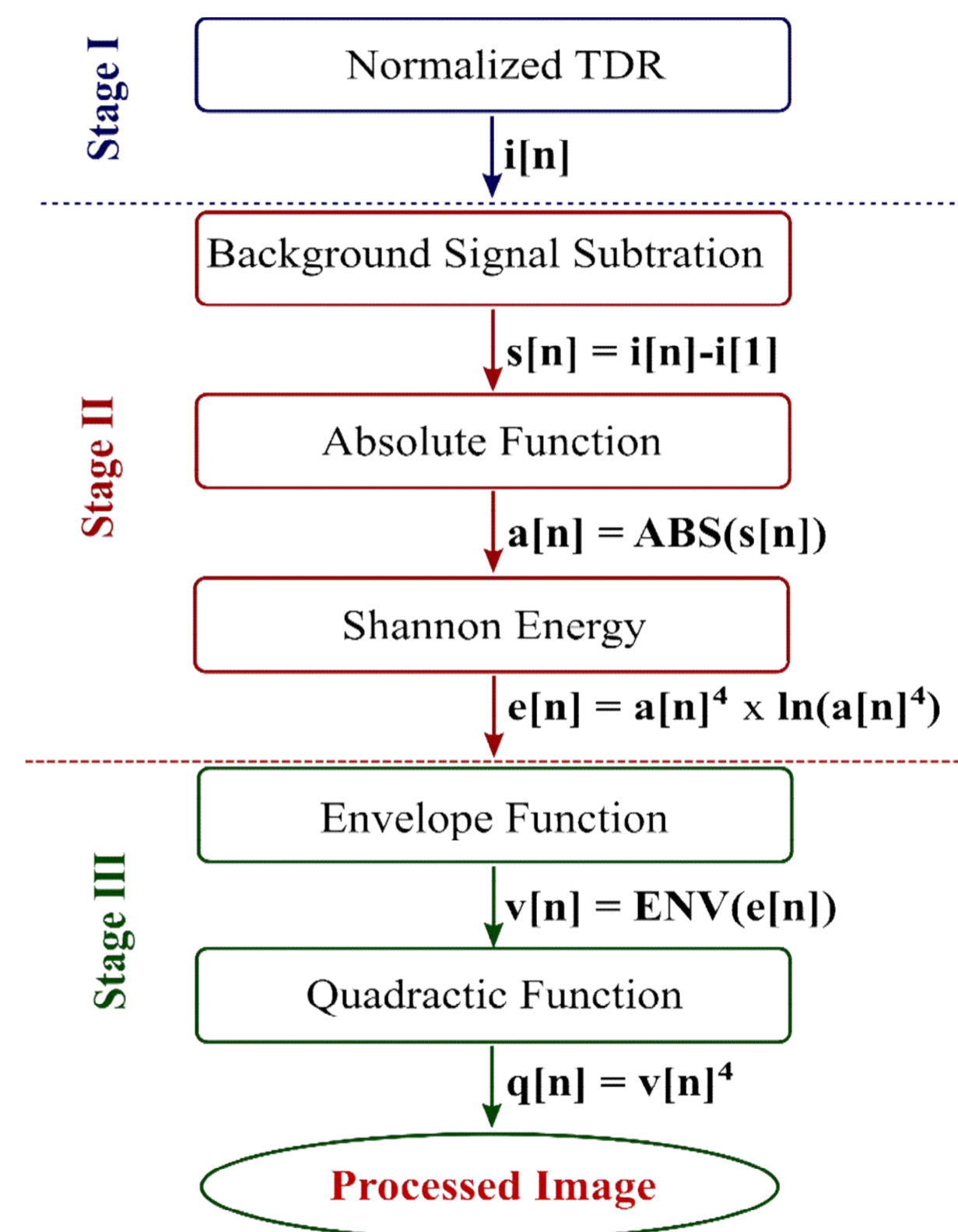
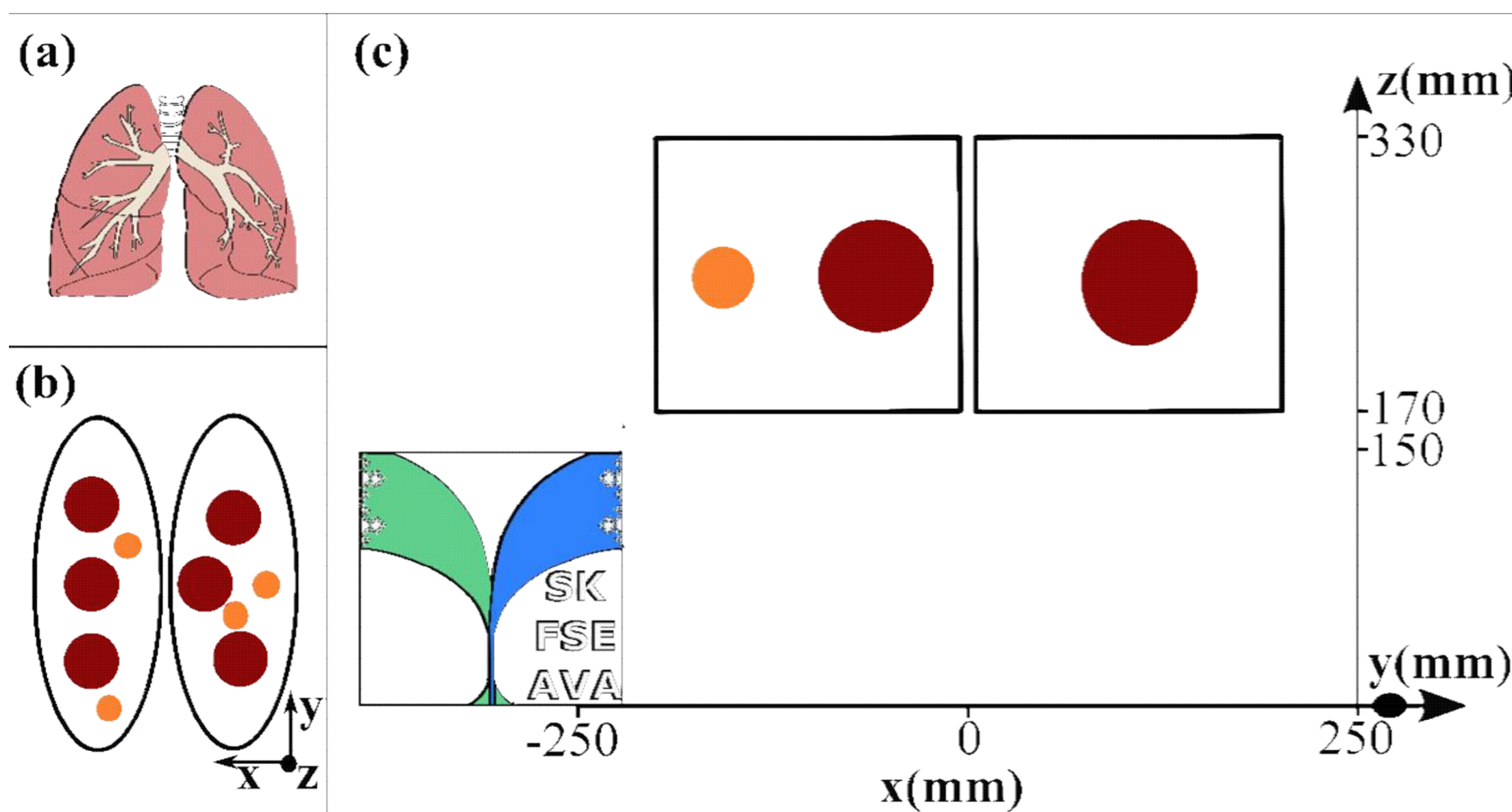


TABLE III. COMPARISON OF THE PROPOSED SK-FSE-AVA AND AVA.

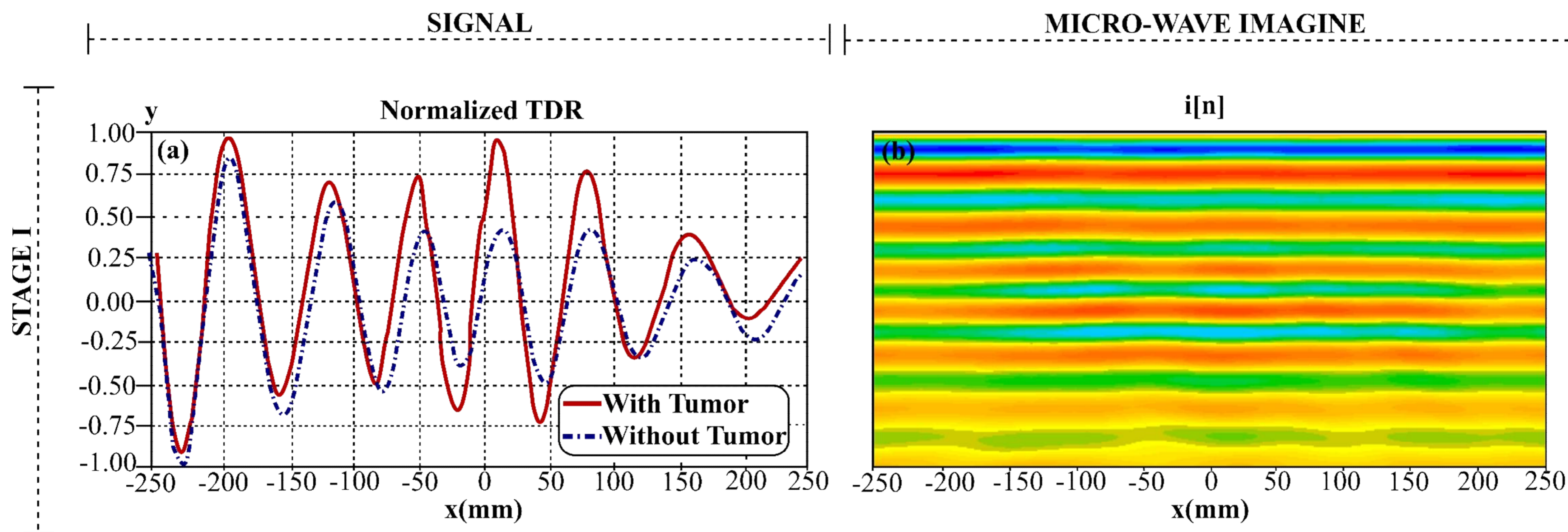
Antenna	Parameter Results				
	Gain in dBi	SLL in dB	Squint in degrees	Angular Width in degrees	LLF in GHz
AVA	8.41	-11.70	0.10	52.20	2.13
SK-FSE-AVA	9.23	-13.50	0.20	42.90	2.11

Obtenção e Processamento de Dados



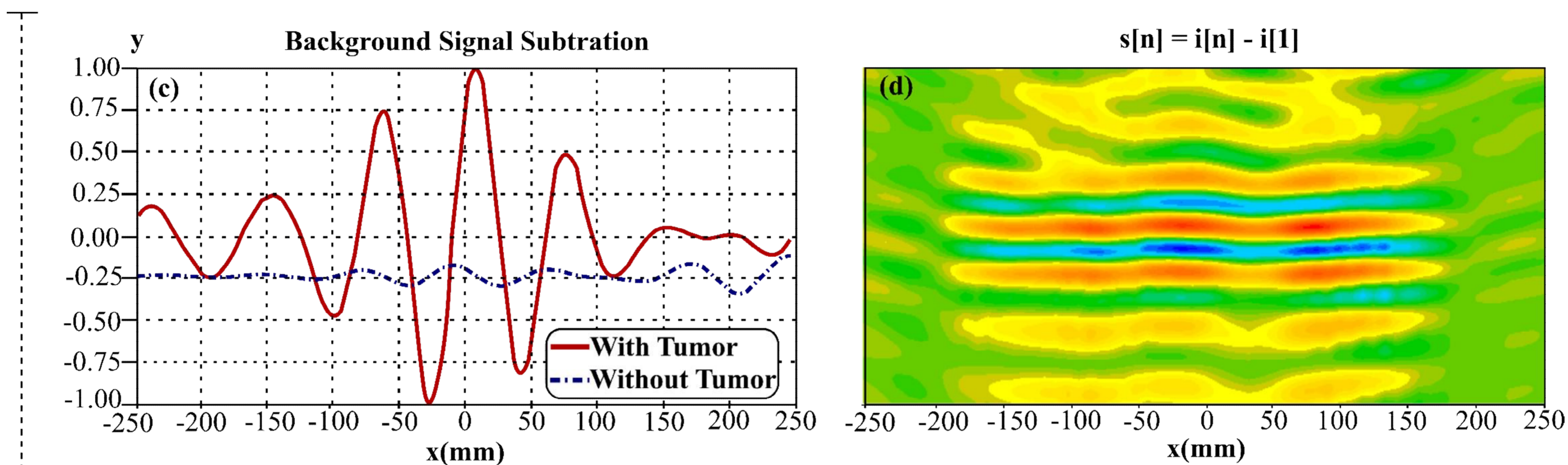


Processamento de Imagem – Estágio 1



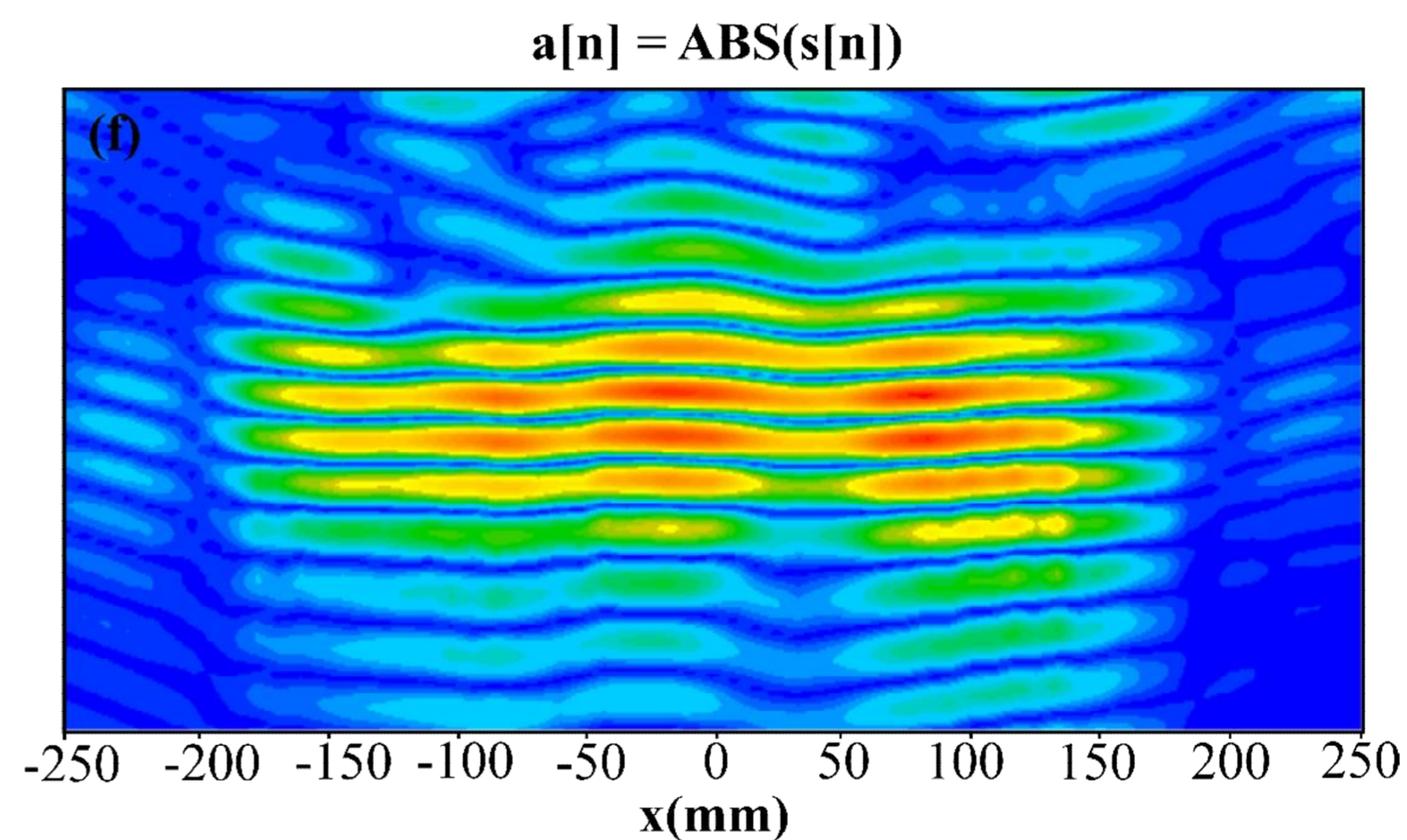
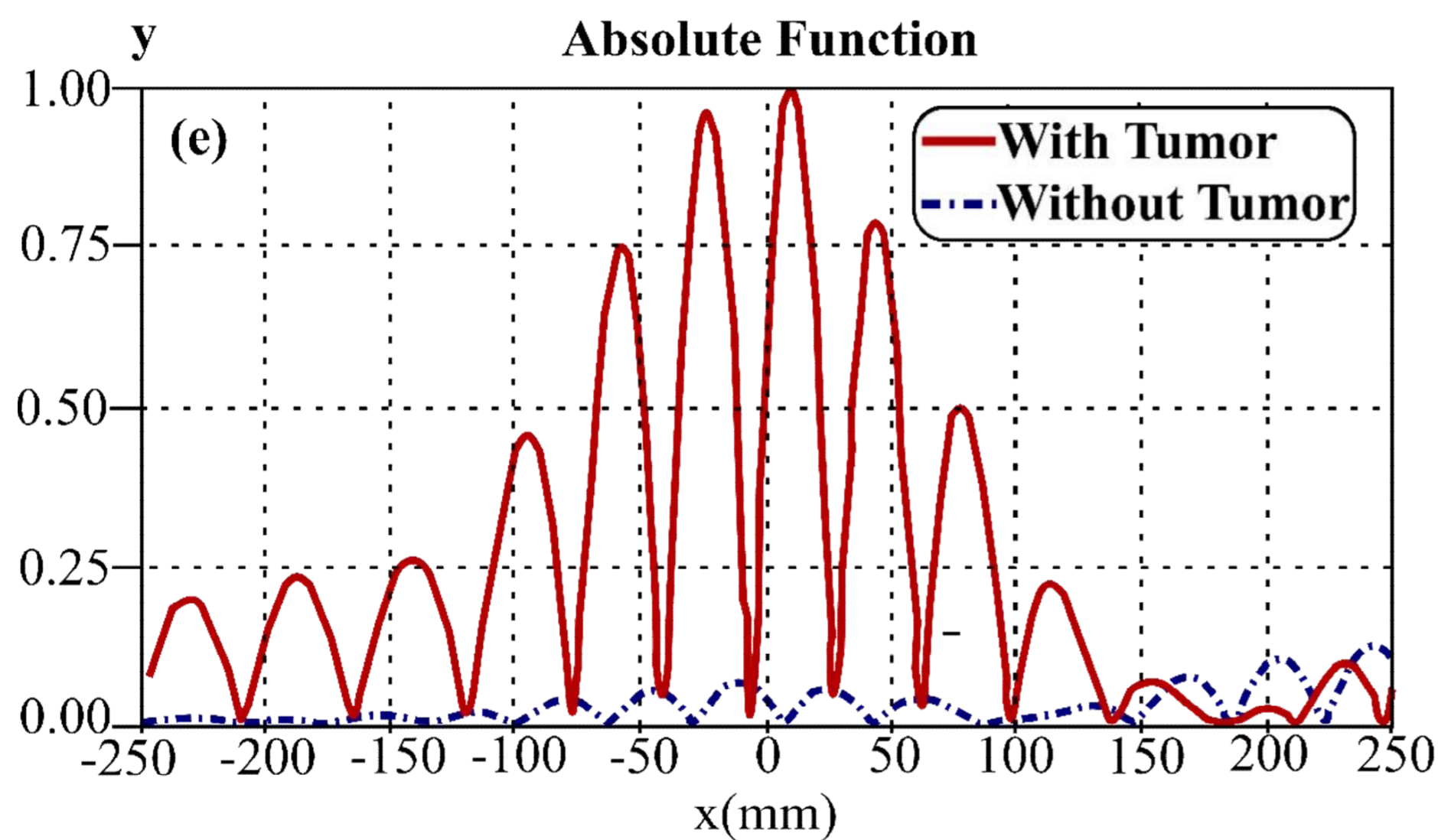


Processamento de Imagem – Estágio 2



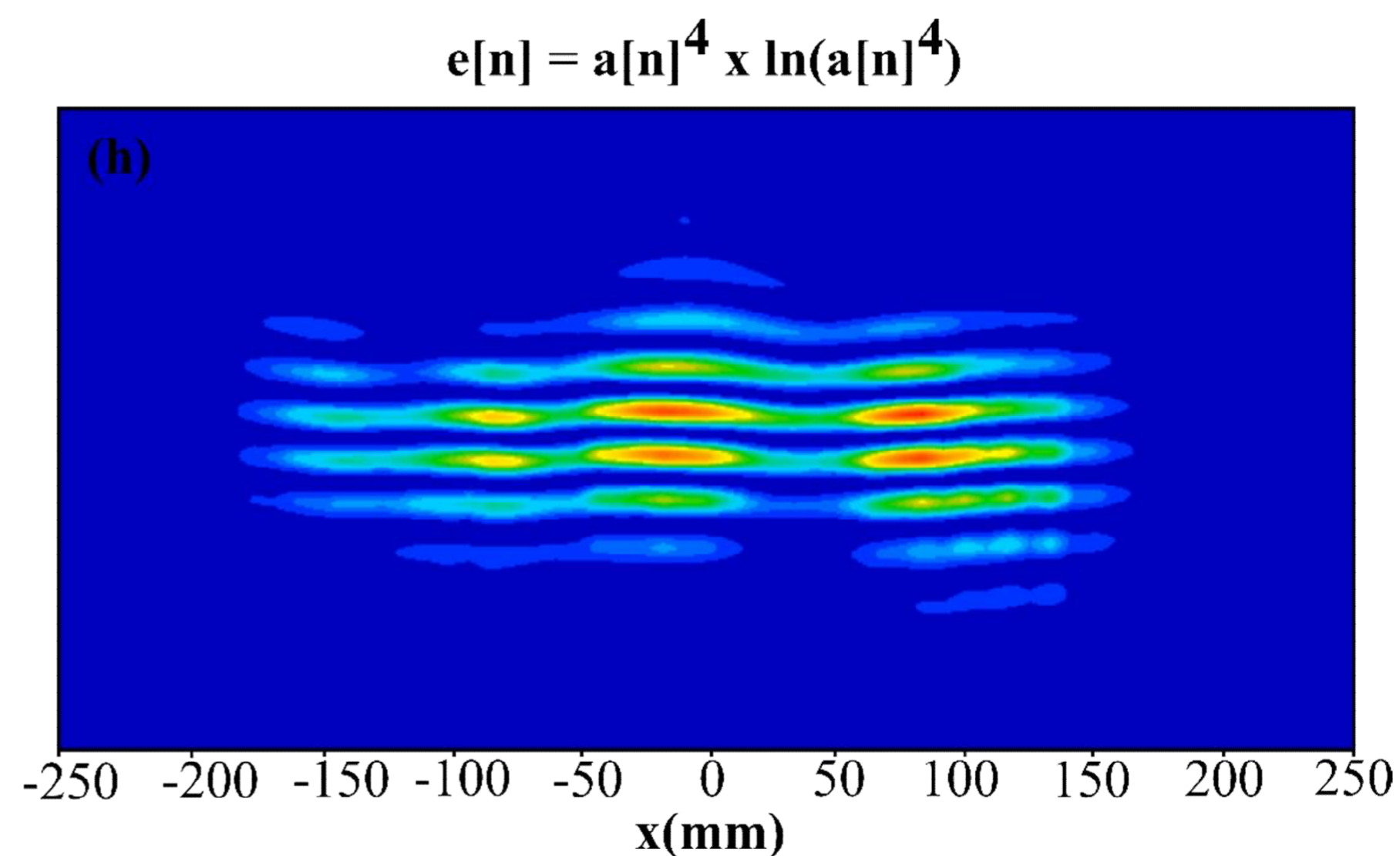
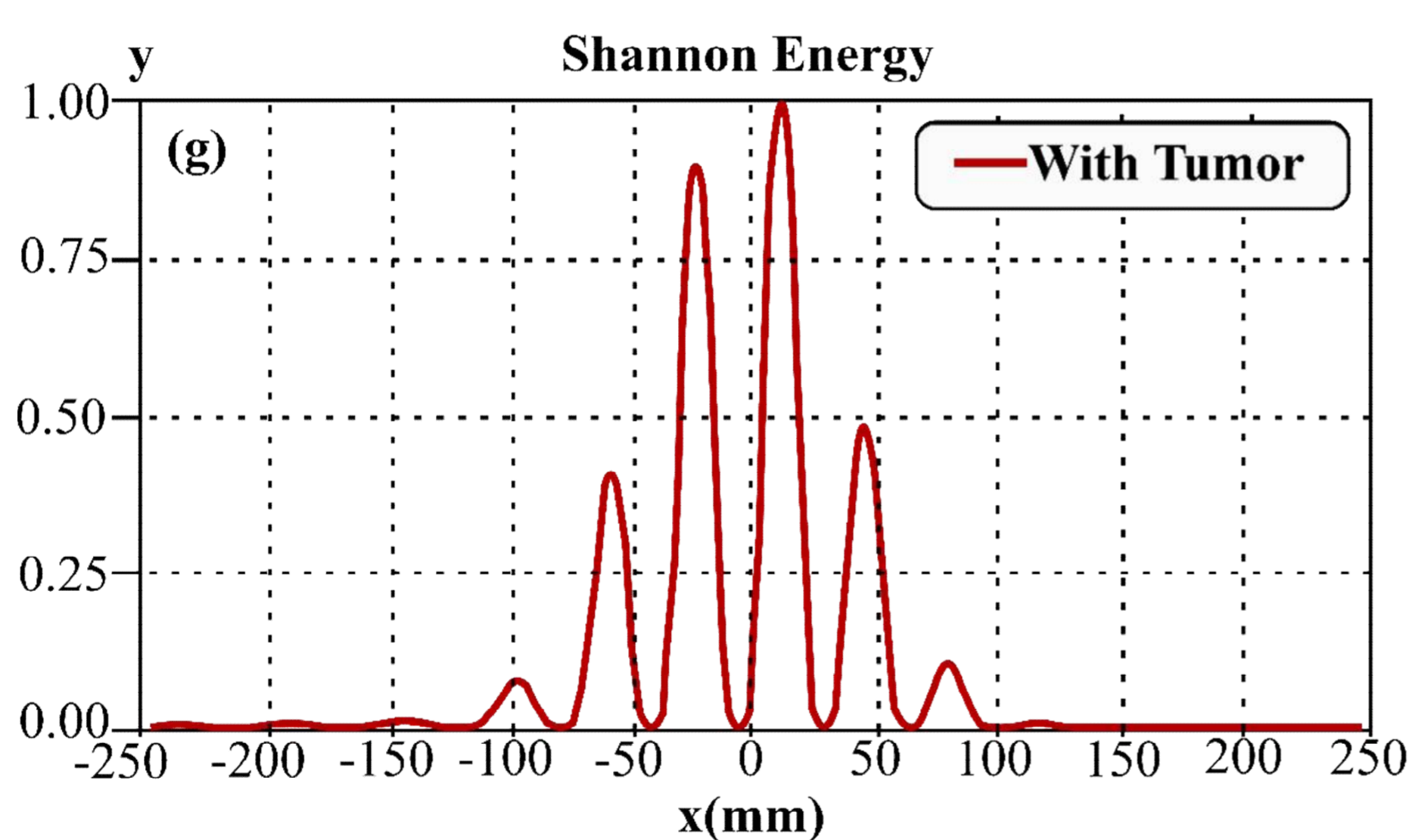


Processamento de Imagem – Estágio 2



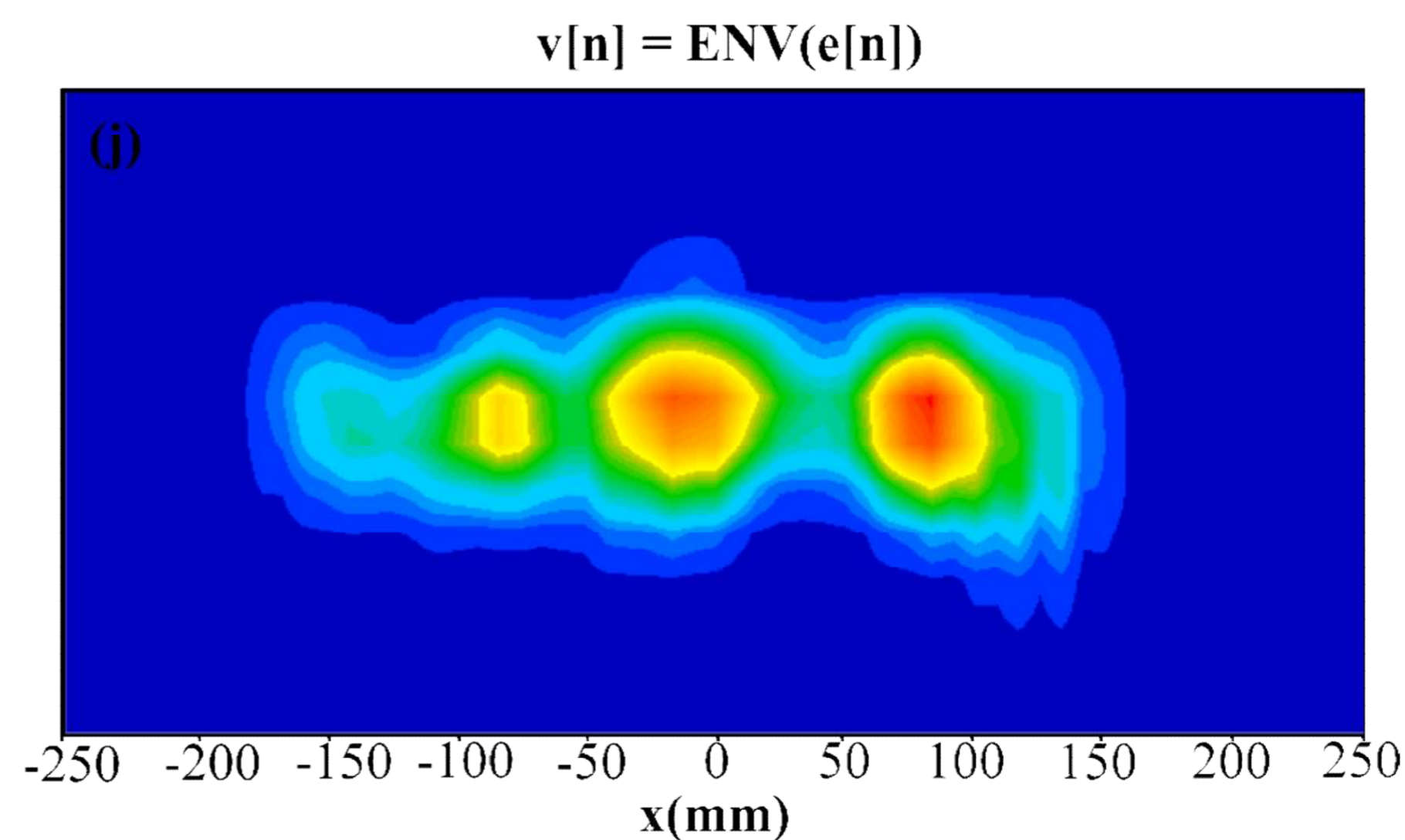
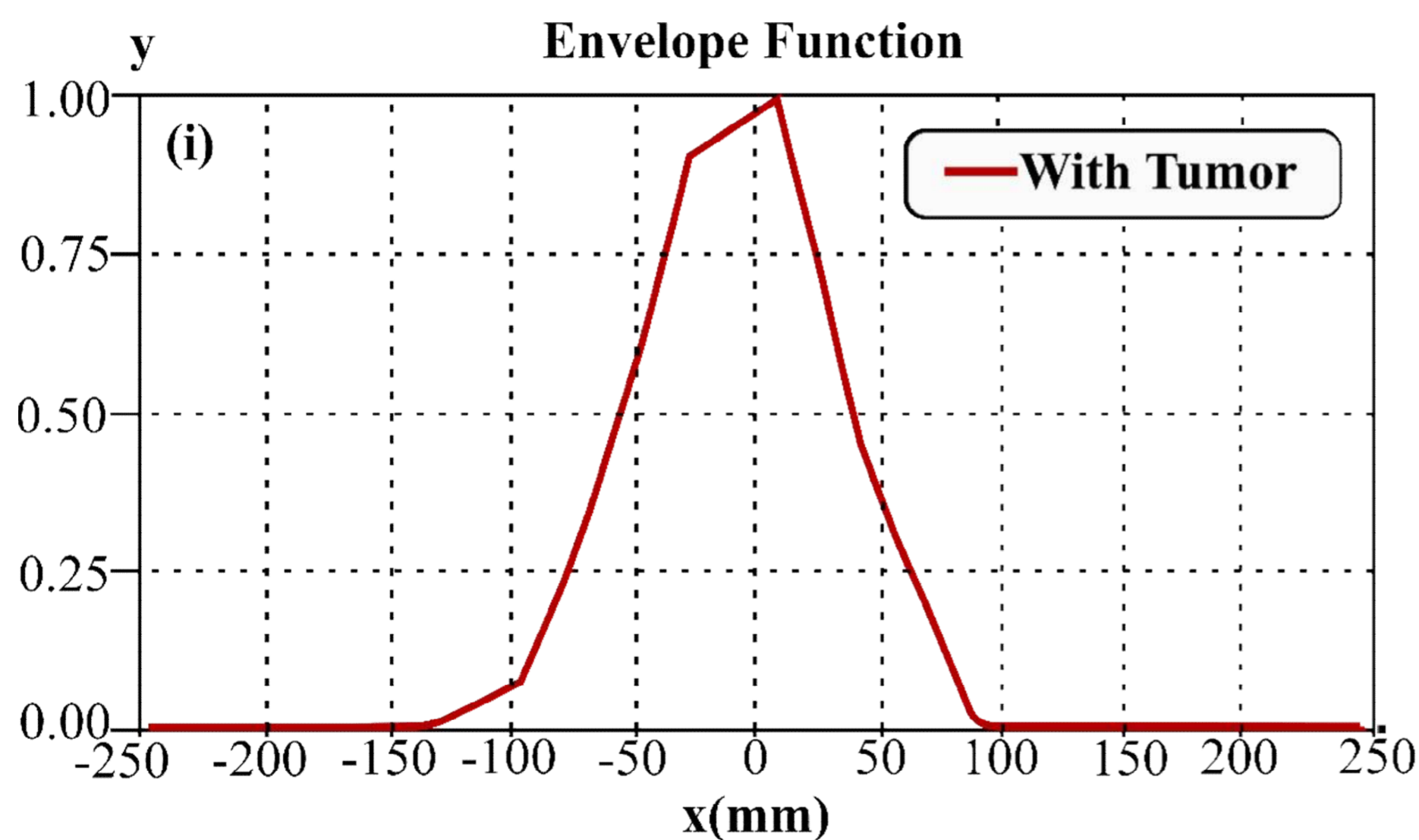


Processamento de Imagem – Estágio 2



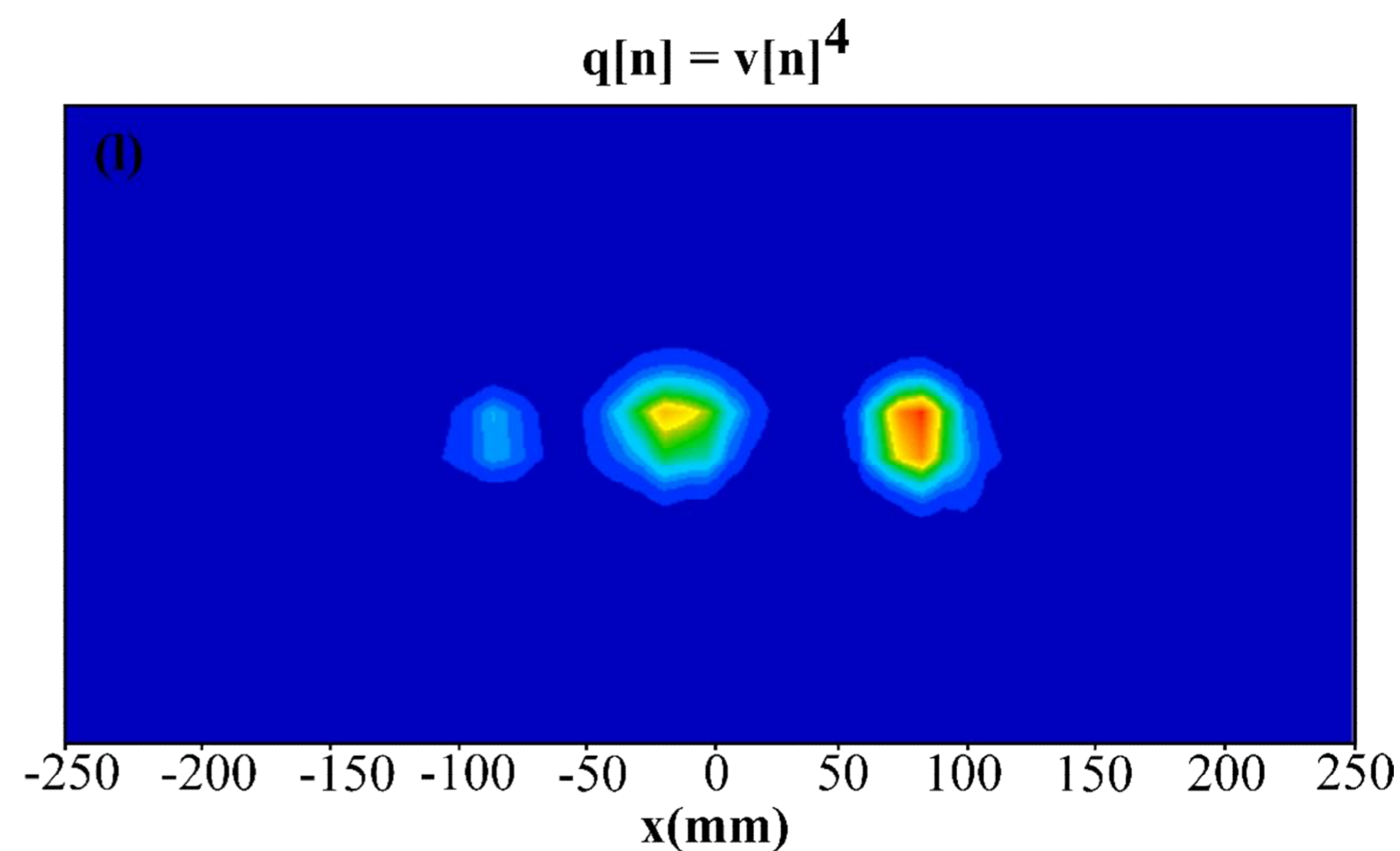
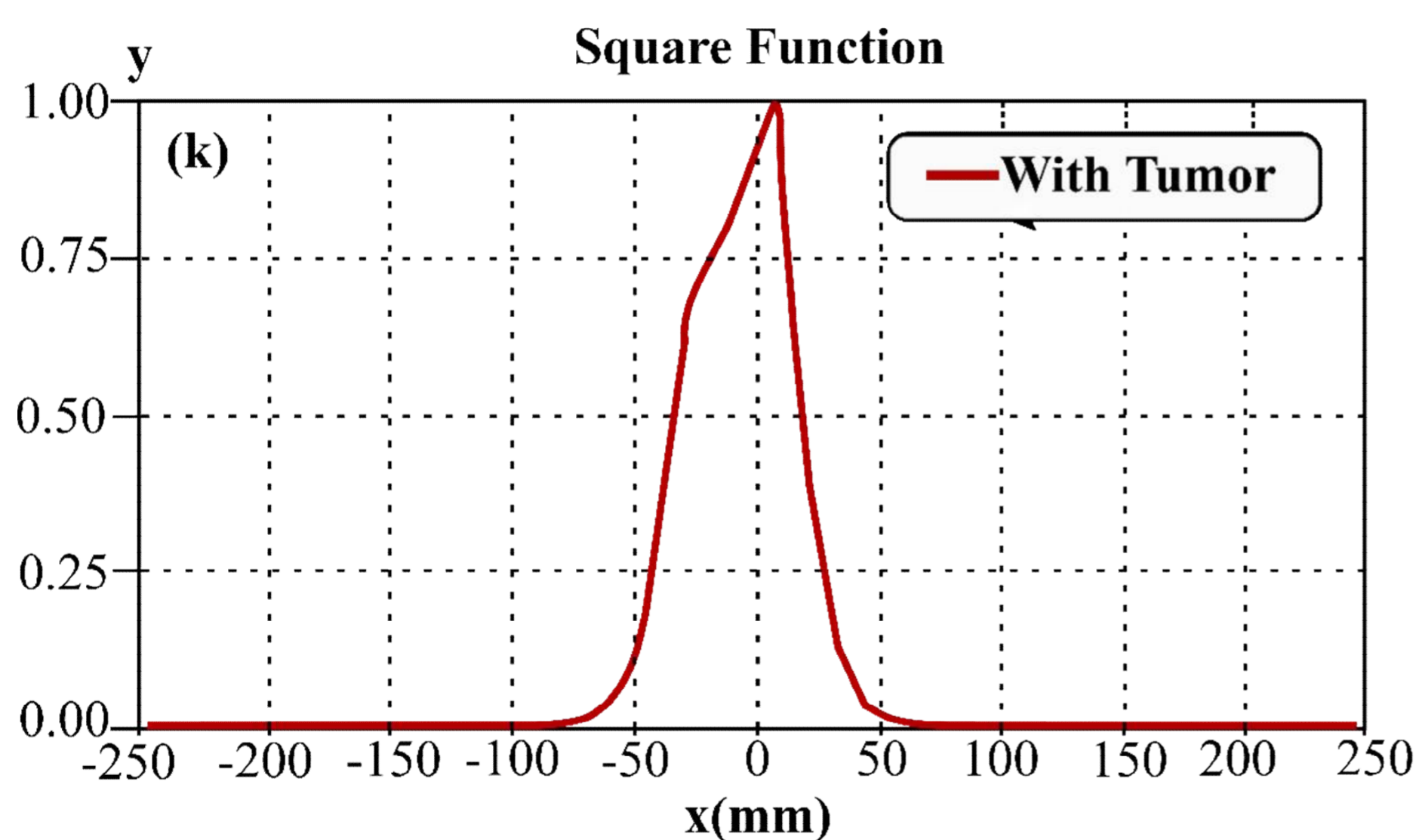


Processamento de Imagem – Estágio 3





Processamento de Imagem – Estágio 3





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Obrigado pela Atenção!



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