

INTRODUCTION

“Report of AAPM TG 135: Quality assurance for robotic radiosurgery” recommends monthly and annual QA of the imaging system specifically for the signal to noise ratio, contrast-to-noise ratio, relative modulation transfer function and spatial resolution of the amorphous silicon detector. These tests are easily performed and analyzed on any other treatment modalities with customized phantoms and analysis software. With the complexity of the image extraction process and the image characteristics of the CyberKinfe® system, it is a very demanding task to generate a report comparable to any other modalities on this area of Quality Assurance.

METHOD

QCKV-1 Phantom and the positioning stand (Ref 71460) with inserted fiducial markers (Standard Imaging, Milddleton, WI, USA) , was used to generate customized plan for the imaging QA procedure. Images are exposed using the inmate orthogonal imaging system of CyberKinfe® system . Images were extracted from the CDMS system logging into the active patient files and extracting the appropriate image set, which are analyzed using PIPSprou™ software to generate repots for monthly QA.

METHODS

Steps involved in Image Transfer and Analysis(contd)

4. Zip Images and Clean Directory after transfer
5. Transfer of Data from UCC (CDMS) to Local Station
6. Extract UNPROCESSED IMAGES from C Drive
7. Convert UNPROCESSED IMAGES to UP Extension
8. Initiate PIPSprou™
9. Analysis in PIPSprou
10. Print results from PIPSprou

```
login as: cks
cks@192.168.194.90's password: cks9538
Last login: Wed Oct 18 14:14:29 2017 from 192.168.192.10
*** Remote Shell *** CyberKnife C0409 >cd /var/tmp
*** Remote Shell *** CyberKnife C0409 >cd /var/tmp/tfdl
*** Remote Shell *** CyberKnife C0409 >ll
total 40896
-rw-rw-r-- 1 cks ck_group 41874554 Oct 18 14:20 cameraB.zip
drwxrwxr-x 3 cks ck_group      17 Oct 18 14:19 tfdl_2017101851463
*** Remote Shell *** CyberKnife C0409 >rm cameraB.zip
*** Remote Shell *** CyberKnife C0409 >rm -rf tfdl_2017101851463/
*** Remote Shell *** CyberKnife C0409 >ll
total 0
*** Remote Shell *** CyberKnife C0409 >/accuray/tools/cdms/tfdl_noui
52196.506 INFO Attempting to ping to CDMS at cdms, port 4027
Selected CKSystemId is: 1285-180847672536596480
```

getting into the folder

Removing previous folders

CONCLUSIONS

Monthly QA and annual QA reports, according to the industry standards are generated and evaluated for the suggested tests in TG-135. Using the Imager extraction interface of the CDMS system, we are able to export the images from CyberKinfe® and appropriate software and hardware combination we are able to generate standardized reports according to TG-135 requirements for Imaging QA

RESULTS

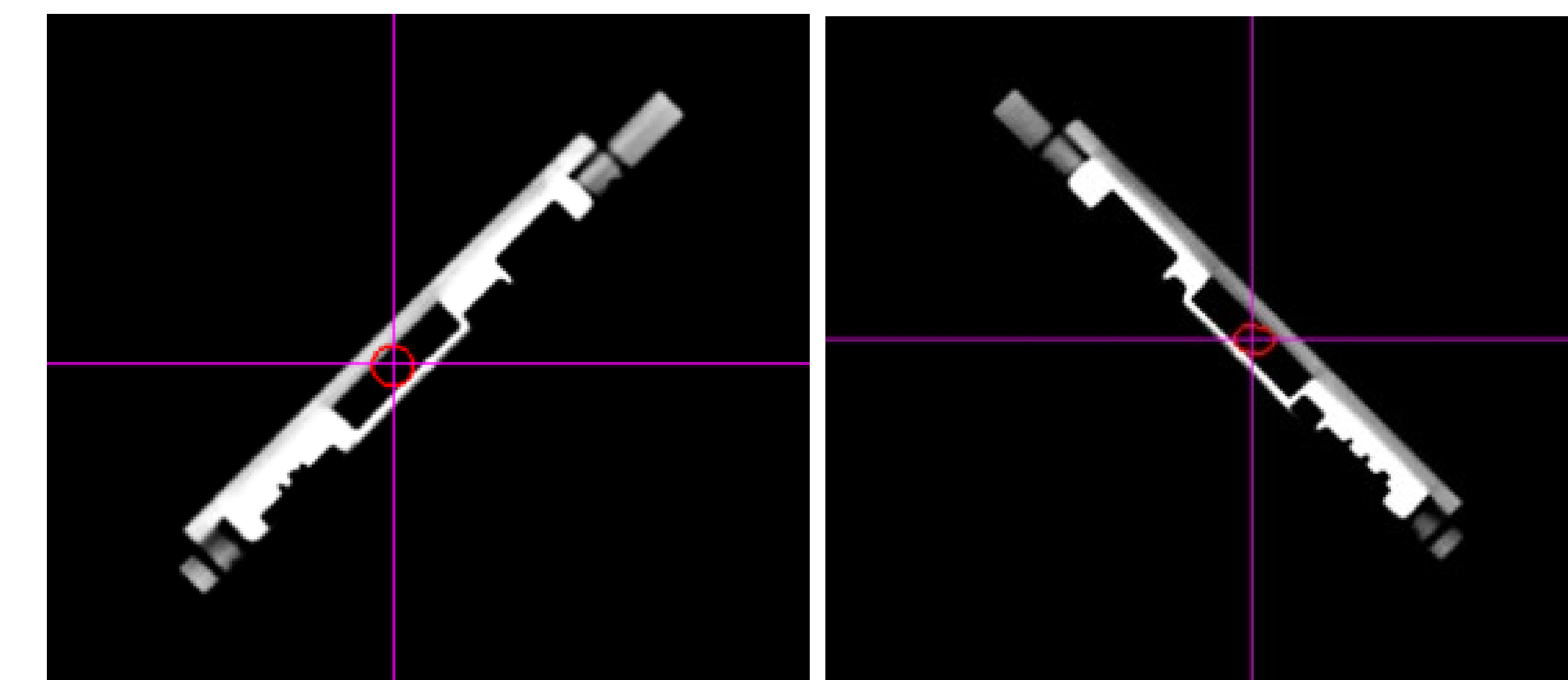


Figure 2: Camera A and Camera B plans at Accuray Precision® Planning System

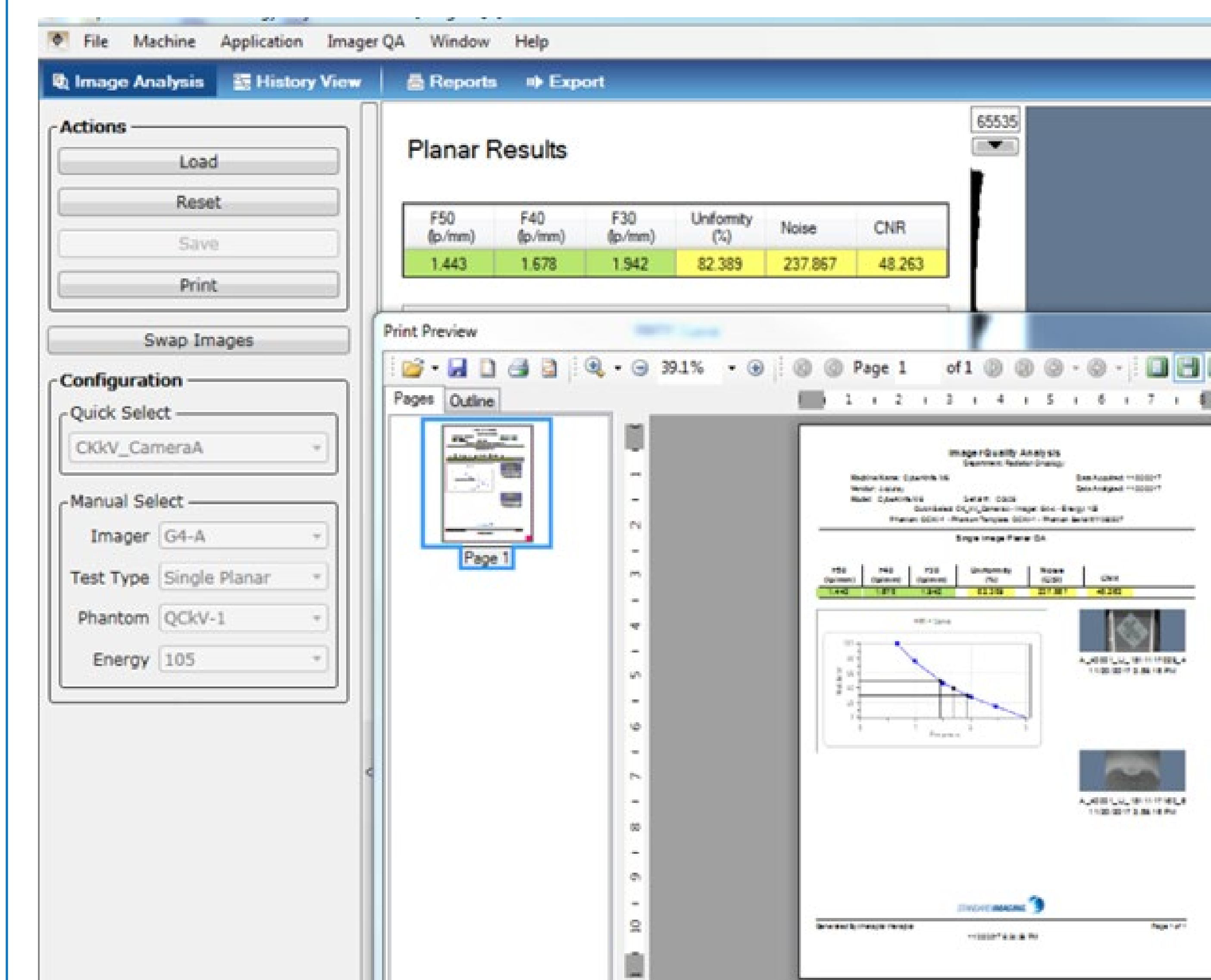


Figure 3: Imager QA results

Steps involved in Image Transfer and Analysis

1. Create plans for Camera A and Camera B, Expose images
2. Connect to CDMS
3. Extract the Images from CDMS

CONTACT INFORMATION

Email: sijug@baptisthealth.net