

# CT AutoQA Lite v3.01

## KFJ-IRO

### KFJ - IRO

TOSHIBA: Aquilion/L                      Serial Number: 1KD10X22  
Date Tested: 01/31/2013  
Testing Performed by: zz-AutoQA^zz-Ir

### Scan Parameters

Image #	kV	mA	Time (msec)	FOV(cm)	Table	Filter	Slice(mm)	Mode	File Name
1	120	300	500	210	.0	FC17	1	HELICAL	AutoQA_1.dc
2	120	300	500	210	-33	FC17	1	HELICAL	utoQA_34.dc
3	120	300	500	210	-73	FC17	1	HELICAL	utoQA_74.dc
4	120	300	500	210	-112	FC17	1	HELICAL	toQA_113.dc
5	120	300	500	210	-163	FC17	1	HELICAL	toQA_164.dc

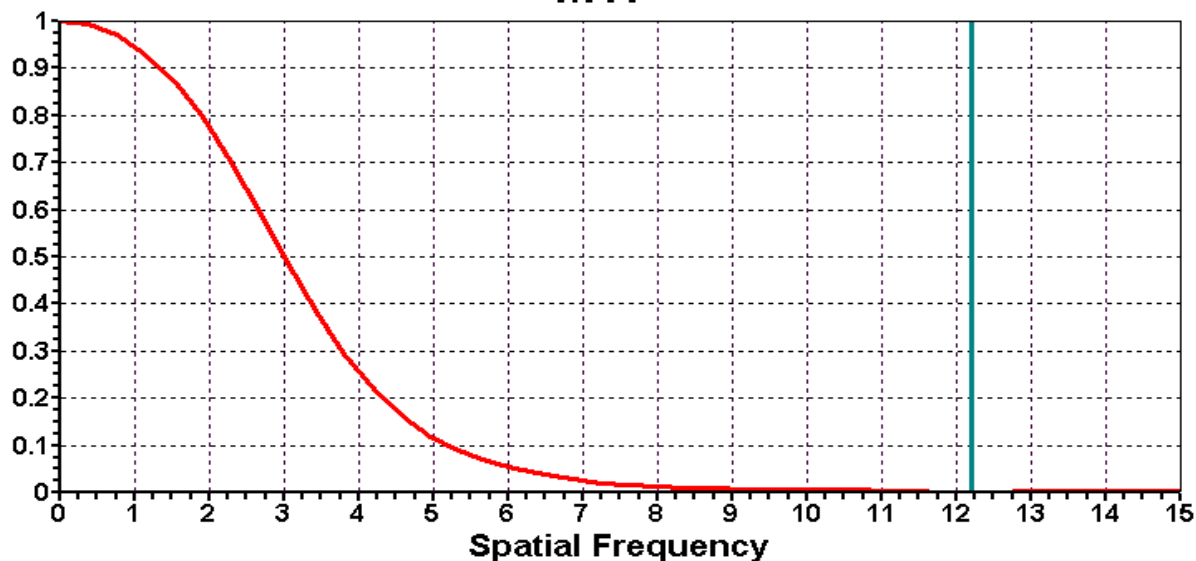
### Test Results

Image #	Test	Status
Im	Verification	Phantom ID: 600 Series (Phantom Labs) ; Orientation: 1 Phantom Center: 256, 256; CT# of Module Material : 90.74 +/- 5.78 HU
1	CT # Linearity	Contrast Scale: 0.000199                      Effective Energy: 60 keV                      R = 0.999257 Material    Teflon            Air            LDPE            Delrin            Acrylic            Polystyrene            PMP CT#            974.3            -1000.0            -103.9            344.5            113.2            -45.1            -194.0
4	Low Contrast (Model)	Contrast (%) 0.49 0.37 0.29 0.24 0.21 0.18 0.16 0.15 0.13 0.12 0.11 0.10 0.10 Detail (mm) 3.00 4.00 5.00 6.00 7.00 8.00 9.00 10.0 11.0 12.0 13.0 14.0 15.0
2	MTF (Wire)	Critical Frequencies (cy/cm) 50% 3.00 10% 5.19 2% 7.25
5	Noise	x(mm)    y(mm)    Mean(HU)    SD(HU) 0.00    50.00    2.86        4.49 50.00    0.00    3.32        4.68 0.00    -50.00    2.79        4.69 -50.00    0.00    1.76        4.46 0.00    0.00    6.35        6.66
1	Pixel Size	Expected(mm)    X-Axis(mm)    Y-Axis(mm) 0.41            0.41 0.41            0.41 0.41 Phantom Rotation : 0.0 degrees Phantom Center is 0.00 mm RIGHT OF CENTER and 0.00 mm BELOW CENTER
2	Slice Thickness (Bead)	Expected(mm)    Measured(mm) 1.00            1.43 , 1.40 Avg Slice Width: 1.41 mm    Ramp Angle (deg): 10.0 Table Position Offset: 0.48 mm Vertical Angle : 0.1 degrees
1	Slice Thickness	Expected(mm)    X-Axis(mm)    Y-Axis(mm) 1.00            1.58 , 1.55            1.62 , 1.61 Avg Slice Width: 1.59 mm    Ramp Angle (deg): 23.0 Table Position Offset: 0.22 mm Vertical Angle : 0.1 degrees Horizontal Angle : 0.3 degrees

<b>Image #</b>	<b>Test</b>	<b>Status</b>
2	Spatial Resolution (MTF)	Critical Frequencies (cy/cm) 50% 3.58 (3.34-3.83) 10% 5.87 (5.51-6.23) 2% 7.67 (7.10-8.25) Note: Average of 2 samples with range shown
3	Spatial Resolution (MTF)	Critical Frequencies (cy/cm) 50% 3.31 10% 5.49 2% 7.15
5	Uniformity	X-Axis Y-Axis Uniformity Index 1.00 1.00 Std Dev (HU): 9.7

# Modulation Transfer Functions

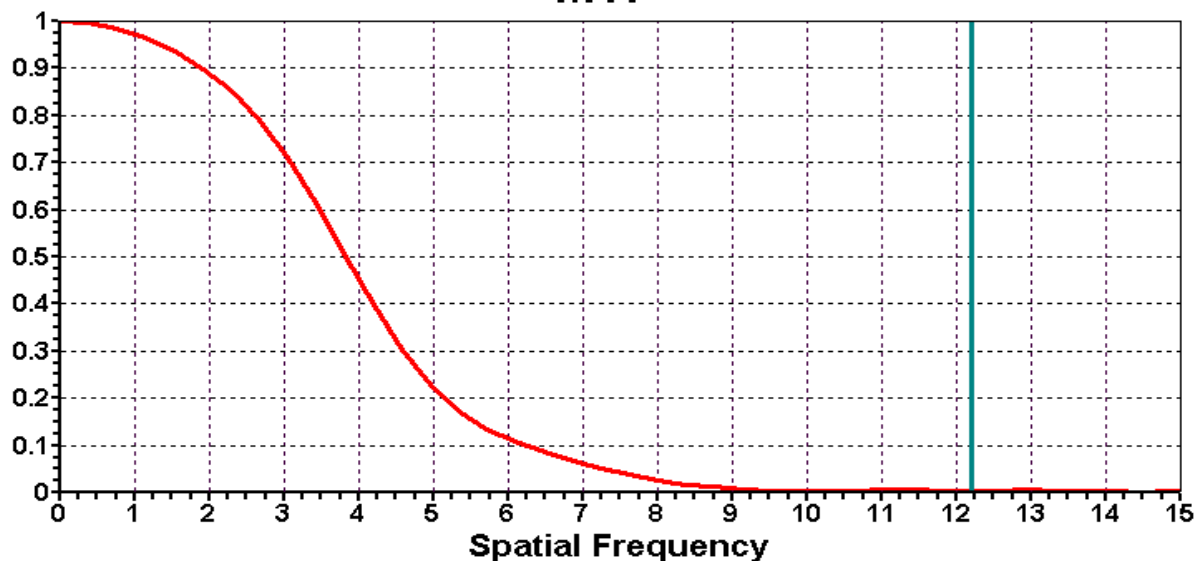
## MTF



50% @ 3.00 1/cm 10% @ 5.19 1/cm 2% @ 7.25 1/cm

KFJ - IRO 01/31/2013 600 Series (Phantom Labs)  
Aquilion/L SN: 1KD10X22 Image #2 MTF (Wire)  
120kV, 300mA, 500msec, 210.cm, Filter:FC17, 1mm, @ -33, HELICAL\_CT

## MTF

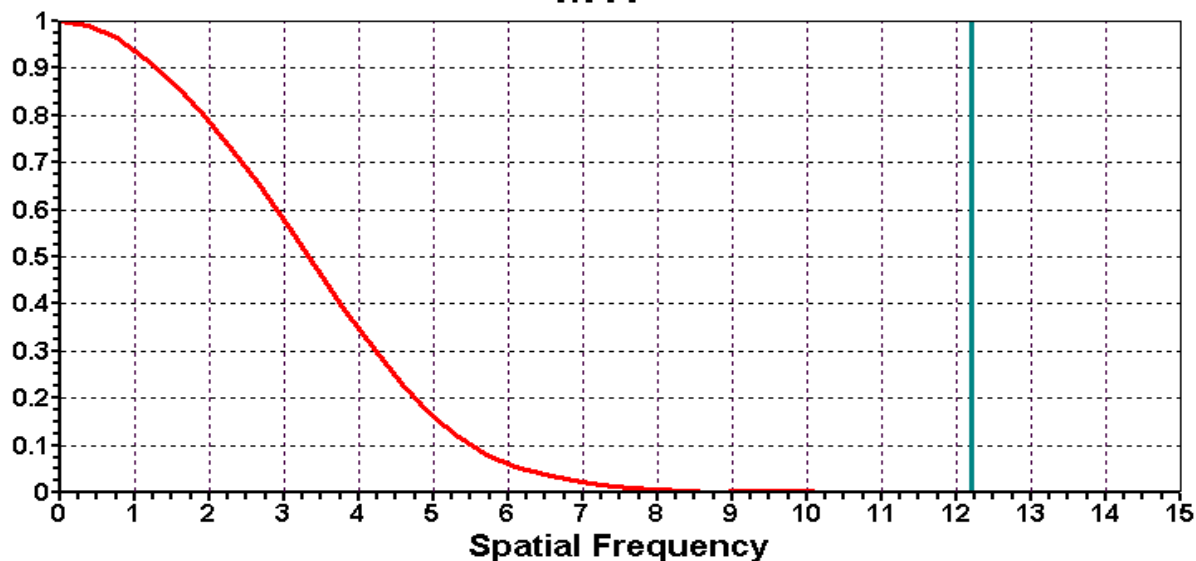


50% @ 3.83 1/cm 10% @ 6.23 1/cm 2% @ 8.25 1/cm

KFJ - IRO 01/31/2013 600 Series (Phantom Labs)  
Aquilion/L SN: 1KD10X22 Image #2 Spatial Resolution (MTF)  
120kV, 300mA, 500msec, 210.cm, Filter:FC17, 1mm, @ -33, HELICAL\_CT

# Modulation Transfer Functions

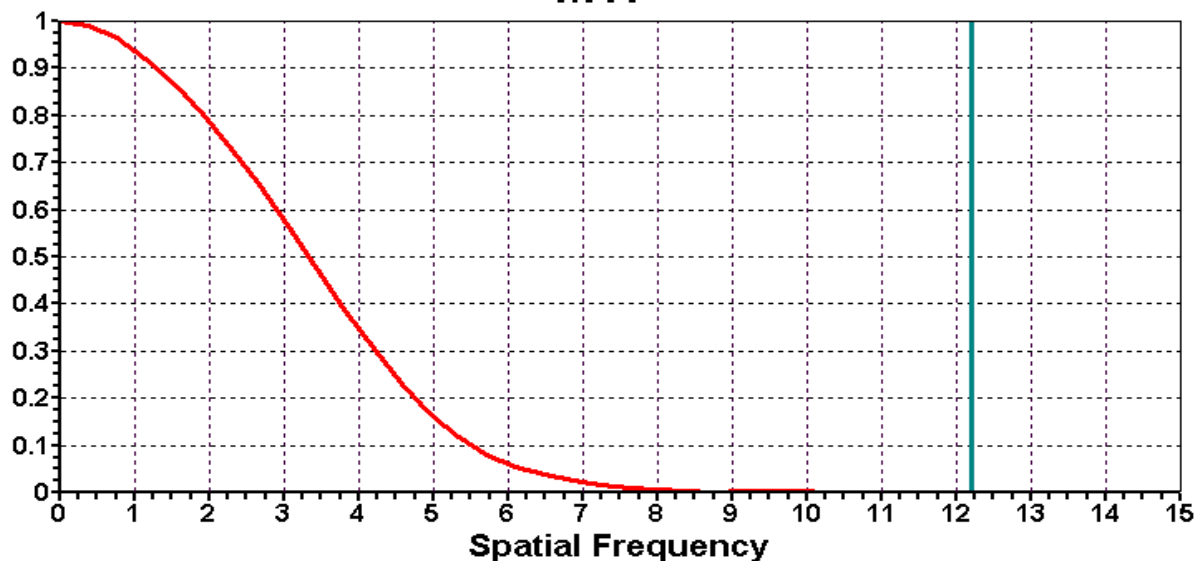
## MTF



50% @ 3.34 1/cm 10% @ 5.51 1/cm 2% @ 7.10 1/cm

KFJ - IRO 01/31/2013 600 Series (Phantom Labs)  
Aquilion/L SN: 1KD10X22 Image #2 Spatial Resolution (MTF)  
120kV, 300mA, 500msec, 210.cm, Filter:FC17, 1mm, @ -33, HELICAL\_CT

## MTF



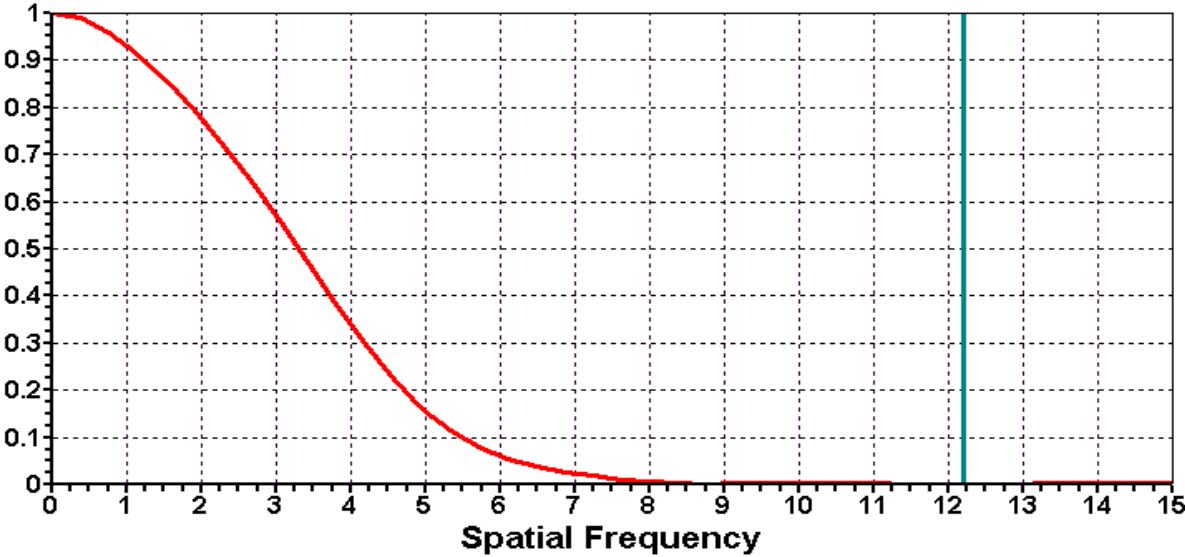
50% @ 3.58 1/cm 10% @ 5.87 1/cm 2% @ 7.67 1/cm

KFJ - IRO 01/31/2013 600 Series (Phantom Labs)  
Aquilion/L SN: 1KD10X22 Image #2 Spatial Resolution (MTF)  
120kV, 300mA, 500msec, 210.cm, Filter:FC17, 1mm, @ -33, HELICAL\_CT



# Modulation Transfer Functions

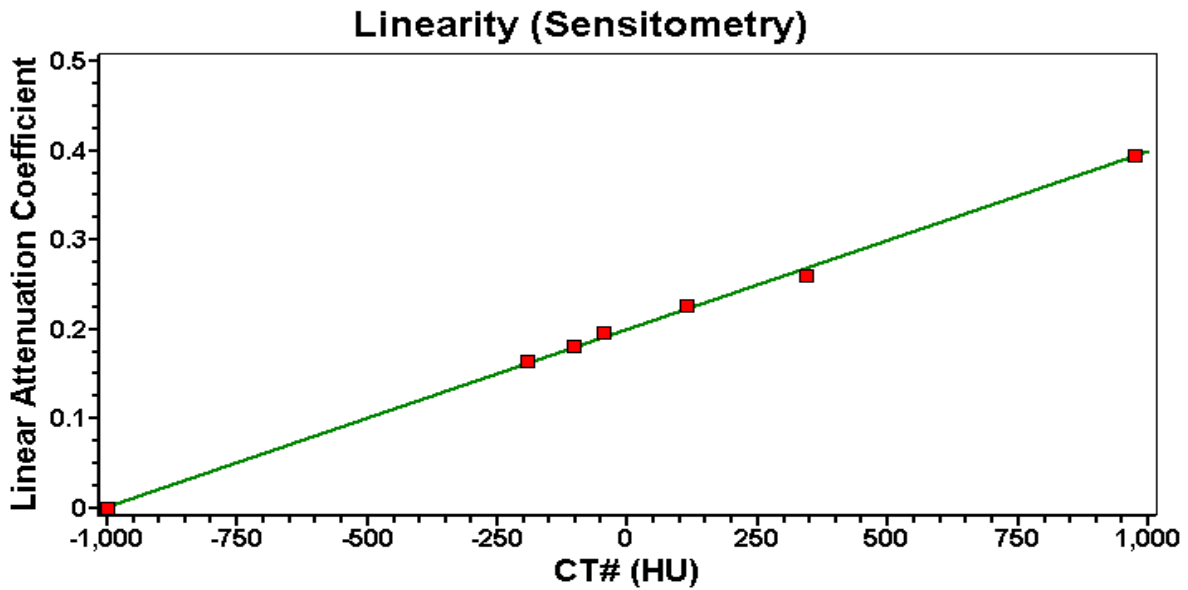
## MTF



50% @ 3.31 1/cm 10% @ 5.49 1/cm 2% @ 7.15 1/cm

KFJ - IRO 01/31/2013 600 Series (Phantom Labs)  
Aquilion/L SN: 1KD10X22 Image #3 Spatial Resolution (MTF)  
120kV, 300mA, 500msec, 210.cm, Filter:FC17, 1mm, @ -73, HELICAL\_CT

# CT Linearity (Sensitometry)



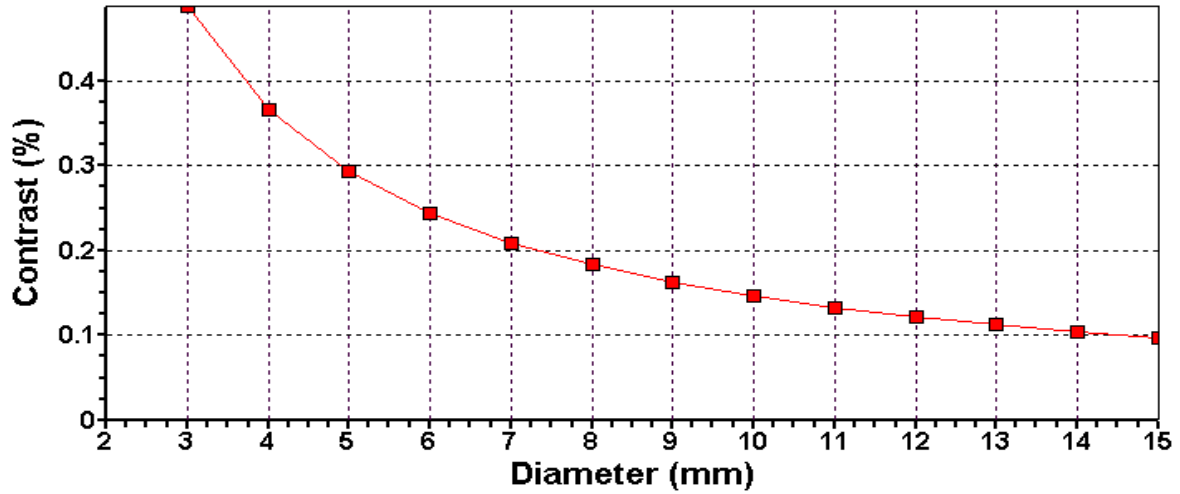
Contrast Scale: 0.000199      Intercept: -1010.5H

Teflon	Air	LDPE	Delrin	Acrylic	Polystyrene	PMP
974.3	-1000.0	-103.9	344.5	113.2	-45.1	-194.0

KFJ - IRD      01/31/2013      600 Series (Phantom Labs)  
Aquilion/L      SN: 1KD10X22      Image #1 CT # Linearity  
120kV, 300mA, 500msec, 210.cm, Filter:FC17, 1mm, @ .0, HELICAL\_CT

# Low Contrast Detectability

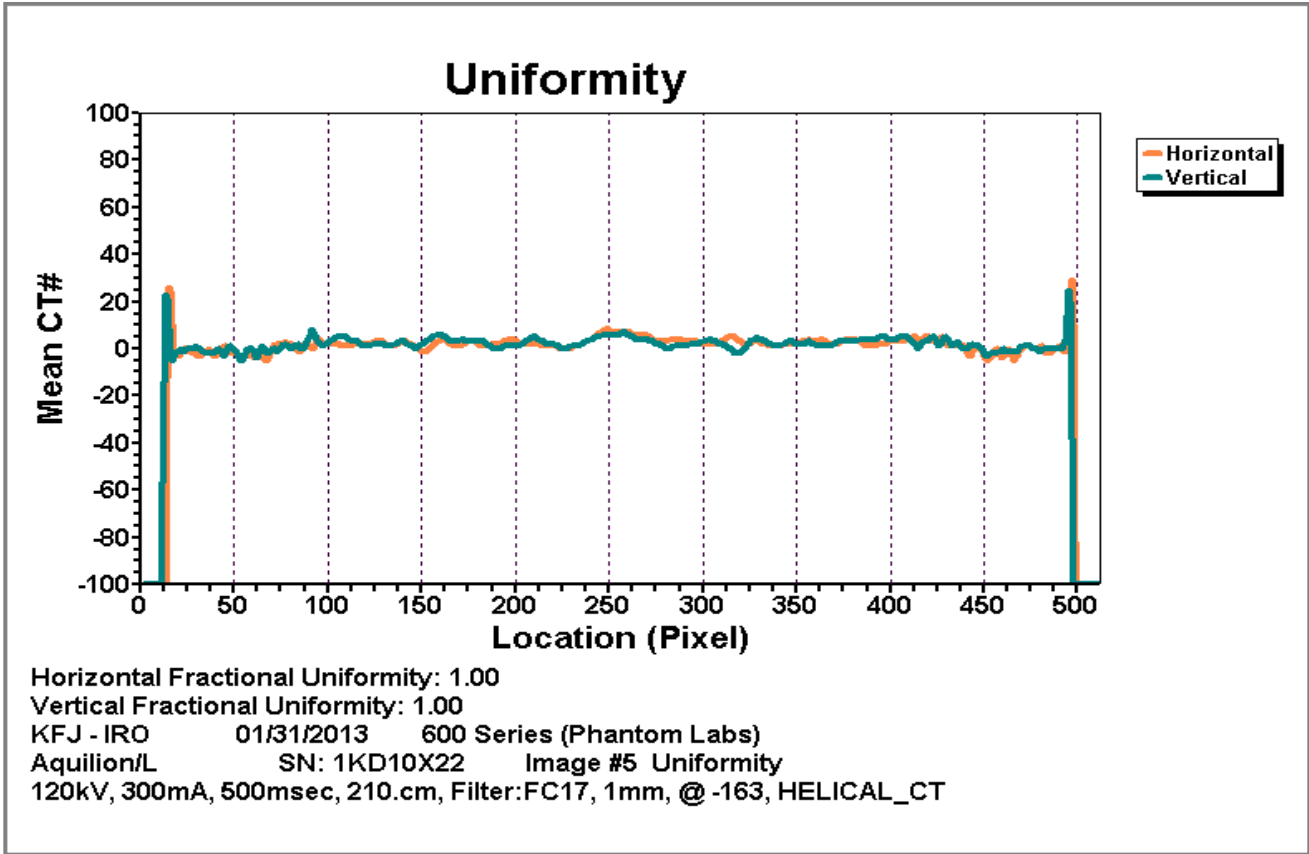
## Low Contrast Model



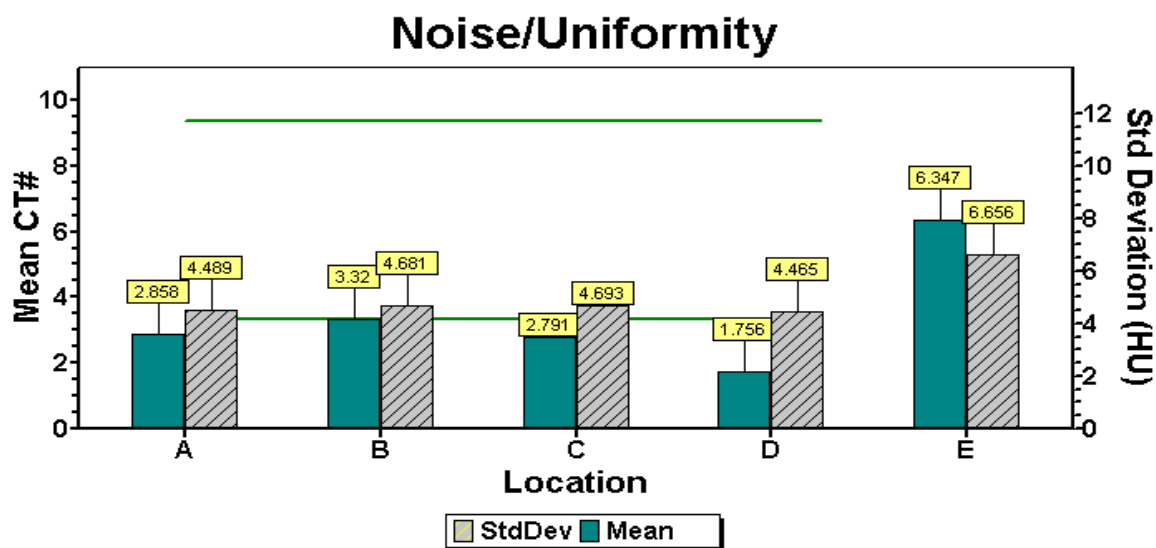
Contrast(%) 0.49 0.37 0.29 0.24 0.21 0.18 0.16 0.15 0.13 0.12 0.11 0.10 0.10  
Diameter(mm) 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 11.0 12.0 13.0 14.0 15.0  
Factor: 0.75

KFJ - IRO 01/31/2013 600 Series (Phantom Labs)  
Aquilion/L SN: 1KD10X22 Image #4 Low Contrast (Model)  
120kV, 300mA, 500msec, 210.cm, Filter:FC17, 1mm, @ -112, HELICAL\_CT

# Uniformity



# Noise/Uniformity



A (0,50)    B (50,0)    C (0,-50)    D (-50,0)    E (0,0)

KFJ - IRO    01/31/2013    600 Series (Phantom Labs)  
Aquilion/L    SN: 1KD10X22    Image #5 Noise  
120kV, 300mA, 500msec, 210.cm, Filter:FC17, 1mm, @ -163, HELICAL\_CT

