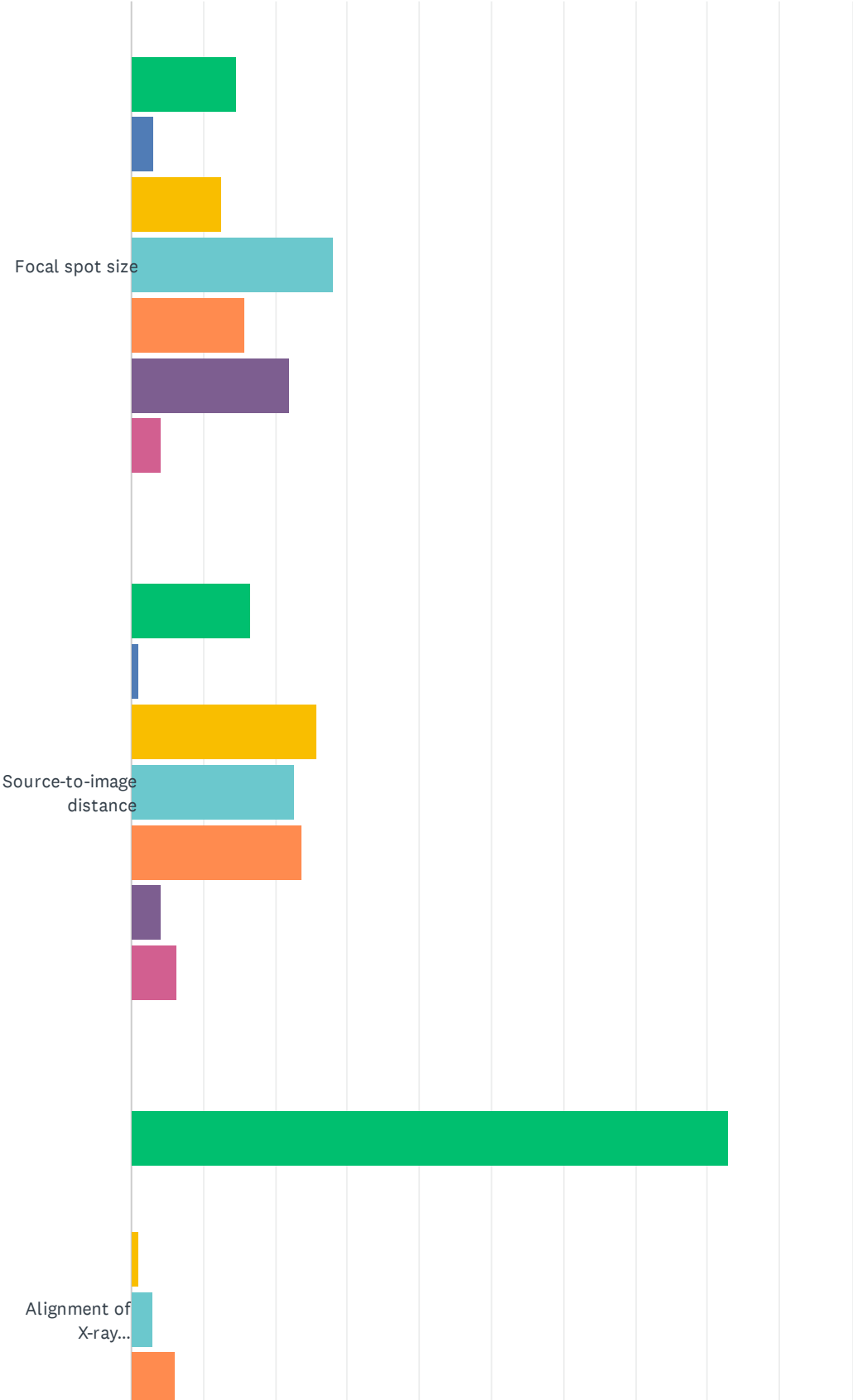
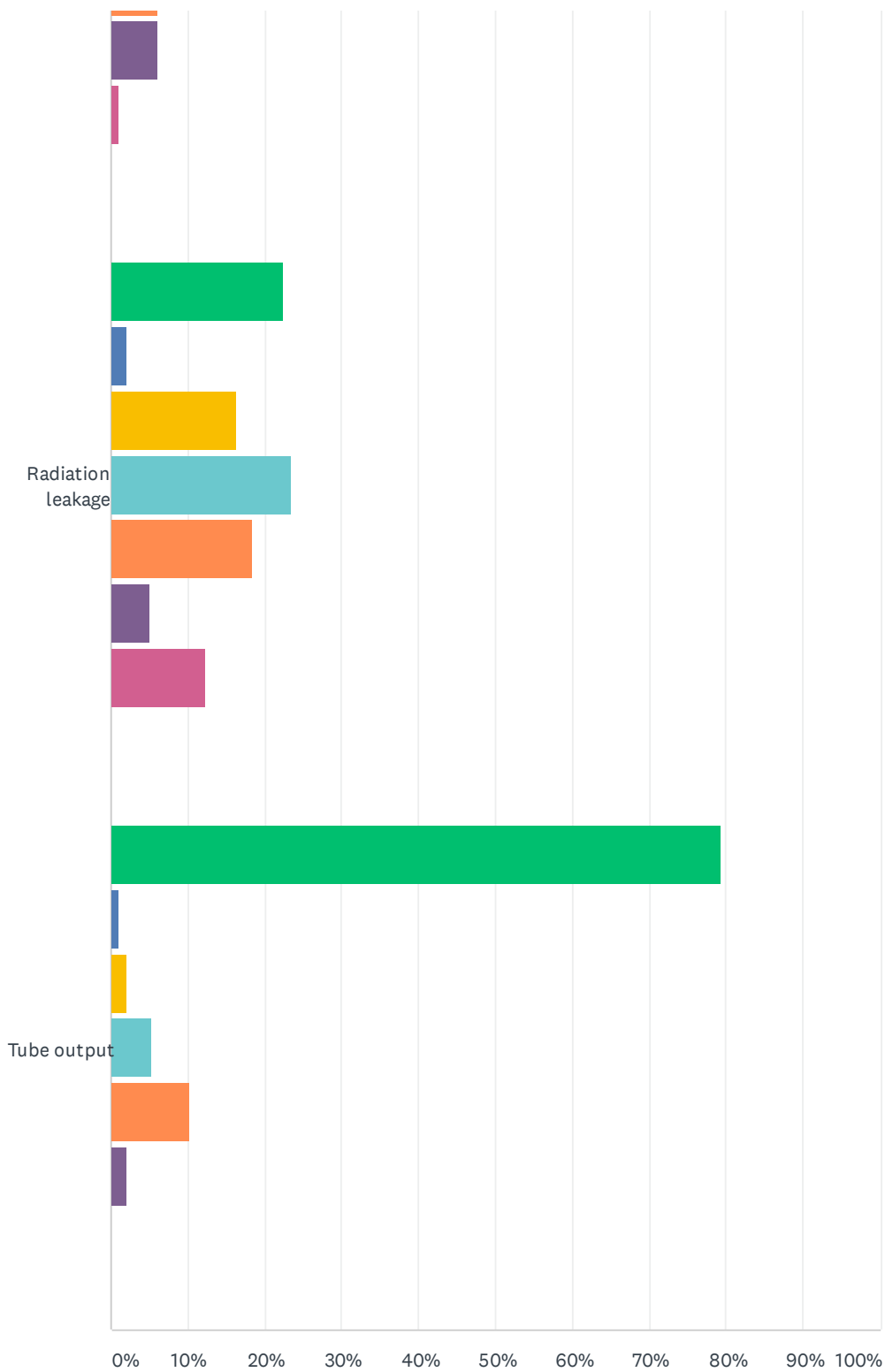


Q1 Regarding the X-ray source

Answered: 99 Skipped: 0



Digging Deeper: Assignment



- Should always be tested
- Not applicable for my system
- Never fails
- Not an essential test
- I can use the service report for this
- Covered by other QC measurements
- Other (specify below)

Digging Deeper: Assignment

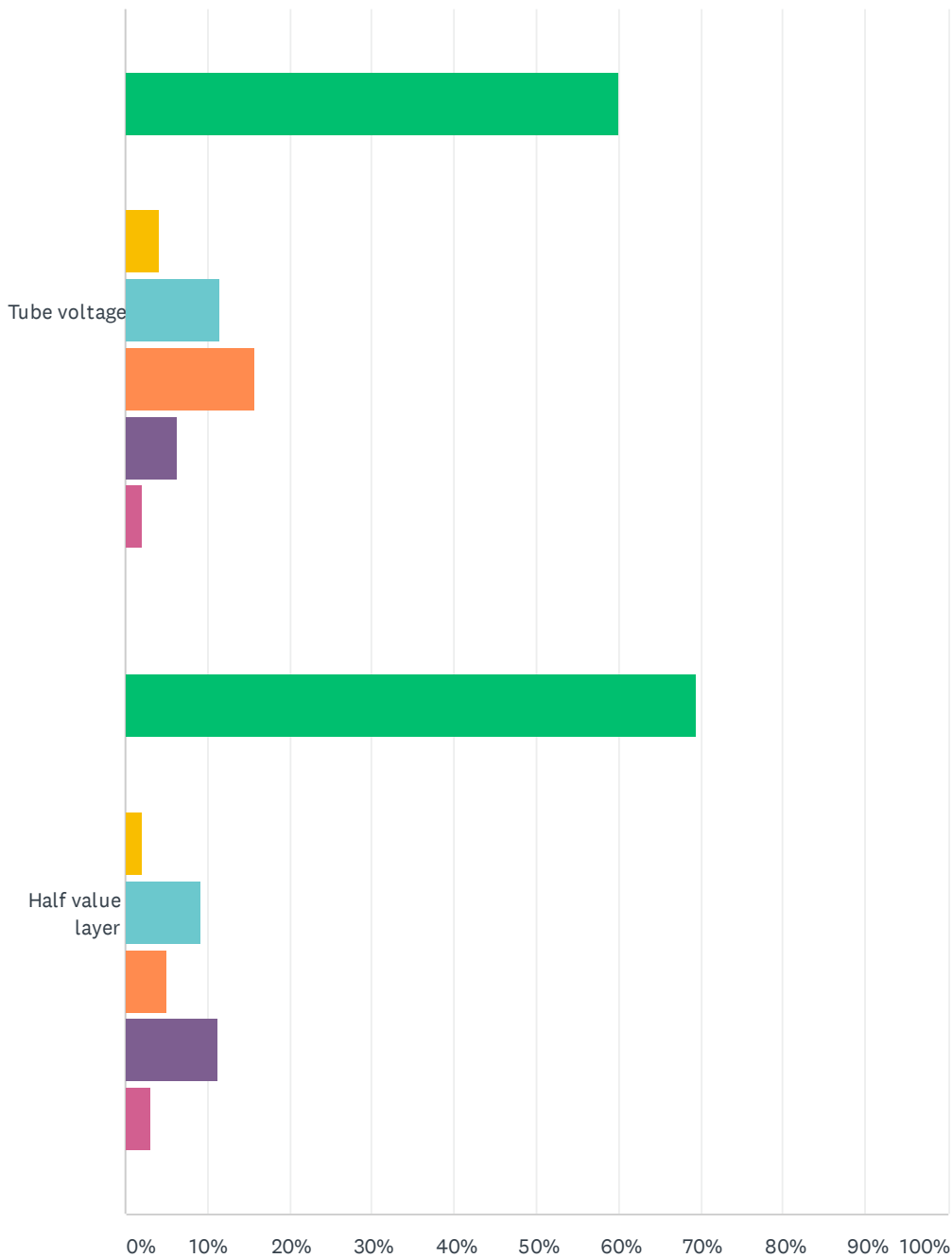
	SHOULD ALWAYS BE TESTED	NOT APPLICABLE FOR MY SYSTEM	NEVER FAILS	NOT AN ESSENTIAL TEST	I CAN USE THE SERVICE REPORT FOR THIS	COVERED BY OTHER QC MEASUREMENTS	OTHER (SPECIFY BELOW)	TOTAL
Focal spot size	14.58% 14	3.13% 3	12.50% 12	28.13% 27	15.63% 15	21.88% 21	4.17% 4	96
Source-to-image distance	16.49% 16	1.03% 1	25.77% 25	22.68% 22	23.71% 23	4.12% 4	6.19% 6	97
Alignment of X-ray field/image area	82.83% 82	0.00% 0	1.01% 1	3.03% 3	6.06% 6	6.06% 6	1.01% 1	99
Radiation leakage	22.45% 22	2.04% 2	16.33% 16	23.47% 23	18.37% 18	5.10% 5	12.24% 12	98
Tube output	79.38% 77	1.03% 1	2.06% 2	5.15% 5	10.31% 10	2.06% 2	0.00% 0	97

Digging Deeper: Assignment

#	OTHER (PLEASE SPECIFY)	DATE
1	Leakage tested just at commissioning	12/22/2020 1:48 PM
2	Could omit some/all tube output measurements if AEC test results unchanged from previous test. Never known radiation leakage measurements to fail but should check when tube replaced. Never known focal spot size to change but should check when tube replaced, not sure whether CDMAM results would pick up a problem especially in mag mode?	12/22/2020 1:47 PM
3	I measure MTF because it is fast and easy. Some tube failures have been predicted, and resolution drop has been seen over a few years. All machines have fixed SID. Leakage shouldn't change, off-focus cups can't be removed on current tubes	12/22/2020 1:47 PM
4	Most QC tests are covered by the manufacturer QA program and presented in the service reports.	12/22/2020 1:46 PM
5	focal spot size is fixed; source-to-image distance is not critical in mammography; if tube output goes down it will show up in AGD and IQ	12/22/2020 1:45 PM
6	source -to-image list from spec docs	12/22/2020 1:43 PM
7	Could skip SID measurement if short on time and use tech specs. Ideally, would measure if possible.	12/22/2020 1:43 PM
8		12/22/2020 1:42 PM
9	how often is "always"? i think once a year all parameters should be testet, but daily&monthly a rather simplified test should be made @ standard settings	12/22/2020 1:42 PM
10	Radiation Protection Expert measurements	12/22/2020 1:42 PM
11	data from acceptance testing	12/22/2020 1:41 PM
12	We measure MTF so if that doesn't change we don't measure focal spot. Radiation Leakage is acceptance only	12/22/2020 1:39 PM
13	Leakage should be checked if something has been changed that could result in a change	12/22/2020 1:39 PM
14	CNR as essential test	12/22/2020 1:38 PM
15	Other: Not tested every visit, Baseline and if reason to check (i.e. new tube)	12/22/2020 1:38 PM
16	High voltage	12/22/2020 1:38 PM
17	Radiation leakage commissioning/ new tube only	12/22/2020 1:36 PM
18	Check at acceptance testing	12/22/2020 1:36 PM
19	tested by other group	12/22/2020 1:35 PM

Q2 Regarding tube voltage and HVL

Answered: 99 Skipped: 0



- Should always be tested
- Not applicable for my system
- Never fails
- I can use the service report for this
- Not an essential test
- Covered by other QC measurements
- Other (specify below)

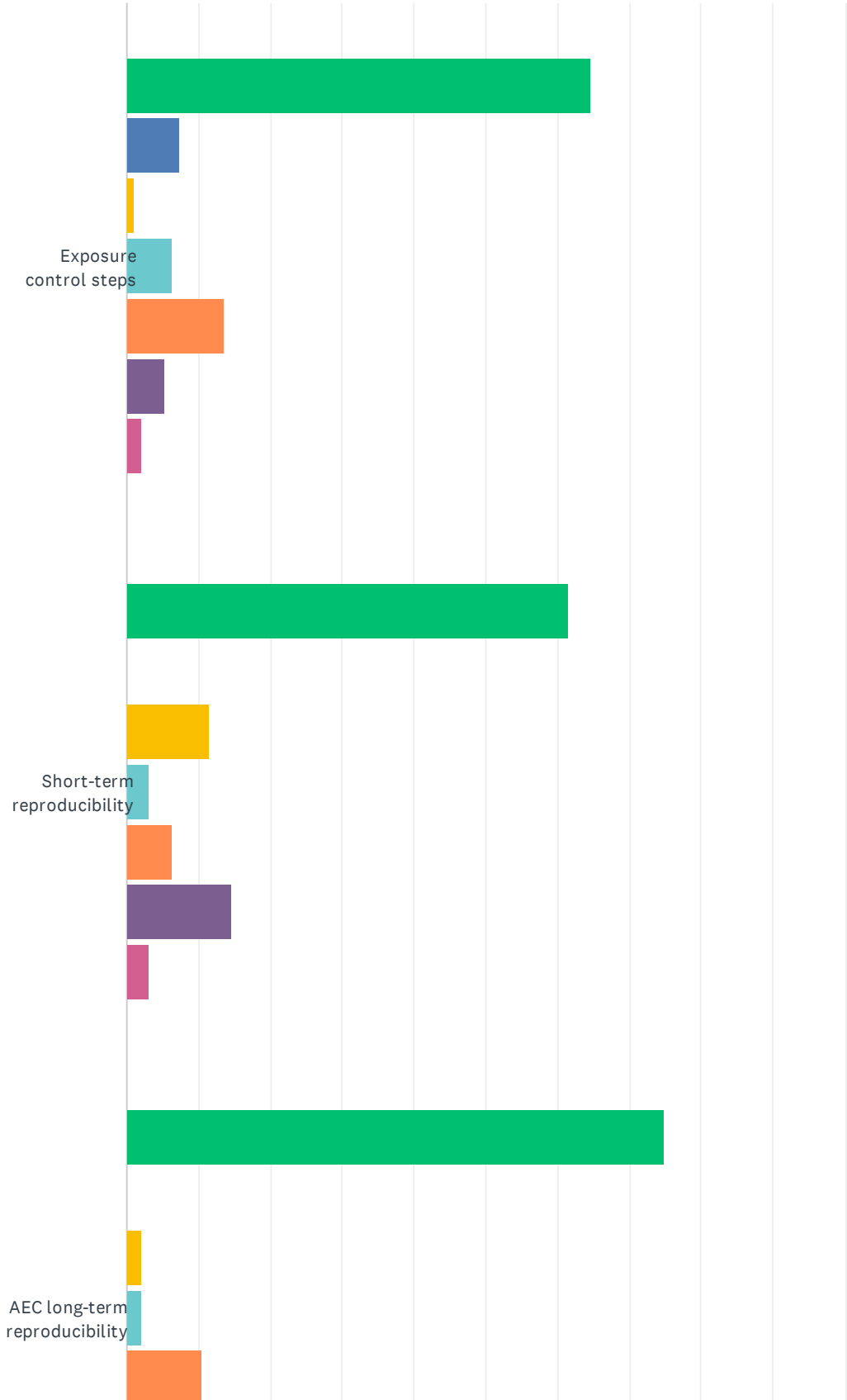
Digging Deeper: Assignment

	SHOULD ALWAYS BE TESTED	NOT APPLICABLE FOR MY SYSTEM	NEVER FAILS	I CAN USE THE SERVICE REPORT FOR THIS	NOT AN ESSENTIAL TEST	COVERED BY OTHER QC MEASUREMENTS	OTHER (SPECIFY BELOW)	TOTAL
Tube voltage	60.00% 57	0.00% 0	4.21% 4	11.58% 11	15.79% 15	6.32% 6	2.11% 2	95
Half value layer	69.39% 68	0.00% 0	2.04% 2	9.18% 9	5.10% 5	11.22% 11	3.06% 3	98

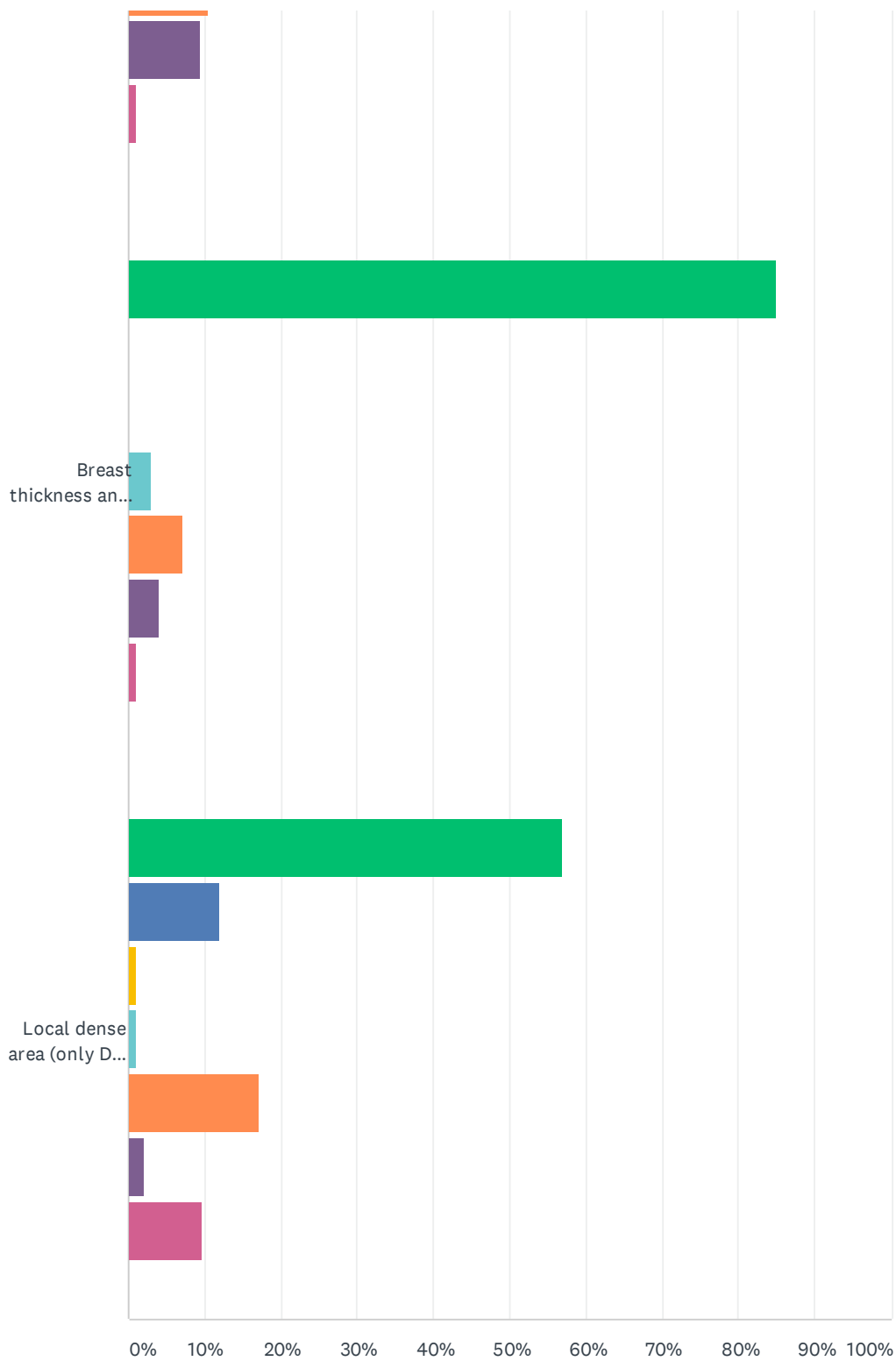
#	OTHER (PLEASE SPECIFY)	DATE
1	We use the readings from x-ray meter, don't test HVL with sheets of aluminium. Voltage seems to be very stable on modern systems, value obtained as part of output measurement	12/22/2020 1:48 PM
2	Only need to measure HVL if output has changed.	12/22/2020 1:47 PM
3	Tube voltage can not be measured without the dependency of calibration factors on diode measurements. We are left with energy dependant and uncertain measurements. Many x-ray units have internal measurement devices which check kV at every exposure	12/22/2020 1:46 PM
4	both tests are very unlikely to fail - the results cannot change unless there was work done on anode/filter	12/22/2020 1:45 PM
5	kVp is effectively covered by HVL. And I'd prefer to measure HVL to get a measure of beam quality.	12/22/2020 1:43 PM
6	tested at acceptance or when tube is replaced... would be fine, and some other follow up meeting (like weekly test to check for big changes in tube)	12/22/2020 1:40 PM
7	Voltage: Can only be measured by evaluating the beam quality and cannot be measured directly at the x-ray tube. Thus the result does not seem very reliable.	12/22/2020 1:39 PM
8	HVL is usually measured by multimeters (e.g. Unfors X2).	12/22/2020 1:38 PM
9	I think that in the measurements of both parameters I could use the service report, but in order to do it, I must be sure that they know how to do it in a correct way. In this case, it's very important the communications between the medical physicist and the service staff	12/22/2020 1:38 PM
10	Supplier can measure more accurately than I can	12/22/2020 1:36 PM
11	Check manually (using 0.1 mm Al foil increments) at acceptance.	12/22/2020 1:36 PM

Q3 Regarding AEC

Answered: 99 Skipped: 0



Digging Deeper: Assignment



- Should always be tested
- Not applicable for my system
- Never fails
- I can use the service report for this
- Not an essential test
- Covered by other QC measurements
- Other (specify below)

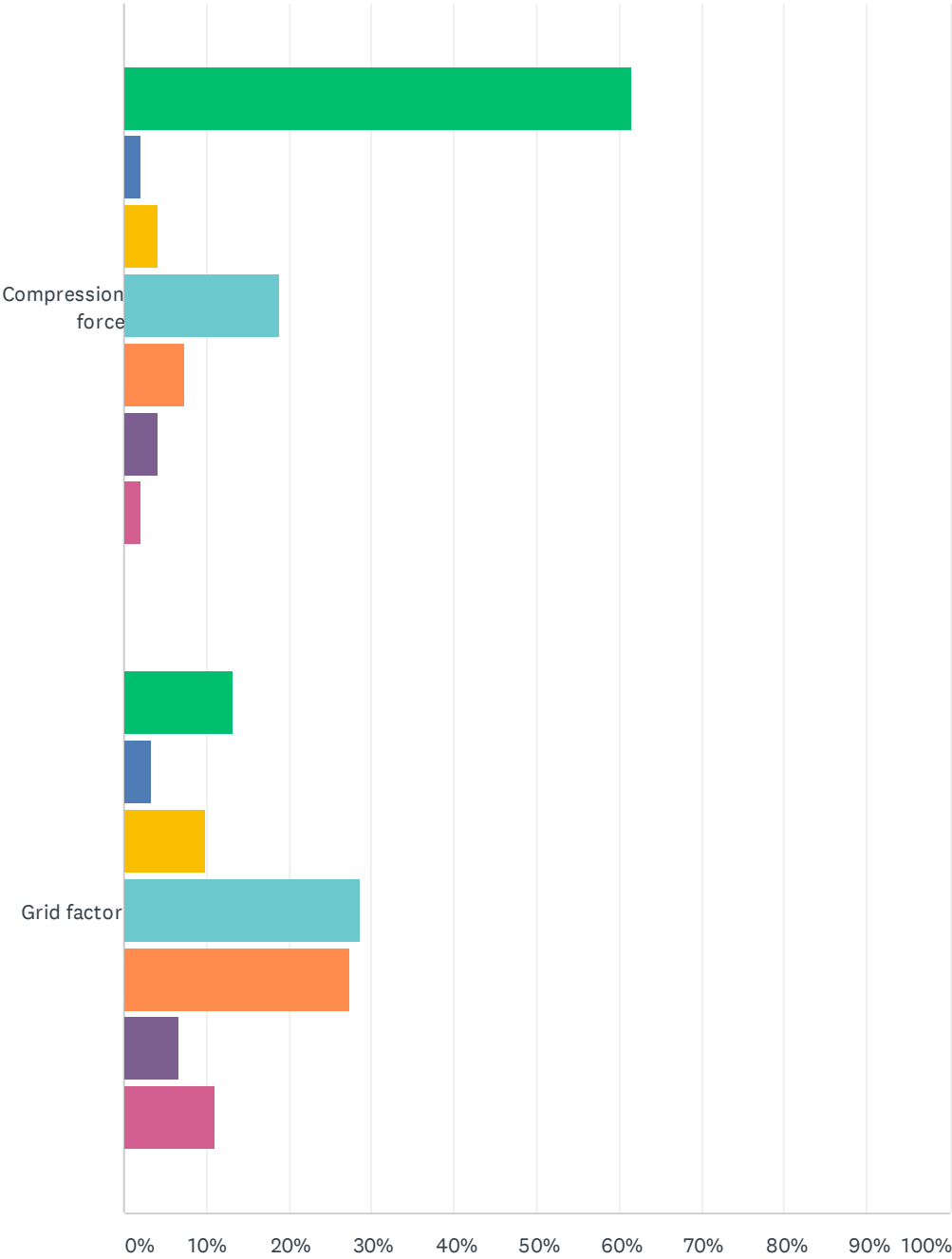
Digging Deeper: Assignment

	SHOULD ALWAYS BE TESTED	NOT APPLICABLE FOR MY SYSTEM	NEVER FAILS	I CAN USE THE SERVICE REPORT FOR THIS	NOT AN ESSENTIAL TEST	COVERED BY OTHER QC MEASUREMENTS	OTHER (SPECIFY BELOW)	TOTAL
Exposure control steps	64.58% 62	7.29% 7	1.04% 1	6.25% 6	13.54% 13	5.21% 5	2.08% 2	96
Short-term reproducibility	61.46% 59	0.00% 0	11.46% 11	3.13% 3	6.25% 6	14.58% 14	3.13% 3	96
AEC long-term reproducibility	75.00% 72	0.00% 0	2.08% 2	2.08% 2	10.42% 10	9.38% 9	1.04% 1	96
Breast thickness and composition compensation	84.85% 84	0.00% 0	0.00% 0	3.03% 3	7.07% 7	4.04% 4	1.01% 1	99
Local dense area (only DR systems)	56.99% 53	11.83% 11	1.08% 1	1.08% 1	17.20% 16	2.15% 2	9.68% 9	93

#	OTHER (PLEASE SPECIFY)	DATE
1	Modern systems seem reliable for short term reproducibility	12/22/2020 1:48 PM
2	Only check exposure control steps at commissioning/upgrade. Only check short-term reprod if fault suspected (e.g. unusual results from long-term reprod test). Local dense area test depends on system design, probably just test at commissioning?	12/22/2020 1:47 PM
3	4 exposures need to cover the 3 tests in this group for normal QC. Type testing is only for academic groups. There needs to be testing of reconstruction filters and changes in processing contrast modes between site visits	12/22/2020 1:47 PM
4	I would like to measure composition variations but lack the instruments for this	12/22/2020 1:46 PM
5	exposure control steps is only for CR; short-term reproducibility is very unlikely to fail in my experience, same for local dense (and if you have enough experience, you can always get the test to be successful)	12/22/2020 1:45 PM
6	Not tested at this moment	12/22/2020 1:43 PM
7	I never tested the local dense area and also the composition compensation. Have to look into this because think this is important.	12/22/2020 1:43 PM
8	AEC steps - comm only local dense area - comm only	12/22/2020 1:43 PM
9	for AEC long term: I am in favour of daily tests, ideally 2 (raw data) images per day, to exclude a failure is from a dust particle. LDA test: a complete test at acceptance and a shorter version yearly	12/22/2020 1:40 PM
10	short-term: if you do the long term reproducib. and thats ok it never fails local dense: is sometimes very tricky (esp. with GE-systems). in Austria we adapted the limiting values for that	12/22/2020 1:40 PM
11	baseline and when required	12/22/2020 1:38 PM

Q4 Regarding compression force and anti-scatter grid

Answered: 98 Skipped: 1



- Should always be tested
- Not applicable for my system
- Never fails
- I can use the service report for this
- Not an essential test
- Covered by other QC measurements
- Other (specify below)

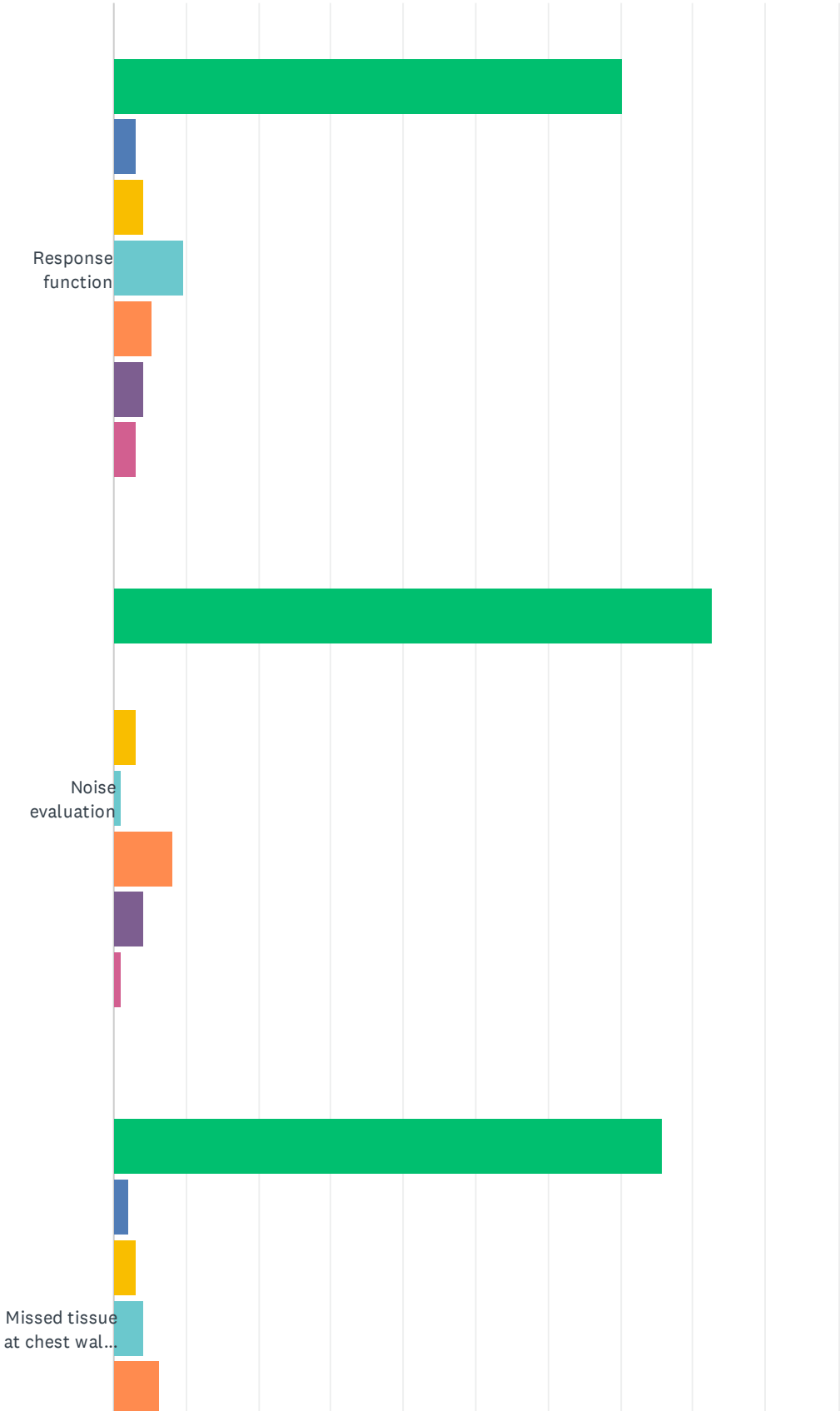
Digging Deeper: Assignment

	SHOULD ALWAYS BE TESTED	NOT APPLICABLE FOR MY SYSTEM	NEVER FAILS	I CAN USE THE SERVICE REPORT FOR THIS	NOT AN ESSENTIAL TEST	COVERED BY OTHER QC MEASUREMENTS	OTHER (SPECIFY BELOW)	TOTAL
Compression force	61.46% 59	2.08% 2	4.17% 4	18.75% 18	7.29% 7	4.17% 4	2.08% 2	96
Grid factor	13.19% 12	3.30% 3	9.89% 9	28.57% 26	27.47% 25	6.59% 6	10.99% 10	91

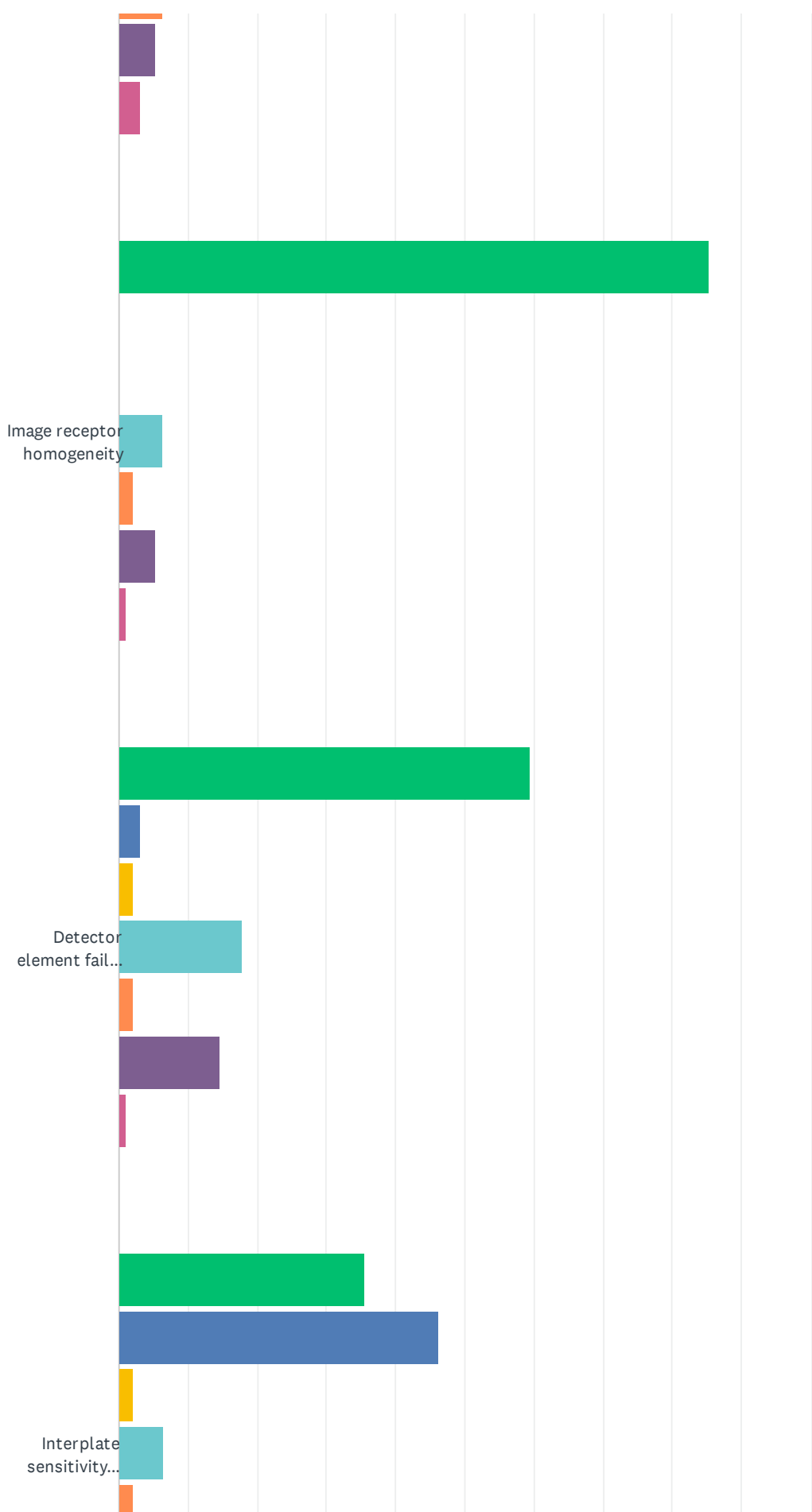
#	OTHER (PLEASE SPECIFY)	DATE
1	Grid factor at commissioning. Compression should be checked as the dose is dependent on compressed thickness	12/22/2020 1:48 PM
2	Only at acceptance	12/22/2020 1:47 PM
3	Why test grid factor for QC? \the bucky is as supplied by teh manufacturer.	12/22/2020 1:47 PM
4	compression force (and thickness indication -> kV setting) have varied quite alot so we test this yearly	12/22/2020 1:46 PM
5	Compression force - can fail but the effect is not so critical	12/22/2020 1:45 PM
6	initial baseline measurement can serve for future purposes	12/22/2020 1:43 PM
7	only after acceptance or detector/tube change	12/22/2020 1:42 PM
8	grid factor could be measured at acceptance	12/22/2020 1:40 PM
9	commissioning	12/22/2020 1:40 PM
10	Units occasionally fail on absolute limits but not a concern as mammographers rarely if ever get close to these limits	12/22/2020 1:39 PM
11	acceptance only	12/22/2020 1:39 PM
12	baseline and if reason exisits	12/22/2020 1:38 PM
13	at acceptance and if grid changes	12/22/2020 1:37 PM

Q5 Regarding the image receptor

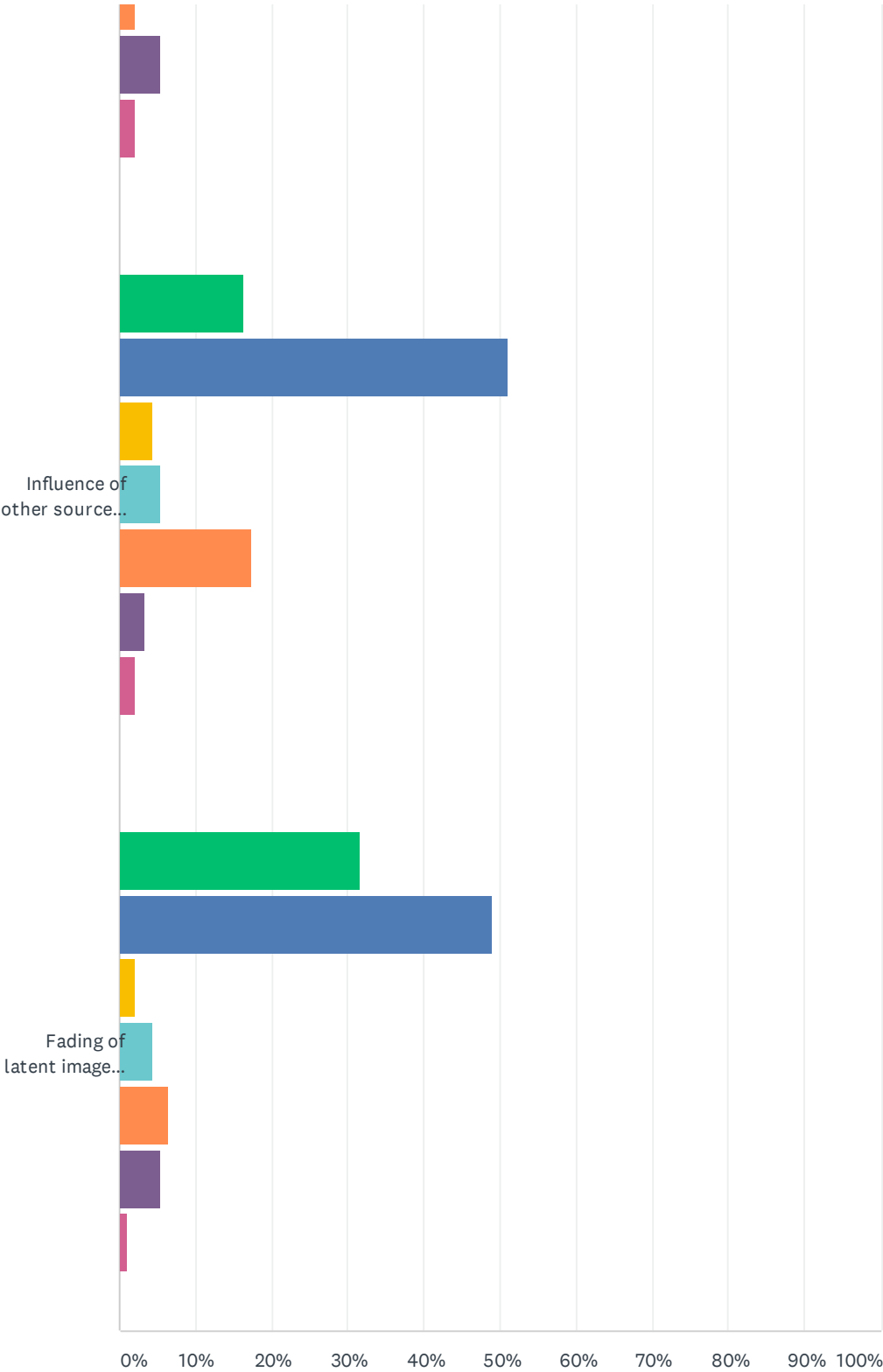
Answered: 99 Skipped: 0



Digging Deeper: Assignment



Digging Deeper: Assignment



- Should always be tested
- Not applicable for my system
- Never fails
- I can use the service report for this
- Not an essential test
- Covered by other QC measurements
- Other (specify below)

Digging Deeper: Assignment

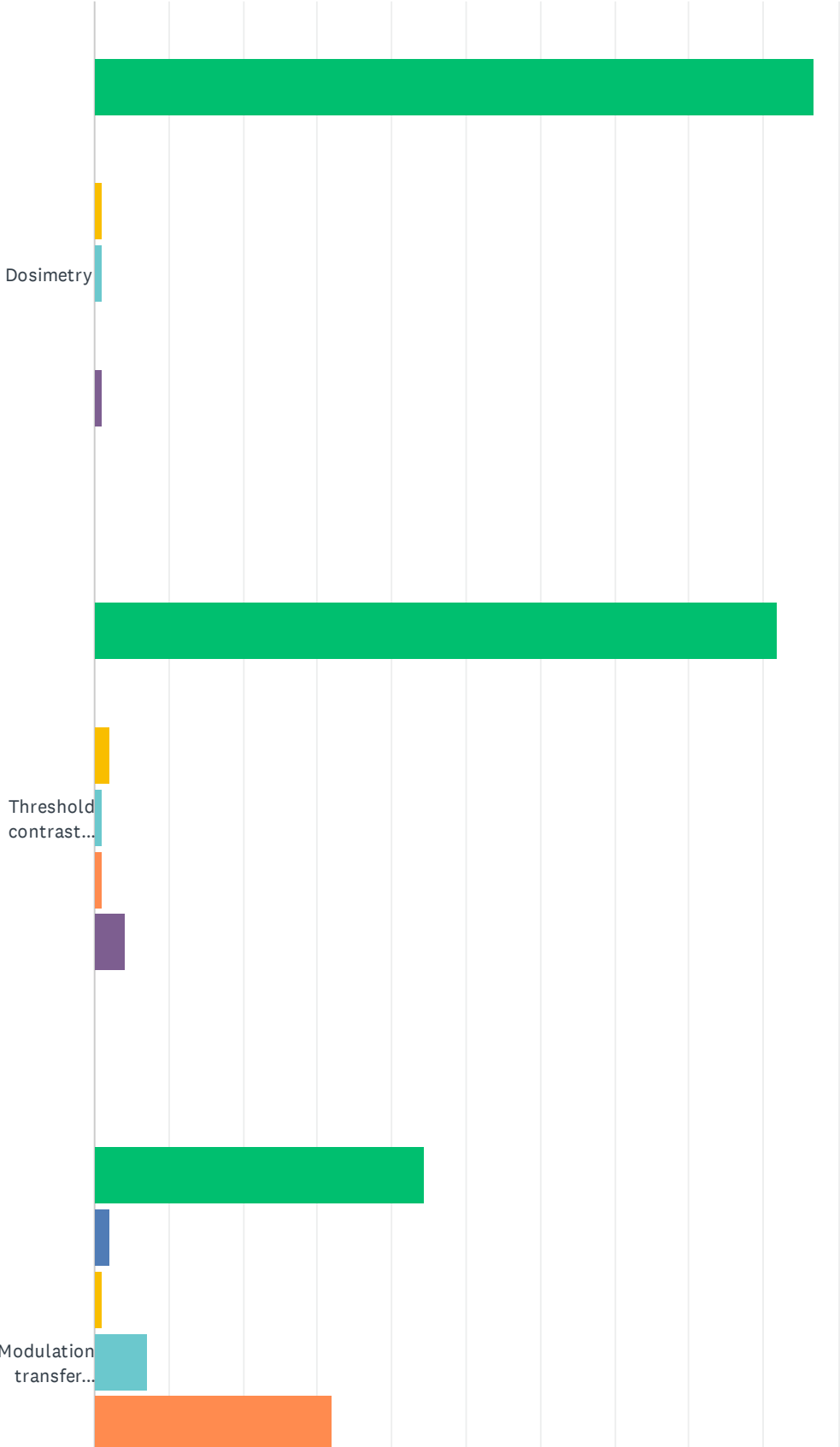
	SHOULD ALWAYS BE TESTED	NOT APPLICABLE FOR MY SYSTEM	NEVER FAILS	I CAN USE THE SERVICE REPORT FOR THIS	NOT AN ESSENTIAL TEST	COVERED BY OTHER QC MEASUREMENTS	OTHER (SPECIFY BELOW)	TOTAL
Response function	70.21% 66	3.19% 3	4.26% 4	9.57% 9	5.32% 5	4.26% 4	3.19% 3	94
Noise evaluation	82.65% 81	0.00% 0	3.06% 3	1.02% 1	8.16% 8	4.08% 4	1.02% 1	98
Missed tissue at chest wall side	75.79% 72	2.11% 2	3.16% 3	4.21% 4	6.32% 6	5.26% 5	3.16% 3	95
Image receptor homogeneity	85.42% 82	0.00% 0	0.00% 0	6.25% 6	2.08% 2	5.21% 5	1.04% 1	96
Detector element failure (DR systems)	59.38% 57	3.13% 3	2.08% 2	17.71% 17	2.08% 2	14.58% 14	1.04% 1	96
Interplate sensitivity variations and plate uniformity (CR systems)	35.48% 33	46.24% 43	2.15% 2	6.45% 6	2.15% 2	5.38% 5	2.15% 2	93
Influence of other sources of radiation (CR systems)	16.30% 15	51.09% 47	4.35% 4	5.43% 5	17.39% 16	3.26% 3	2.17% 2	92
Fading of latent image (CR systems)	31.52% 29	48.91% 45	2.17% 2	4.35% 4	6.52% 6	5.43% 5	1.09% 1	92

Digging Deeper: Assignment

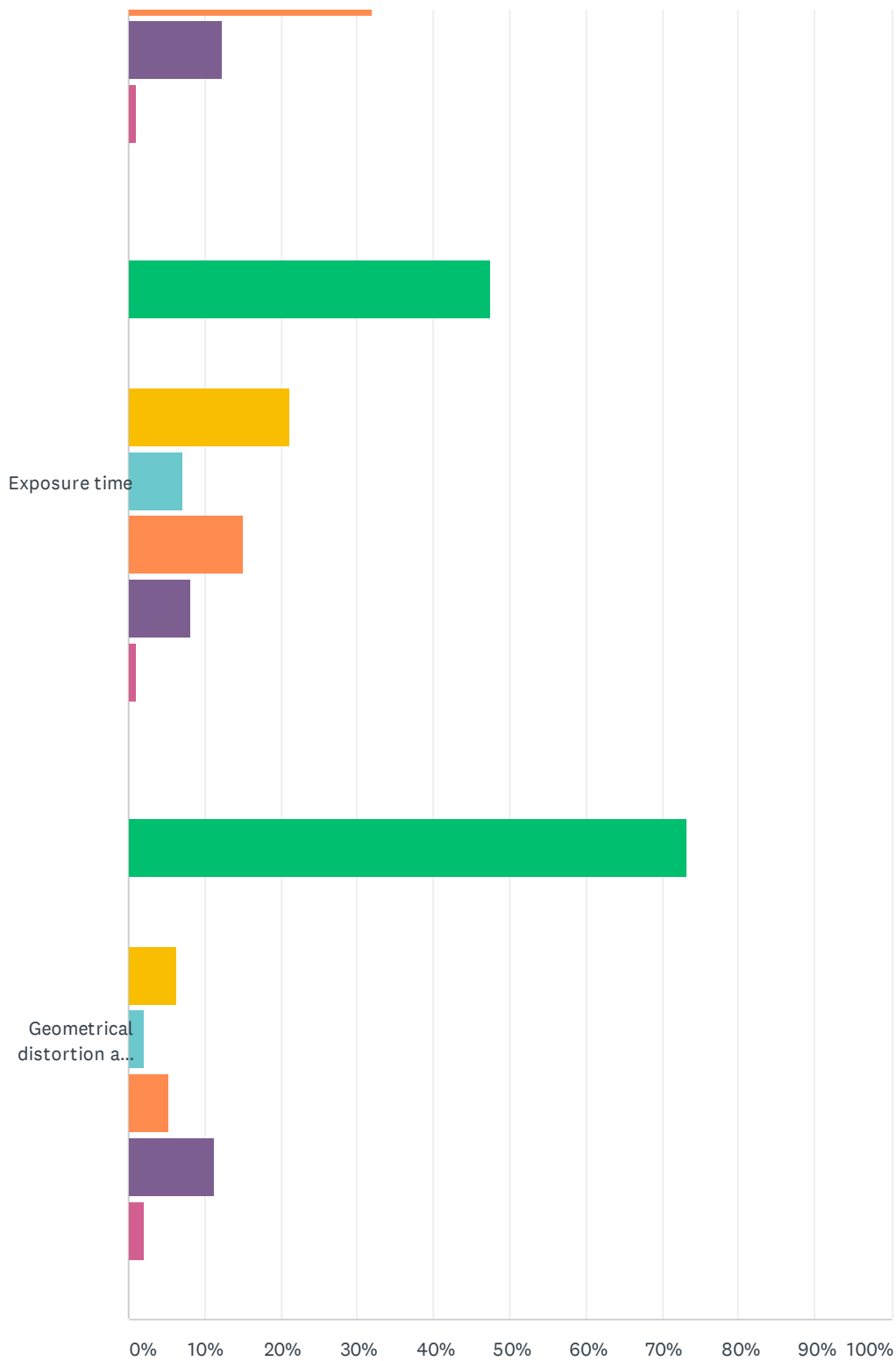
#	OTHER (PLEASE SPECIFY)	DATE
1	At acceptance or after major modifications	12/22/2020 1:47 PM
2	I refuse to test CR. Ghosting is useful to test especially on 2D/3D systems to ensure that long enough time is left between imaging. It is not consistent across systems even of the same model.	12/22/2020 1:47 PM
3	A check of homogeneity is nice to see if calibration was done correctly. Weekly	12/22/2020 1:46 PM
4	I do not have any CR systems, however I think that the interplate sensitivity and the fading ARE essential tests for CR. In my experience, response function does not fail	12/22/2020 1:45 PM
5	Can this measurement be made in 24x30? What thickness of PMMA and PE should be used for this measurement?	12/22/2020 1:43 PM
6	The first 3 tests are more type specific. I think that no type testing has to be done. Only test if I system that has to be accepted functions according to specifications of the manufacturer.	12/22/2020 1:43 PM
7	missed tissue - detector comm only	12/22/2020 1:43 PM
8	missed tissue prioritized after acceptance and detector/tube change response function prioritized after acceptance	12/22/2020 1:42 PM
9	CR-specific tests are of local radiographers	12/22/2020 1:41 PM
10	detector failure should be verified daily. fading of latent CR test: at acceptance should be fine.	12/22/2020 1:40 PM
11	There are no more CR-systems in the German screening program.	12/22/2020 1:39 PM
12	baseline and periodic not every cycle	12/22/2020 1:38 PM
13	Response function is very important in CR systems. In DR it's almost always correct. Missed tissue at chest wall side could be tested with an anthropomorphic phantom.	12/22/2020 1:37 PM

Q6 Regarding dosimetry and image quality

Answered: 99 Skipped: 0



Digging Deeper: Assignment



- Should always be tested
- Not applicable for my system
- Never fails
- I can use the service report for this
- Not an essential test
- Covered by other QC measurements
- Other (specify below)

Digging Deeper: Assignment

	SHOULD ALWAYS BE TESTED	NOT APPLICABLE FOR MY SYSTEM	NEVER FAILS	I CAN USE THE SERVICE REPORT FOR THIS	NOT AN ESSENTIAL TEST	COVERED BY OTHER QC MEASUREMENTS	OTHER (SPECIFY BELOW)	TOTAL
Dosimetry	96.88% 93	0.00% 0	1.04% 1	1.04% 1	0.00% 0	1.04% 1	0.00% 0	96
Threshold contrast visibility	91.75% 89	0.00% 0	2.06% 2	1.03% 1	1.03% 1	4.12% 4	0.00% 0	97
Modulation transfer function (MTF) and noise power spectrum (NPS)	44.33% 43	2.06% 2	1.03% 1	7.22% 7	31.96% 31	12.37% 12	1.03% 1	97
Exposure time	47.47% 47	0.00% 0	21.21% 21	7.07% 7	15.15% 15	8.08% 8	1.01% 1	99
Geometrical distortion and artefact evaluation	73.20% 71	0.00% 0	6.19% 6	2.06% 2	5.15% 5	11.34% 11	2.06% 2	97

#	OTHER (PLEASE SPECIFY)	DATE
1	Should be tested at routine (6 monthly intervals), but in the case of mobile units moving just the threshold contrast is checked	12/22/2020 1:48 PM
2	Distortion not needed.	12/22/2020 1:47 PM
3	A contrast check at installation. MTF and NPS is part of system image quality which is checked by the manufacturer and on site.	12/22/2020 1:46 PM
4	I have never seen exposure time or distortion fail, so I think it is not so important, however artefacts I would probably check from time to time. For MTF and NPS there are no limiting values in EUREF, otherwise I would rate them as very important!	12/22/2020 1:45 PM
5	I never test exposure time. Only the back up timer for exposures which are too long. Image quality is tested by measuring the limiting sensitivity and noise equivalent passband of the system. CDMAM is very time consuming and results are sometimes not reliable in my opinion.	12/22/2020 1:43 PM
6	consider NPS alternative to threshold contrast. MTF only after acceptance	12/22/2020 1:42 PM
7	artefacts should be evaluated in a daily test	12/22/2020 1:40 PM