

Imager Quality Analysis

Department: South Bay Radiation Oncology

Machine Name: SB-LA-1

Data Acquired: 1/20/2022

Vendor: Varian

Data Analyzed: 1/21/2022

Model: Truebeam

Serial #: - -

Quick Select: SB_LA1_CBCT_Head • Imager: Varian OBI • Energy: NA

Phantom: Catphan504-SB-Head • Phantom Template: Catphan 504 • Phantom Serial #:1924

Summary

Result category	Results summary
Uniformity And Noise	One or more results in error range
HU Constancy	One or more results in alert range
Spatial Resolution	One or more results in error range
Geometric Distortion	All results in acceptable range
Slice Thickness	One or more results in alert range
Low Contrast Visibility	One or more results in error range
Low Contrast Detectability	One or more results in error range



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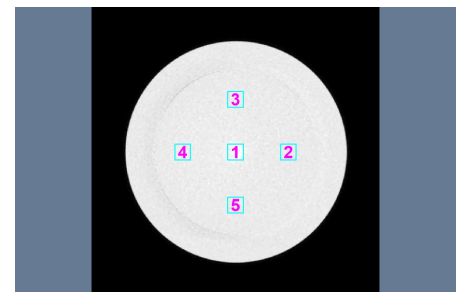
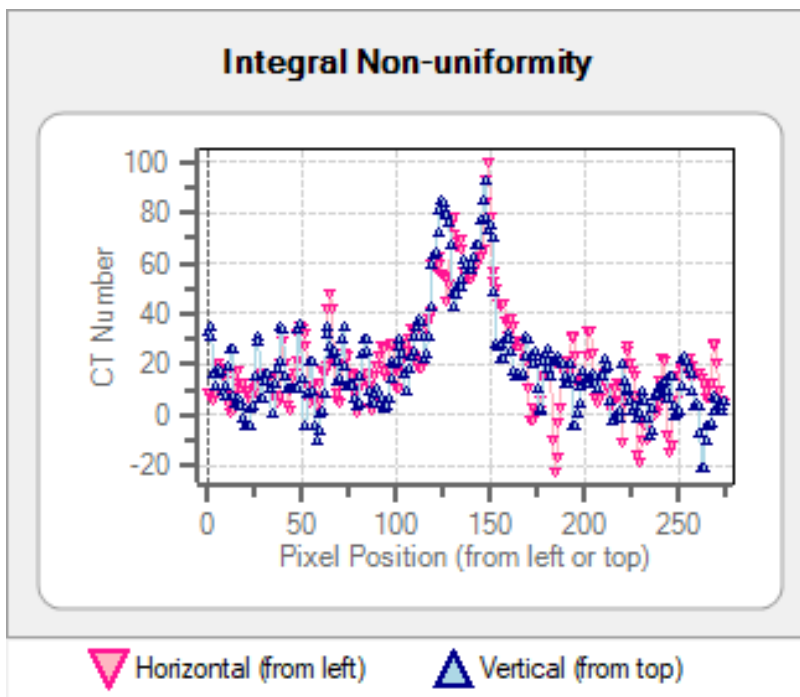
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Uniformity and Noise

ROI	CT # Uniformity	Image Noise
1	61.643	23.428
2	8.843	13.087
3	11.754	12.288
4	13.881	13.966
5	10.711	12.835

Integral non-uniformity

Vertical	Horizontal
1.592	1.564



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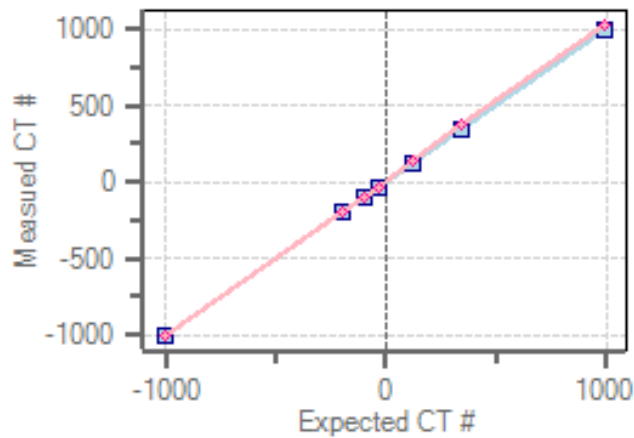
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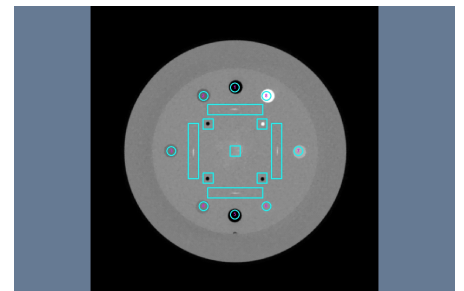
HU Constancy

ID	Material	Measured (HU)	Expected (HU)
1	Air	-998.837	-1000.000
2	PMP	-190.388	-200.000
3	LDPE	-102.276	-100.000
4	Polystyrene	-38.510	-35.000
5	Air	-999.765	-1000.000
6	Acrylic	133.240	120.000
7	Delrin	374.832	340.000
8	Teflon	1022.658	990.000

Measured vs Expected



Measured Perfect (measured = expected)



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Spatial Resolution

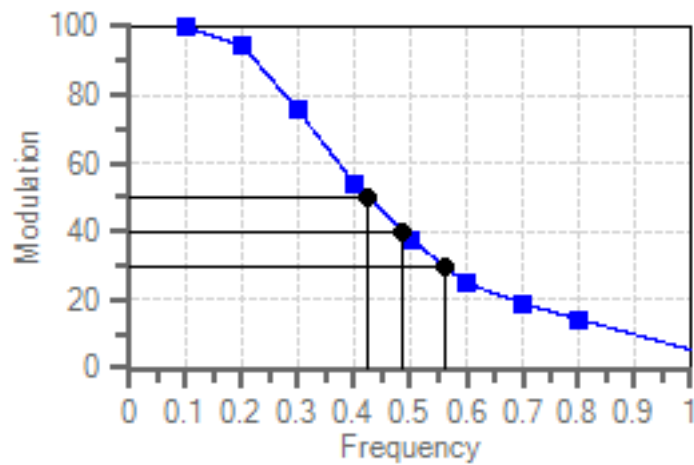
F50 (lp/mm) | F40 (lp/mm) | F30 (lp/mm)

0.425

0.487

0.561

RMTF Curve



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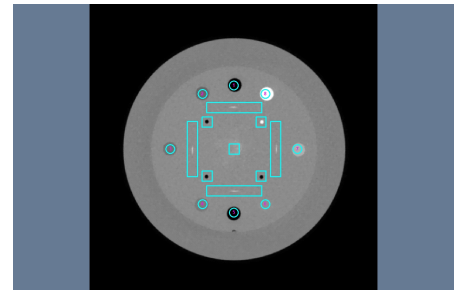
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Geometric Distortion

Position 1	Position 2	Measured distance	Expected distance
Bottom Left	Bottom Right	50.097	50.000
Bottom Right	Top Right	50.097	50.000
Top Right	Top Left	50.097	50.000
Top Left	Bottom Left	50.097	50.000



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Slice Thickness

Bar	Calculated Thickness (mm)	Expected Thickness (mm)
Bottom	1.308	1.990
Right	1.452	1.990
Top	1.782	1.990
Left	2.056	1.990
Mean	1.650	1.990

Low Contrast Visibility

Material 1	Material 2	LCV
Polystyrene	LDPE	1.068



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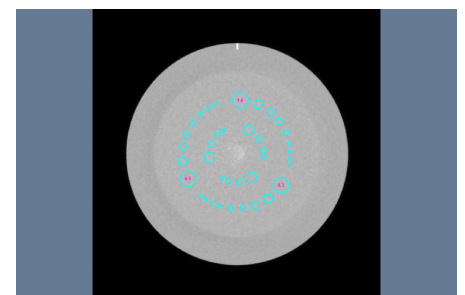
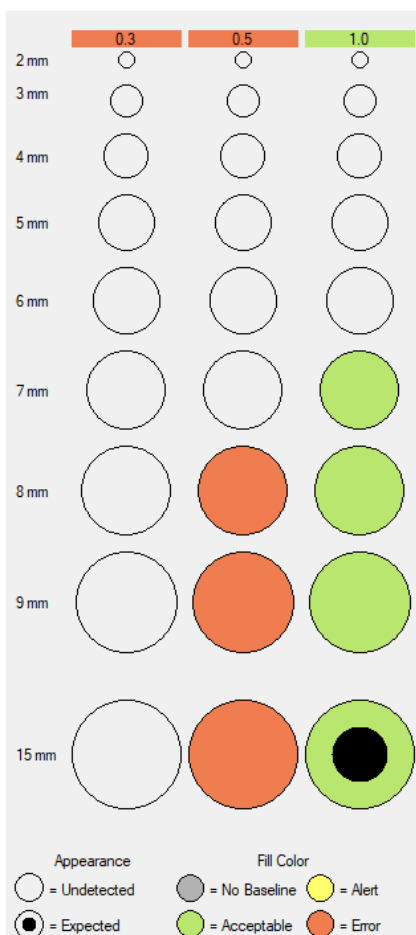
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Low Contrast Detectability

Contrast Level	Lowest Detected (mm)	Percent Detected	C x D (of Low Detected)
0.3	--	0.0	--
0.5	8.0	33.3	38.5
1.0	7.0	44.4	33.6



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