FPA Test Report

QF6-41
320x256

QmagiQ

| PARAMETER	VALUE	UNITS	CRITERIA	PASS/FAIL
Active array size	320 x 256	-		
F/number	4	-		
ROIC	ISC9705			
Mux gain setting	2	-		
Integration time†	16.35	ms		
Frame rate	50	Hz		
FPA Temperature	68	K		
QWIP bias	1.4	V		
Aperture-corrected DC output μ	1604.8	mV		
Aperture-corrected DC output σ	50.1	mV		
Aperture-corrected DC output σ/μ	3.1	%		
Aperture-corrected DC output failures	26	-	>± 300 mV	
Differential response mean μ	49.3	mV/°C		
Differential response st. dev. σ	0.8	mV/°C		
Differential response σ/μ	1.6	%	< 5 %	PASS
Blackbody responsivity‡	14.4	mA/W	@ 1 V bias	
Differential response failures	8	-	>± 20 % of μ	
Temporal NEΔT mean μ	17.2	mK	< 30 mK	PASS
Temporal NEΔT std. dev. σ	2.6	mK		
Temporal NEΔT σ/μ	15.4	%		
Temporal NEΔT failures	1	-	> 70 mK	
Spatial NEΔT mean μ	11.1	mK	< 30 mK	PASS
Spatial NEΔT std. dev. σ	9.2	mK		
Spatial NEΔT Failures	8	-	> 100 mK	
Conversion efficiency mean μ	4.6	%	@ actual bias	
Conversion efficiency st. dev. σ	0.08	-		
Conversion efficiency σ/μ	1.6	%		
Post NUC uniformity (σ/μ)	0.054	%		
ROIC power dissipation	34.1	mW	< 45 mW	PASS
Composite number of bad pixels	26	-		
Composite operability	99.968	%	> 99.5 %	PASS
Forbidden clustered failures?	No	-	No	PASS
Overall status		-		**PASS**

† Bias and/or integration time adjusted to fill the well to 75% of total capacity when FPA is exposed to BB source set to 50ºC

‡ Normalized to 1-V bias and unity mux gain.

COMMENTS:

QF6-41

Uncorrected DC Offset Output @ 30°C
Dark current + photocurrent at 30-C scene temperature

QF6-41, Raw Total Output (Counts) @ 30 C

QF6-41, Raw Total Output (Counts) @ 30 C

QF6-41, Raw output, 256 horizontal cross-sections

QF6-41, Raw output, 320 vertical cross-sections
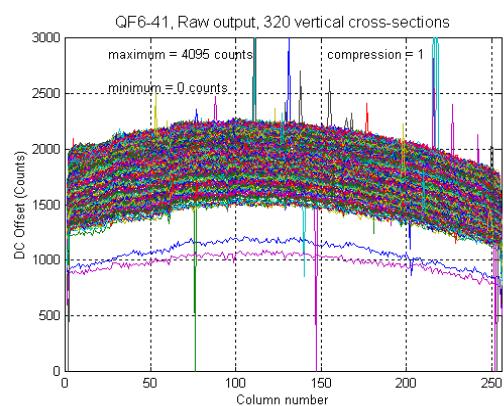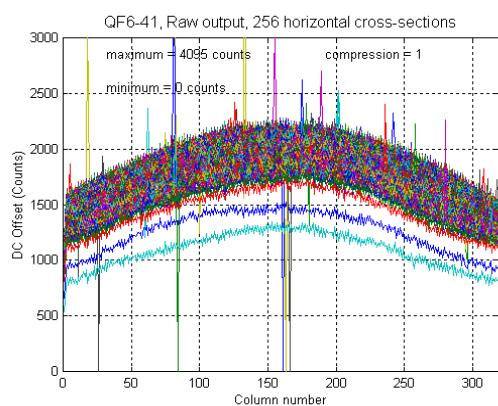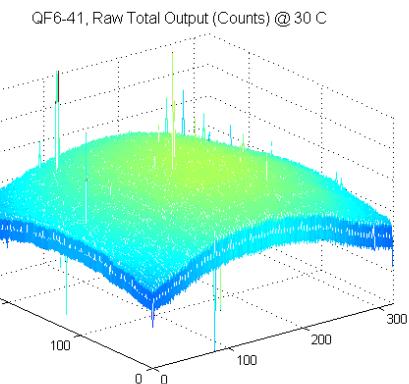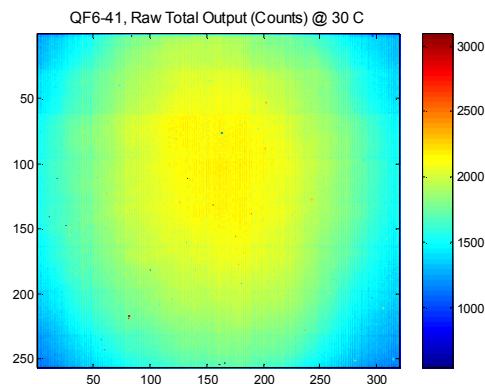
Aperture-corrected DC Output @ 30°C
Dark current + photocurrent at 30-C scene temperature

QF6-41, Total Output (mV)

Slope @ 25 C = 49.3 mV/C

Average Corrected Response (mV) vs *Scene temperature (deg C)*

QF6-41, Corrected output, 256 horizontal cross-sections

DC Offset (mV) vs *Column number*

QF6-41, Corrected Total Output (mV) at 30 C

$\mu = 1604.8$

$\sigma = 50.1$

$\sigma/\mu = 3.1\%$

Number of occurrences vs *Output Signal (mV)*

QF6-41, Map of bad pixels for corrected output @ 25 C (+/-300 mV) - 26 failures

Row # vs *Column #*
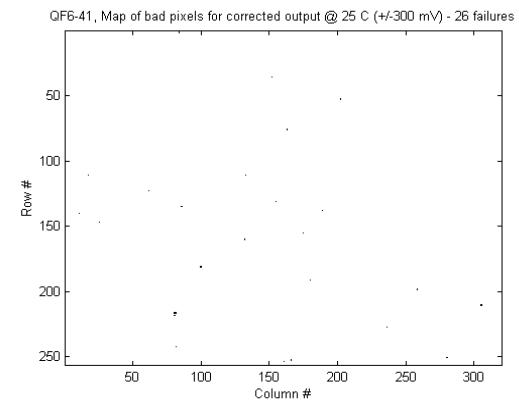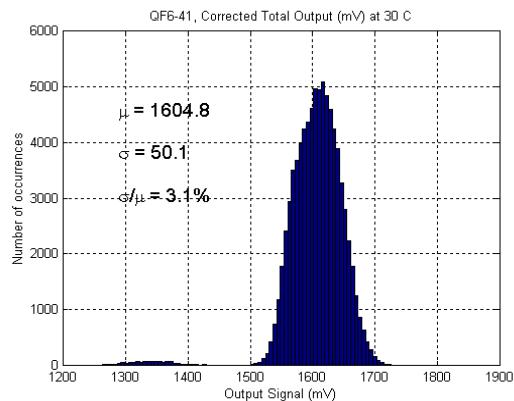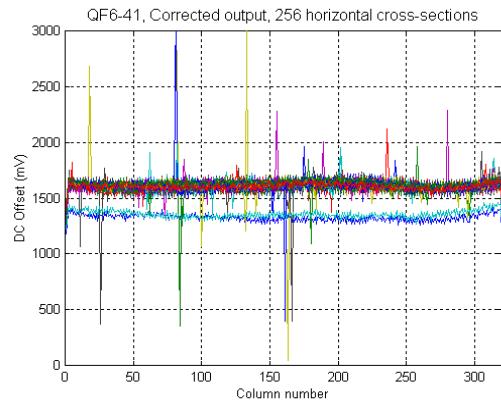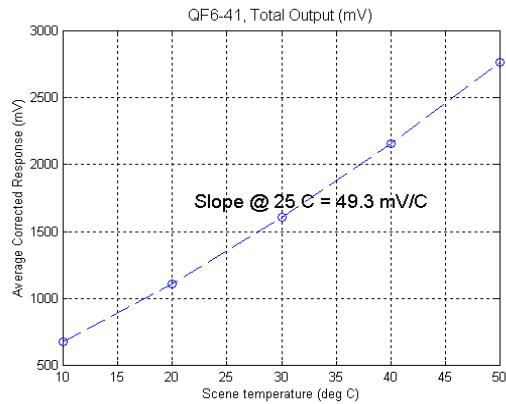
QF6-41

Aperture-Corrected Differential Response @ 25°C
Photocurrent only (difference signal between 2 scene temperatures)


QF6-41, Corrected Differential Response(mV/C) @ 25 C

QF6-41, Corrected Response, 256 horizontal cross-sections

QF6-41, Corrected Differential Response (mV/C) at 25 C

Norm. resp. = 14.4 mA/W

$\mu = 49.3$

$\sigma = 0.8$

$\sigma/\mu = 1.6\%$

QF6-41, Map of bad pixels for response (+/-0.2µ) - 8 failures

QF6-41

Temporal NE∆T @ 25°C

QF6-41, Noise Data

QF6-41, Temporal NEdT (mK) @ 30 C

QF6-41, Temporal NEdT (mK) for 30-C Scene Temperature

μ = 17.2

σ = 2.6

σ/μ = 15.4%

QF6-41, Map of bad pixels for NEdT at 30 C (> 70 mK) - 1 failures
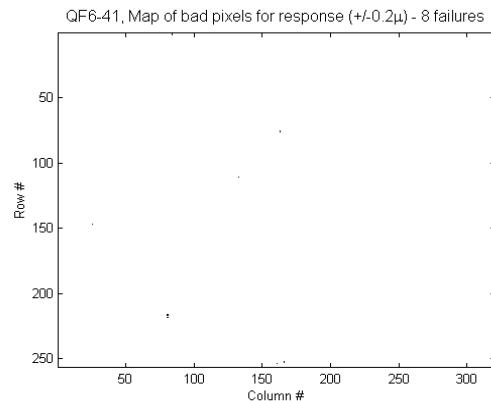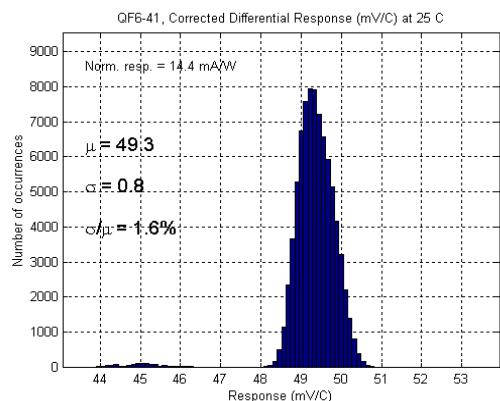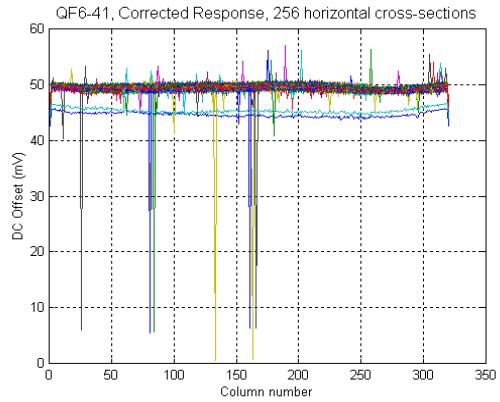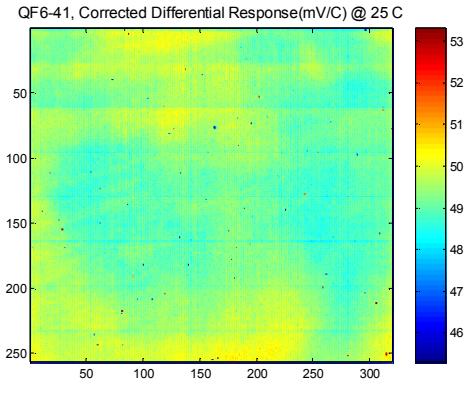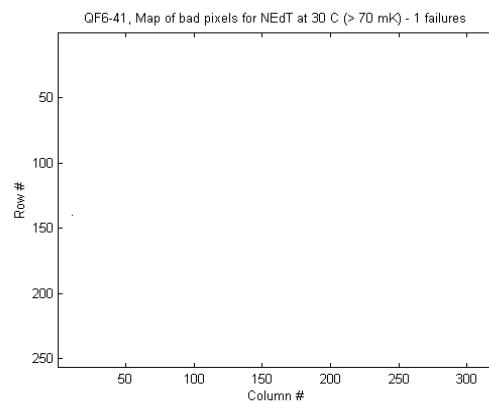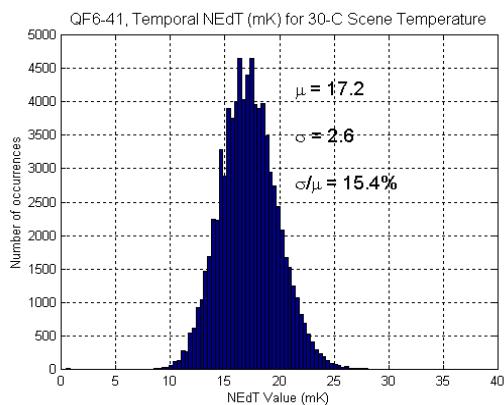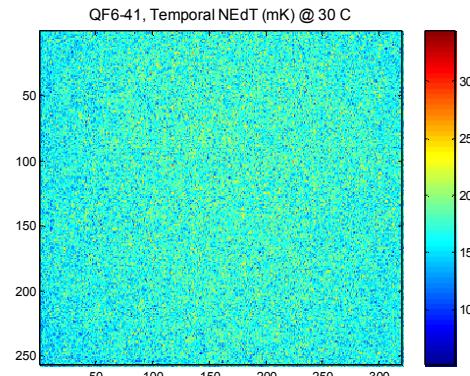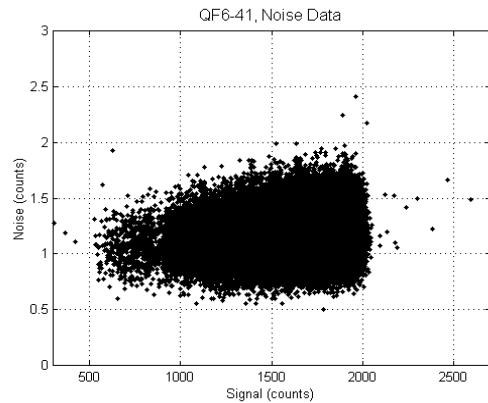
Two-point NUC of Raw Output

QF6-41, NUC Gain Map

QF6-41, NUC Offset Map

QF6-41, Post-NUC residual relative spatial noise

QF6-41, post-NUC signal (mV)

$\mu = 1316.6$

$\sigma = 0.71$

$\sigma/\mu = 0.0539\%$

QF6-41

Spatial NEΔT @ 25°C

QF6-41, Spatial NEdT @ 30 C

QF6-41, Spatial NEdT (mK) @ 30 C

μ=11.1

σ=9.2

QF6-41, Map of bad pixels for spatial NEdT at 30 C (>100 mK) - 8 failures
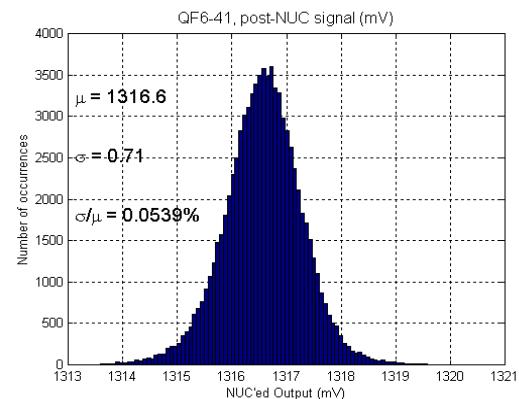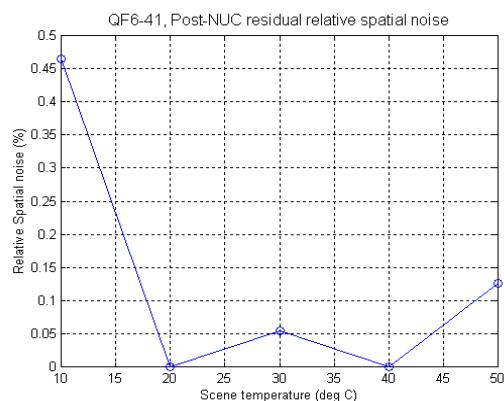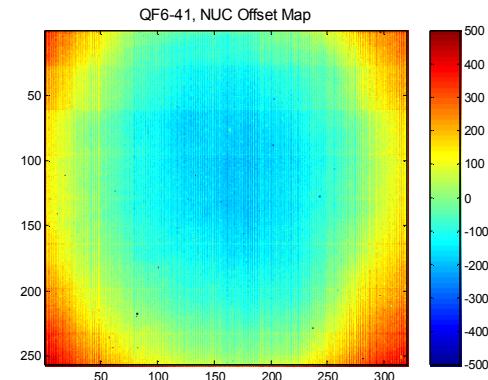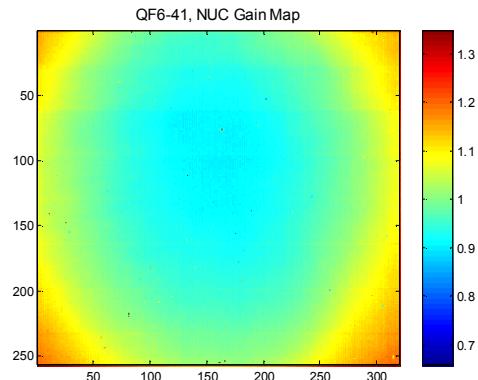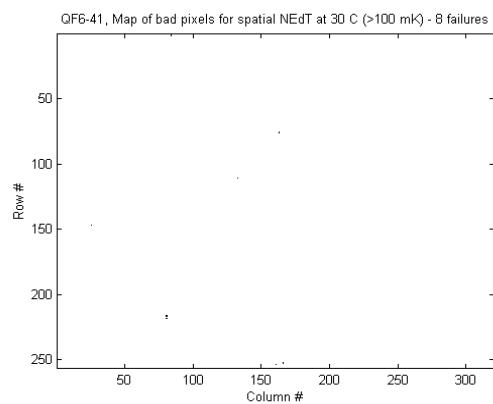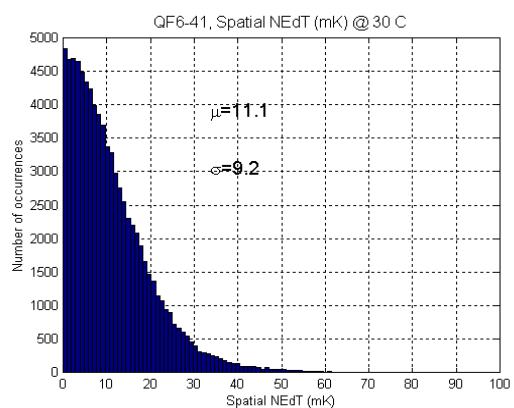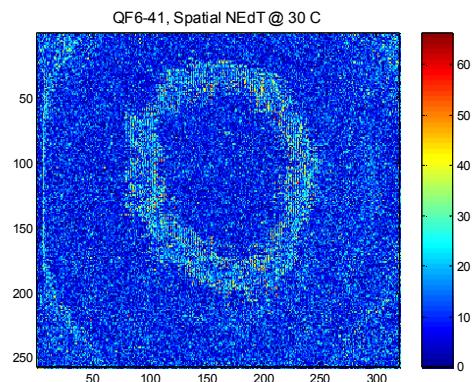
QF6-41

Overall Operability

QF6-41, Composite Defective Pixels Map - 26 failures
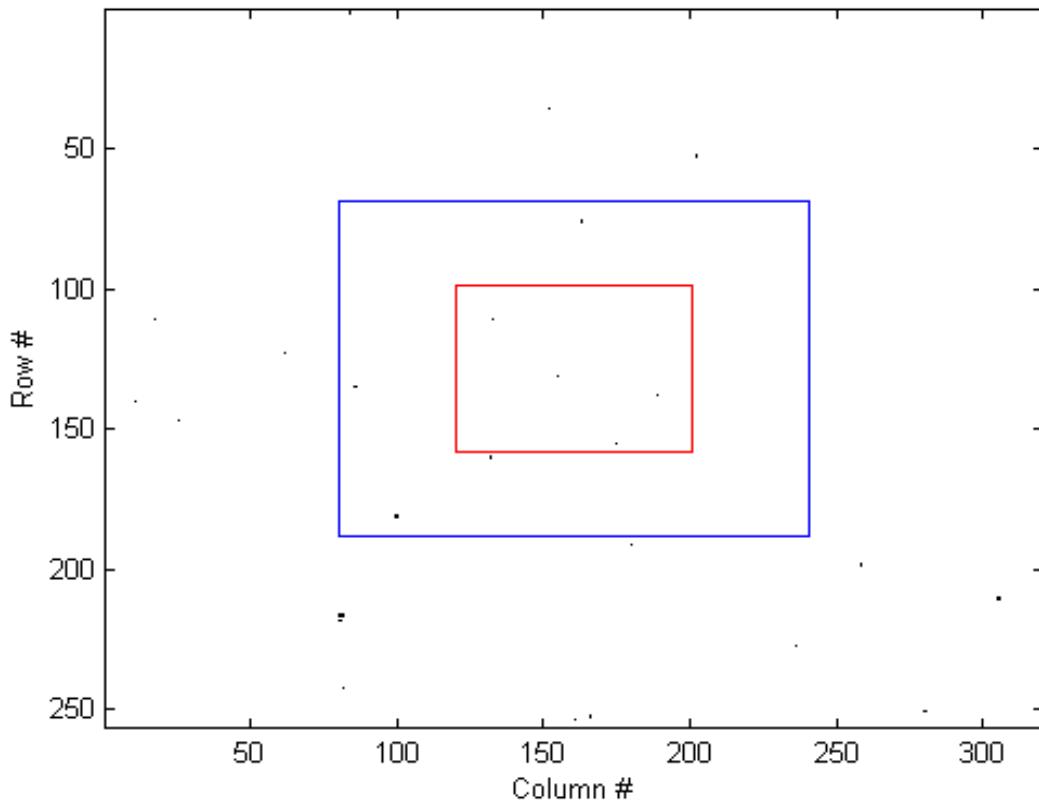
	ZONE							Overall Clusters	
	A (Center)		B (Middle)		C (Outer)				
	#	≤	#	≤	#	≤		Size	How many?
Isolated outages	4	-	4	-	16	-		1	24
Clusters of 2	0	2	0	-	1	-		2	1
Clusters of 3	0	1	0	-	0	-			
Clusters of 4 to 5	0	0	0	1	0	-			
Clusters of 6 to 7	0	0	0	0	0	-			
Clusters of 8 to 11	0	0	0	0	0	2			
Clusters of > 11	0	0	0	0	0	0			