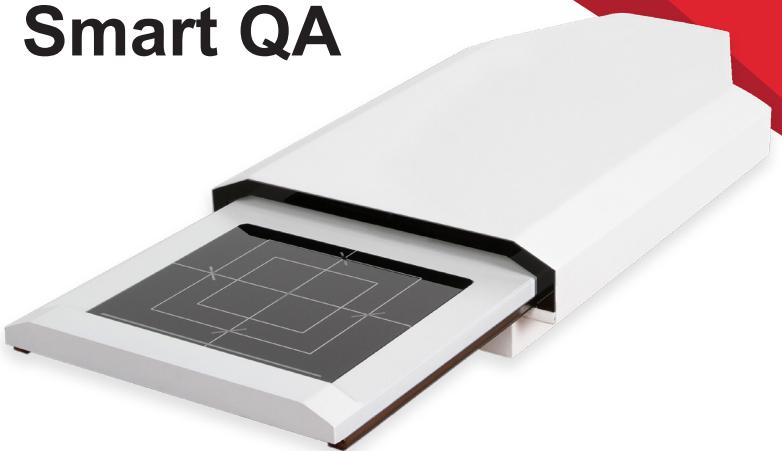




UFC Smart QA



**NEW GENERATION QA DEVICE
FOR COMPLETE SOLUTION**

Innovative Idea For User Independent Measurement

UFC Smart QA is the next generation user independent quality control system that can perform geometric and dosimetric tests together. The UFC device automatically corrects the necessary angle and position corrections therefore it eliminates the possible user dependent uncertainties. There are light and x-ray photodiodes placed on the measurement array with special geometry.

There is high resolution CsI(Tl) scintillator photodiode series used for x-ray measurement.

It's easy to detect the possible deviations during test with the real time measurements. For instance, during rotational collimator test it is possible to detect the deviation length and its angle. There is an inclinometer on the measurement array with 0.001° resolution and 0.01° absolute accuracy.

Our aim is to make the all the necessary Task Group 142 Tests with One Device.

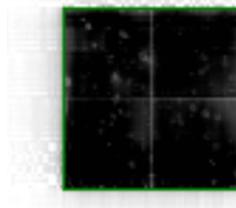
Unique Features

- ✓ Patented Design and Measurement Method
- ✓ User Independent Measurement
- ✓ Automatic Isocenter Detection
- ✓ Light Field Measurement
- ✓ Cross Hair Tracking
- ✓ High Resolution Scintillator Photodiode
- ✓ Measurement with 1.25 µm (0.00125 mm) Resolution
- ✓ High Sensitive Inclinometer 0.001° Resolution and 0.01° Absolute Accuracy

Machine QA

ONE Device for necessary LINAC QA tests FAST, ACCURATE and SENSITIVE
Geometric & Dosimetric Test Together

Light Field



Radiation Field



Collimator or Couch Rotation Test

Isocenter Control Based on Collimator Rotation

LINAC:	Energy:	Dose Rate:	Field Size:	SSD:	Tolerance:
Unit 1	5k	100	10cm x 10cm	100cm	SERT: ✓

Test:

- Isocenter Control Based on Collimator Rotation
- Isocenter Control Based on Treatment Couch Rotation
- Light Field and Radiation Field Compliance
- MLC Test
- MLC Spike Shot Test
- Radiation Field Tests

Selected Beam Data:

Deviation	Value	Parameter	Value	Tolerance	Unit
Range	5k	Max Isocenter Dev Distance	1.65	1.5	mm
		Max Error Collimator Angle	110.00	1.1	°
		Door Angle	290.00	1.1	°
Field Size	10x10				
Dose Rate	100				
SSD	100				

Result Parameters:

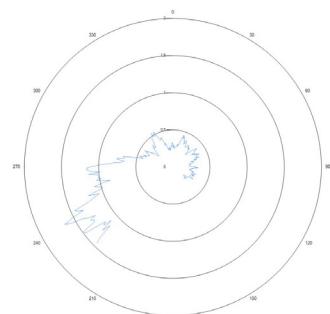
Parameter	Value	Tolerance	Unit
Max Isocenter Dev Distance	1.65	1.5	mm
Max Error Collimator Angle	110.00	1.1	°
Door Angle	290.00	1.1	°

Any Position:

Buttons:

- Save
- Confirm Result
- Skip Test
- Start Test
- User Admin
- Waiting For Action Ready

Radar Graph

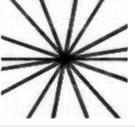
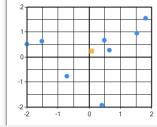


Machine QA

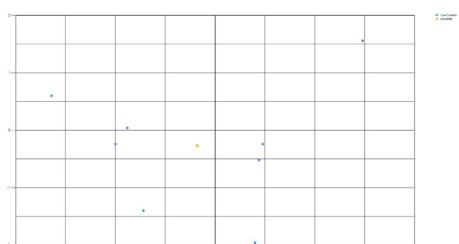
**ONE Device for necessary LINAC QA tests FAST,
ACCURATE and SENSITIVE**
Geometric & Dosimetric Test Together

Spoke Shot Test (Light or Radiation)

MLC Spoke Shot Test

LINAC:	Energy:	Dose Rate:
Unit: 1	6MV	600
Field Size: 10 cm x 10 cm SSD: 100 cm		
Tolerance: GRT		
<input type="checkbox"/> Mechanic <input type="checkbox"/> Isocenter Center Based on Central Radiation <input type="checkbox"/> Isocenter Center Based on Treatment Couch Rotation <input type="checkbox"/> Light Field and Radiation Field Compliance <input type="checkbox"/> Line Centers		
<input type="checkbox"/> MLC <input type="checkbox"/> MLC Spoke Shot Test <input type="checkbox"/> Dosimetric <input type="checkbox"/> Radiation Field Tests		
		
		
<input type="button" value="Save"/> <input type="button" value="Confirm Result"/> <input type="button" value="Skip Test"/> <input type="button" value="Start Test"/>		
<small>Communicating With UFC Trying To Connect UFC</small>		

Analyse



UFC Specifications

128 Scintillator Detector for Dosimetric Measurement

Detector Type Si Photodiode Array
Scintillator Type CsI(Tl)
Detector Spacing (mm) 1.58

Water Equivalent Buildup

Photons 3,5cm

208 Photodiode Detector for Geometric Measurement

Detector Type Si Photodiode Array
Detector Spacing (mm) 1.58

Inclinometer

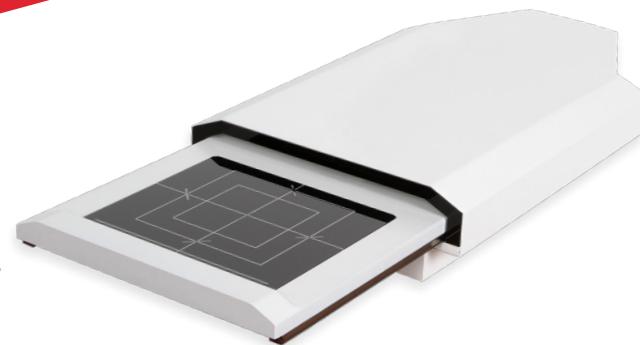
Resolution (°) 0.001
Absolute Accuracy (°) 0.01

Step Motor

Step Length Up to 1.25 µm

Connection Cables

Single Power 90-260V ~ 50-60 Hz
Data Cable RS232



Supported Tests

Dosimetry

- ✓ X-Ray output constancy
- ✓ X-Ray flatness change from baseline
- ✓ X-Ray symmetry change from baseline
- ✓ Spoke shot test (Light/Radiation)
- ✓ Picket Fence Test

Mechanical

- ✓ Light/radiation field coincidence (symmetric/asymmetric)
- ✓ Collimator angle indicator
- ✓ Jaw position indicators (symmetric/asymmetric)
- ✓ Cross-hair centering
- ✓ Treatment Couch position indicators
- ✓ Wedge placement accuracy
- ✓ Collimator/Couch rotation isocenter
- ✓ Coincidence of radiation and mechanical isocenter
- ✓ Table angle (6 degree of freedom couch)
- ✓ Table travel in all directions

UFC Smart QA





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RESEARCH & DEVELOPMENT

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