



June 2017 Examinations



Electrical Workers Registration Board



1. Overview – June 2017 examinations

	Number of candidates sitting	Number of candidates who passed	Pass rate %	Median score	Average score
Electrical Appliance Serviceperson (EAS)	85	72	85	79	76.5
Electrical Appliance Serviceperson (Qualified) (EASQ)	38	30	79	78	71
Electrical Service Technician (EST)	119	83	69.5	71	66.5
Electrician Regulations (ER)	886	581	65.5	65.5	63.5
Electrician Theory (ET)	699	463	66	65	63
Electrical inspector (EI)	50	32	64	62.5	62
Electrical Installer (EIN)	2	2	100		
Associated Tradesperson (AT)					
TOTAL	1879	1263	67	70	67

2. Issues of interest – June 2017

Overall	
Comment	Suggestion or recommendation for Board consideration
<p>The moderation and marking of the examination papers went well.</p> <p>The pass rate is the highest June result since 2012.</p> <p>The two significant issues that arose were:</p> <ol style="list-style-type: none"> 1. Electrician Theory examination <p>At examination centre 120 a candidate said to the examination supervisor that a formula for question 9 was missing off the formulae sheet. The supervisor proceeded to write the formula on the white board for all 16 candidates.</p> <p>Analysis showed that 10 candidates passed the examination at this centre and, of those, 7 would still have passed had the results for question 9 been removed.</p> <p>The same analysis was applied to other examination centres. When this was compared to centre 120, there was no indication that candidates at that centre gained any advantage.</p> <p>For example, 3 other centres had 49 candidates that passed the examination. When the results of question 9 are removed, the number passed dropped to 32, 40 and 43 respectively.</p> <p>This is the second issue with formula sheets used in examinations. In November 2016, a (non-technical) examination supervisor removed formula sheets because they were different was those seen previously.</p>	<p>The Board permit the use of any paper document in any examination, in addition to those stated on an examination cover sheet. This includes the Electrician Theory examination.</p> <p>I am firmly of the view that for a document to be of use to a candidate, they must be familiar with its content and be able to quickly locate information in response to a question. The best example of this is AS/NZS 3000.</p>

Overall	
Comment	Suggestion or recommendation for Board consideration
<p>2. Electrician Regulations examination</p> <p>Question 5 related to calculating the maximum demand in a shop.</p> <p>This question was over two pages. On the first page of this question the sentence "The maximum demand must be between 119A and 125A" was in the 1st draft of the question and was inadvertently left in the question after changes were made at the moderation stage.</p> <p>Alterations at moderation put the maximum demand outside the range stated on the first page.</p> <p>The first page of the question set the scenario and included all the equipment required to be assessed to arrive at the maximum demand. The second page was a calculation table used by candidates. This incorporated all the equipment stated on the first page. Candidates did not have to reference the first page to answer the question.</p> <p>The makers said that most candidates did the calculations based solely on the information provided in the calculation table on the second page. They did not take account of the range stated on the first page.</p> <p>Where candidates attempted to apply the range stated on the first page, markers applied discretion to ensure these candidates were not disadvantaged. It must be noted that some inventive (and correct) answers were supplied.</p>	

Electrical Appliance Serviceperson	
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Comment	Suggestion or recommendation for Board consideration
<p>The pass rate of 85% is amongst the highest achieved for this examination.</p> <p>18 candidates gained between 90 and 99 marks. Two candidates gained 98 marks, and one gained 99 marks.</p> <p>Marker comments:</p> <p>This was a very good examination paper and it covered the syllabus extremely well, it was well moderated with few changes needed in the questions or answers.</p>	Nil

Electrical Appliance Serviceperson (Qualified)	
Comment	Suggestion or recommendation for Board consideration
<p>The pass rate of 79% is consistent with pass rates for this examination.</p> <p>6 candidates gained between 90 and 97 marks. One candidate gained 97 marks.</p> <p>Marker comments:</p> <p>This was a very good examination paper and it covered the syllabus extremely well, it was well moderated with few changes needed in the questions or answers.</p>	

Electrical Service Technician	
Comment	Suggestion or recommendation for Board consideration
<p>The pass rate of 69.5% is consistent with results for this examination.</p> <p>Three candidates gained 92 marks. Two candidates gained 95 marks.</p> <p>Markers comments.</p> <p>The moderation was OK</p> <p>I question the continued reference to star delta circuitry and questions on this. Questions relating to "soft starter" technology could be more appropriate.</p> <p>Q 2 sets out a 230V, Class 1, three-phase appliance in the introduction. I think this is very misleading in that all candidates would only be familiar with 400V, three-phase technology and may have caused confusion.</p>	

Electrician Regulations	
Comment	Suggestion or recommendation for Board consideration
<p>Candidates numbers for this financial year are the highest recorded since 2004.</p> <p>The pass rate of 65.5% is consistent with the results for this examination.</p> <p>51 candidates gained 90 marks or more. Three candidates gained 98 marks and one candidate gained 99 marks.</p>	

Electrician Regulations	
Comment	Suggestion or recommendation for Board consideration
<p>Markers comments:</p> <p>A very good paper offering a wide range of questions with a good variety in the overall mix giving everyone the opportunity to make their mark and capture valuable points as many did. From my observation, there appeared to be adequate time as most papers were fully completed</p> <p>I feel the moderation could have been better, but without doing an in-depth analysis there was several obvious errors that should have been identified but with all papers it takes time to work your way through it and we can all see questions from various angles. The main outcome was that there was no effect on the results.</p> <p>Overall the paper was within the expected competence of candidates for this exam. However, the marks obtained for those with low results invariably indicated consistent poor performance. This would appear to indicate many ill-prepared candidates. This is disturbing as these candidates appear to consider themselves capable of being registered electricians.</p> <p>The exam was in plain English. The questions were short and to the point. I can see that this had a high impact on the results.</p>	

Electrician Theory	
Comment	Suggestion or recommendation for Board consideration
<p>Like the Electrician Regulations, candidate numbers for this financial year are the highest recorded since 2004.</p> <p>The pass rate of 66% is an excellent result considering that some markers considered the examination to be one of the more technically challenging in recent times.</p>	

Electrician Theory	
Comment	Suggestion or recommendation for Board consideration
<p>While the pass rates for this examination are very variable, the trends in median marks and average marks show a remarkable consistency. Since June 2012 these have been between 50 and 60 marks. This indicates that in each examination, there has been a strong cohort of knowledgeable candidates.</p> <p>With examination centres, most of those centres who consistently do well continued to do so. Centre 121 has an overall pass rate of 66%, but only achieved a 44% pass rate in this examination.</p> <p>Conversely, centre 102 has an overall pass rate of 47% but achieved a pass rate of 72% for this exam. Similarly, centre 123 has an overall pass rate of 54%, but has a pass rate of 72% for this examination.</p> <p>Mention should also be made of centres 109 and 125. Both centres achieve high overall pass rates of 69.5% and 67.5% respectively. The pass rates for this examination were 83% and 89.5% respectively.</p> <p>32 candidates gained 90 marks or more. Three candidates gained 97 marks and two candidates gained 98 marks.</p> <p>Markers comments:</p> <p>A fair and balanced examination with a variety of questions.</p> <p>I thought this was quite a technically demanding paper.</p> <p>The paper and answer scheme were quite very well moderated. There were, however, a few grammatical errors and one incorrect calculation result in the original marking scheme. of this type of circuitry would be better.</p>	

Electrical Inspector	
Comment	Suggestion or recommendation for Board consideration
<p>The pass rate of 64% is consistent with the results for this examination.</p> <p>One candidate gained 90 marks for this examination. In this examination, very few candidates achieve a mark of 90 or greater.</p> <p>However, two-thirds to three-quarters of candidates will gain between 60 and 89 marks.</p> <p>In the other examinations, generally about two thirds of candidates will gain between 60 and 89 marks.</p> <p>Markers comments:</p> <p>The exam content was fair to all candidates. I thought the examination was easy although the pass rate does not support this.</p> <p>The paper had a wide range of complexity to test the students understanding of installation connection requirements, volt drop, maximum demand, hazardous area requirements, fusing RCD and RCBO requirements, and cable sizing.</p> <p>I do not think the exam was too long.</p> <p>The examination did not require many changes during the marking period. Credit should go to the moderation team for a good examination.</p>	

Electrical Installer	
Comment	Suggestion or recommendation for Board consideration
<p>Two candidates sat the Electrical Installer examination and both passed.</p>	

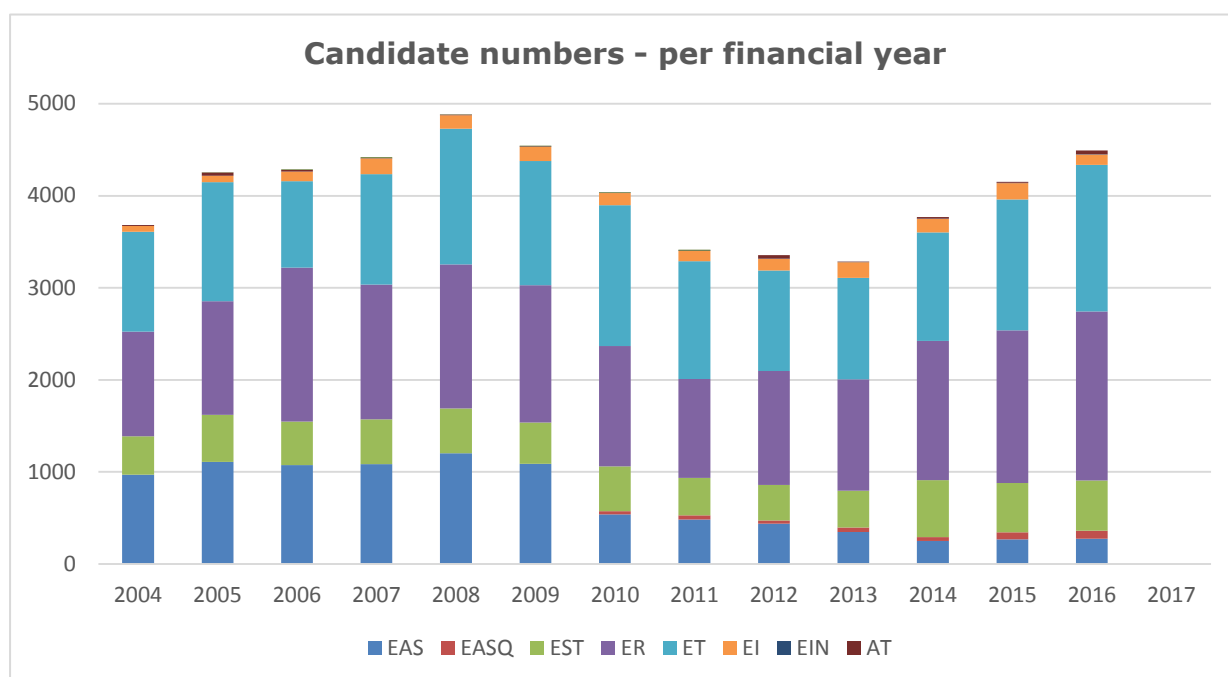
Associated Tradesperson	
Comment	Suggestion or recommendation for Board consideration
There was no Associated Tradesperson examination in June 2017.	

3. Trends in examination candidate numbers

3.1 Per year

Candidate numbers for EAS examinations have steadily declined from a high of 26% of candidates in 2004 year to 6% of candidates in the last 3 years.

Candidate numbers for the Electrician Regulations and Theory examinations comprised 60% of the yearly total in 2004. This has steadily risen to 76% in 2016.

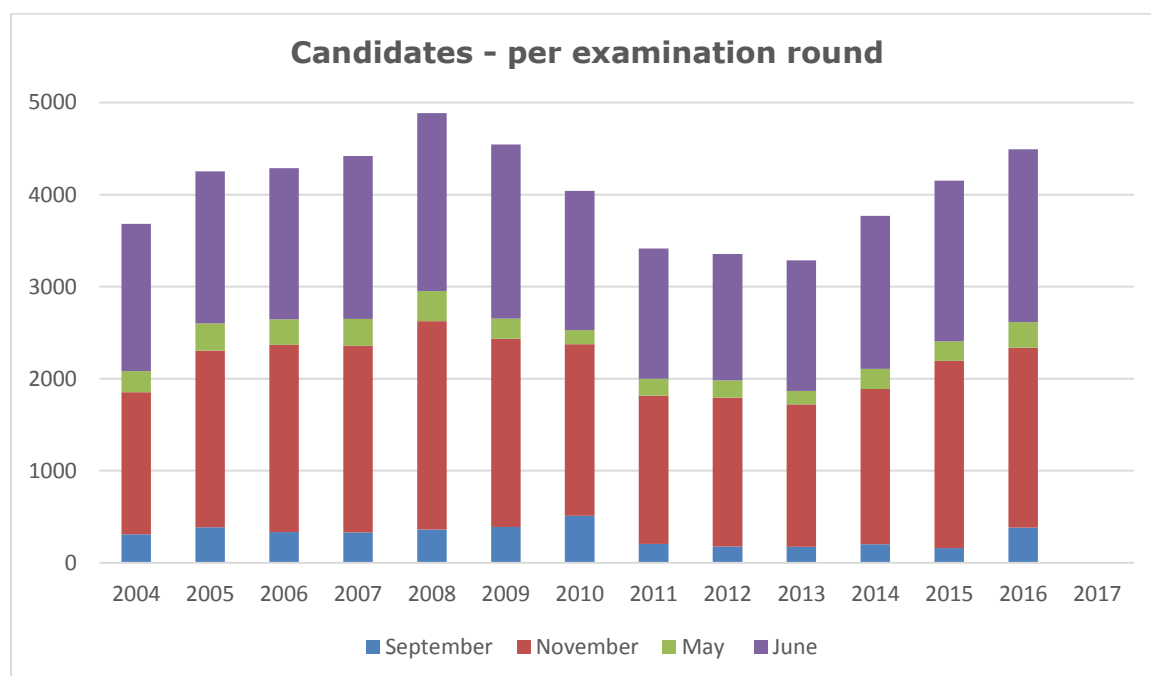


	EAS	EASQ	EST	ER	ET	EI	EIN	AT	ES	Total
2004	969		419	1135	1087	63		10		3683
2005	1110		510	1234	1295	68		35	1	4253
2006	1074		472	1675	937	104		17	9	4288
2007	1084		488	1464	1198	172		3	9	4418
2008	1205		486	1563	1475	146		8	1	4884
2009	1090		448	1490	1351	153		7	6	4545
2010	540	34	487	1308	1530	131	3		7	4040
2011	482	46	407	1076	1277	112	5	1	7	3413
2012	437	37	384	1238	1093	126	4	38		3357
2013	348	48	401	1209	1104	170	5	2		3287
2014	250	42	618	1515	1176	147	4	18		3770
2015	269	74	537	1660	1420	178	3	10		4151
2016	275	87	547	1833	1595	110	3	44		4494
Total	9133	368	6204	18400	16538	1680	27	193	40	52583

3.2 Per examination round

Since 2004 candidate numbers in the November and June examinations have comprised between 85% and 91% of the total number sitting in any year. November candidate numbers tend to be slightly higher than June.

Candidate numbers for June and November examinations are slowly increasing to the levels seen between 2006 and 2009.



	September	November	May	June	Total
2004	308	1547	227	1601	3683
2005	387	1918	295	1653	4253
2006	334	2035	276	1643	4288
2007	330	2027	293	1768	4418
2008	362	2264	326	1932	4884
2009	391	2042	221	1891	4545
2010	513	1861	155	1511	4040
2011	207	1608	185	1413	3413
2012	178	1617	187	1375	3357
2013	173	1550	144	1420	3287
2014	202	1687	218	1663	3770
2015	161	2032	212	1746	4151
2016	383	1955	277	1879	4494
2017					
Total	3929	24143	3016	21495	52583

4. Trends in candidate performance

This section plots the trends in candidate performance relating to pass rates, median marks and average marks.

For the median marks and average marks, the pass rates have been superimposed to give an indication of how these change with the pass rates.

4.1 All exams

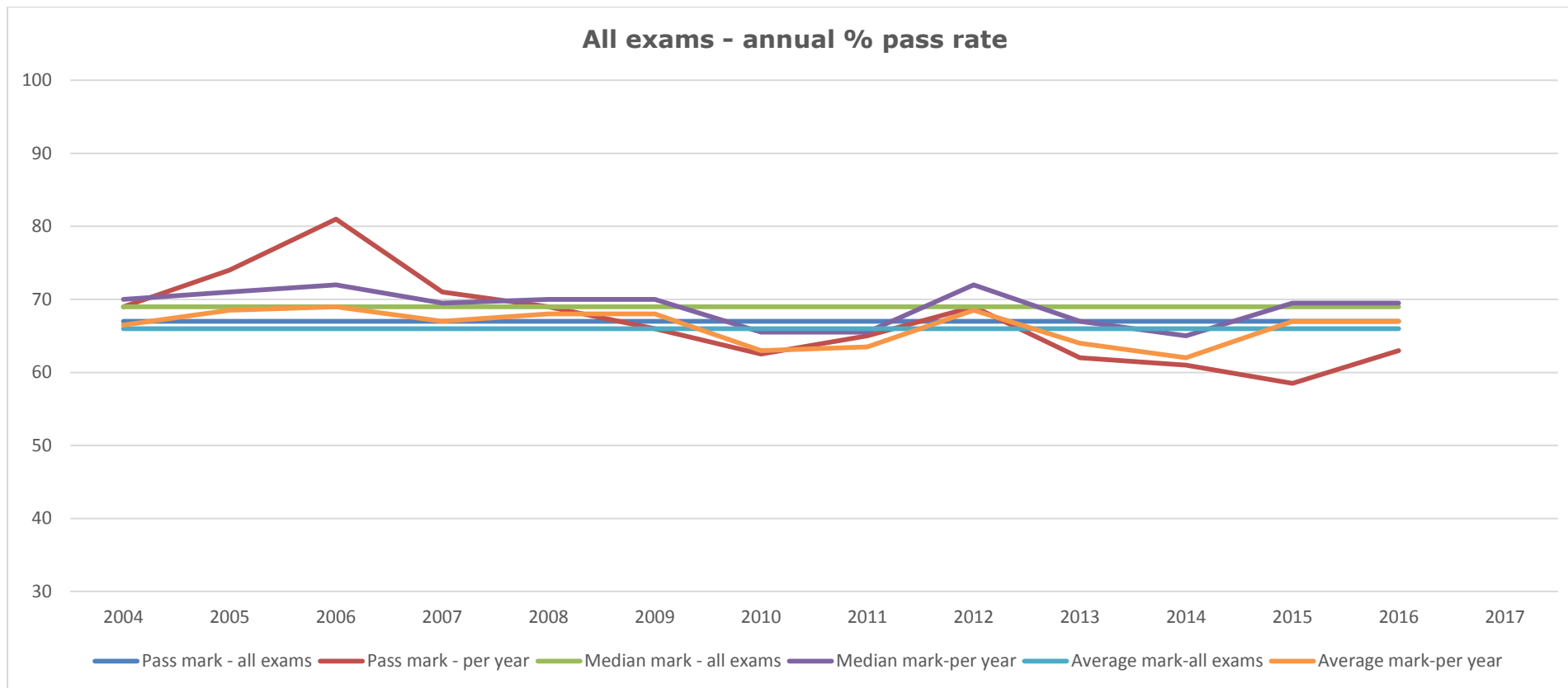
The pass rate for all examinations sat since 2004 is 67%.

All classes of examination, except for Electrician Theory, have overall pass rates at or above 67%. The overall pass rate for Electrician Theory examinations since 2004 is 56.5%.

4.1 All exams

This chart tracks the pass rate, median mark and average mark for all examinations conducted since 2004.

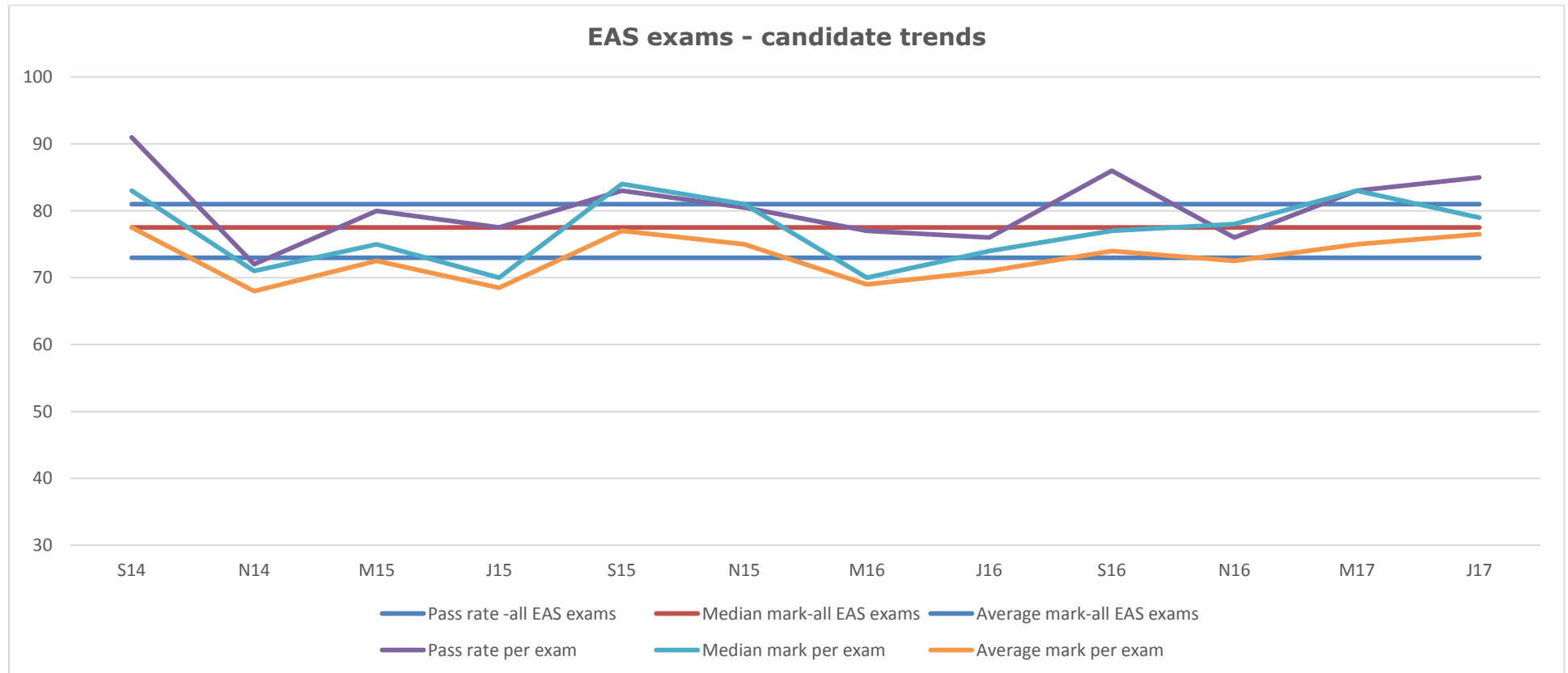
The trends in the pass rate, median mark and average mark are shown for the financial years 2004 to date.



4.2 EAS Examinations

This chart tracks the pass rate, median mark and average mark for all EAS examinations conducted since 2004.

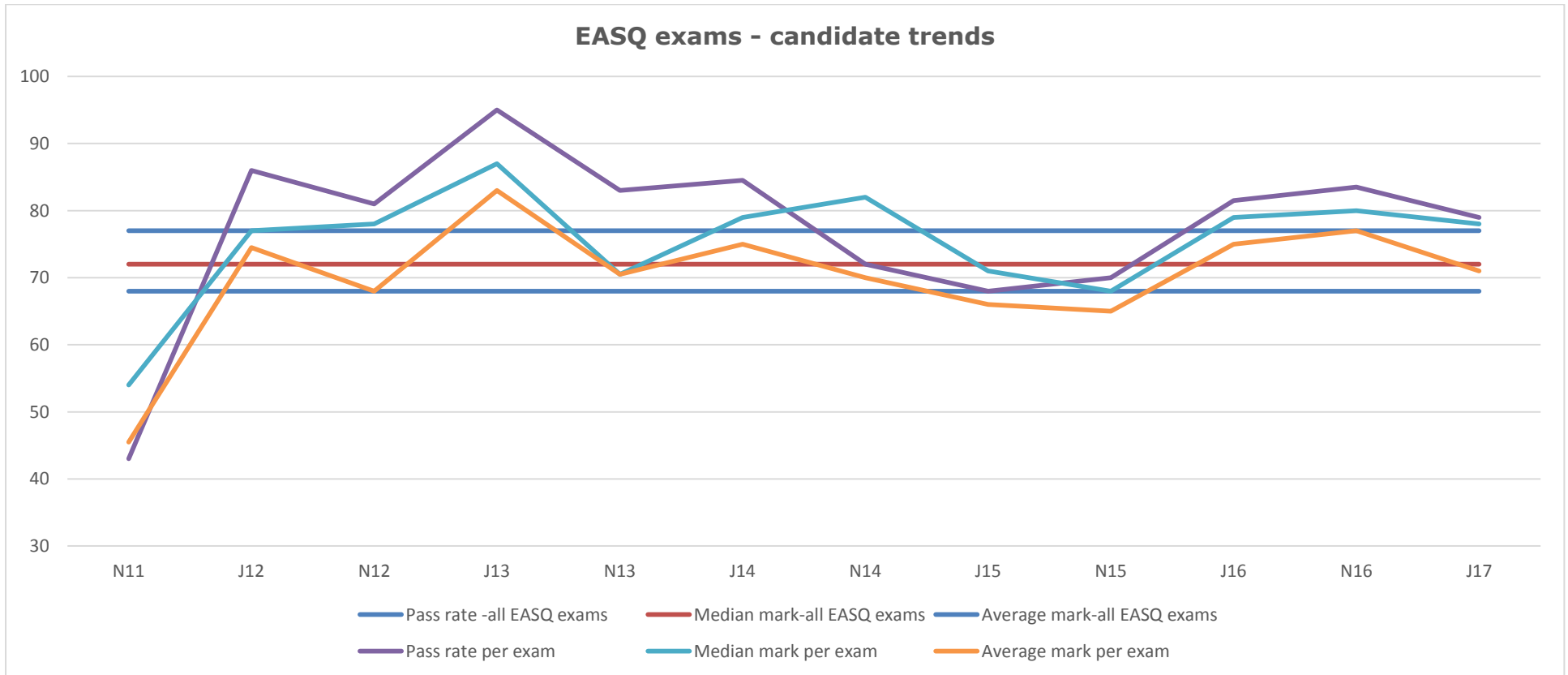
The trends in the pass rate, median mark and average mark are shown for the previous 12 EAS examinations, including the examination that is the subject of this report (if applicable).



4.3 EASQ Examinations

This chart tracks the pass rate, median mark and average mark for all EASQ examinations conducted since 2010.

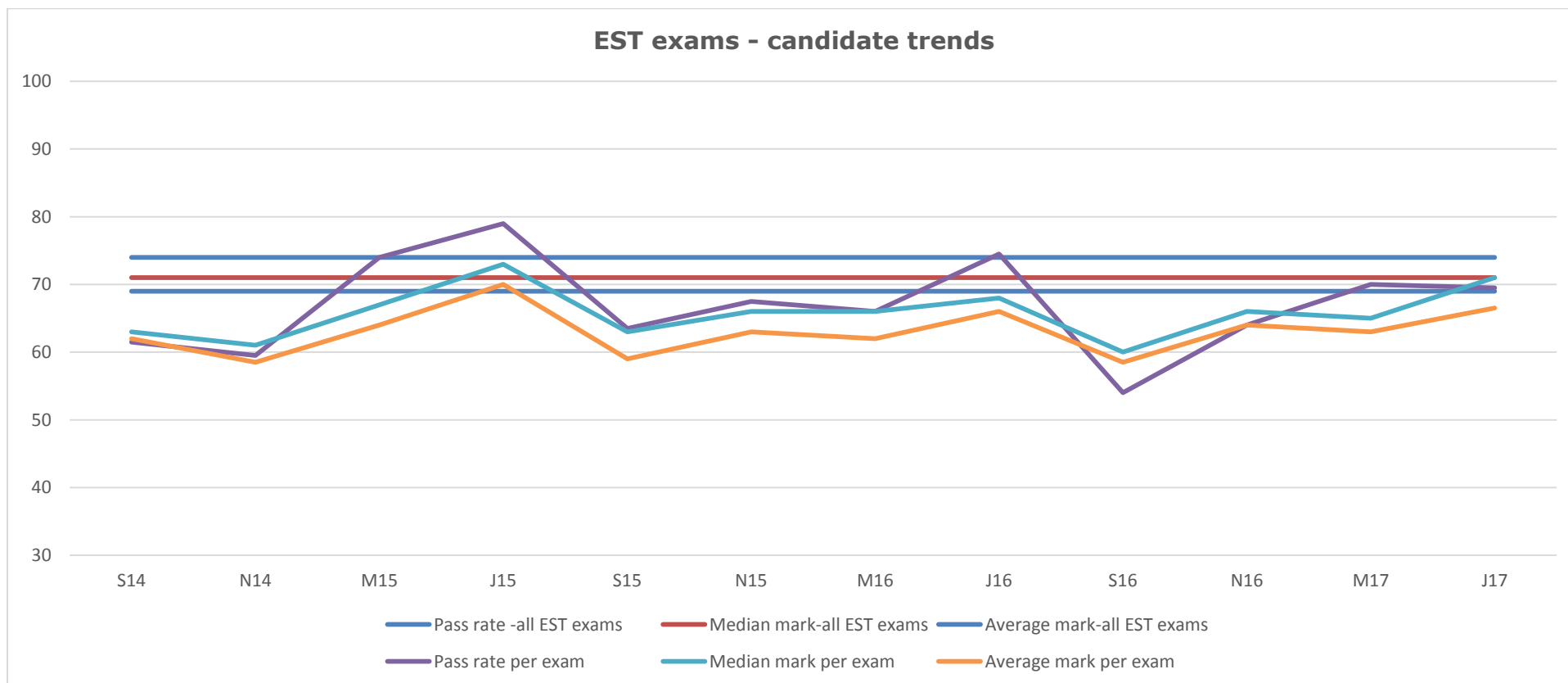
The trends in the pass rate, median mark and average mark are shown for the previous 12 EASQ examinations, including the examination that is the subject of this report (if applicable).



4.4 EST Examinations

This chart tracks the pass rate, median mark and average mark for all EST examinations conducted since 2004.

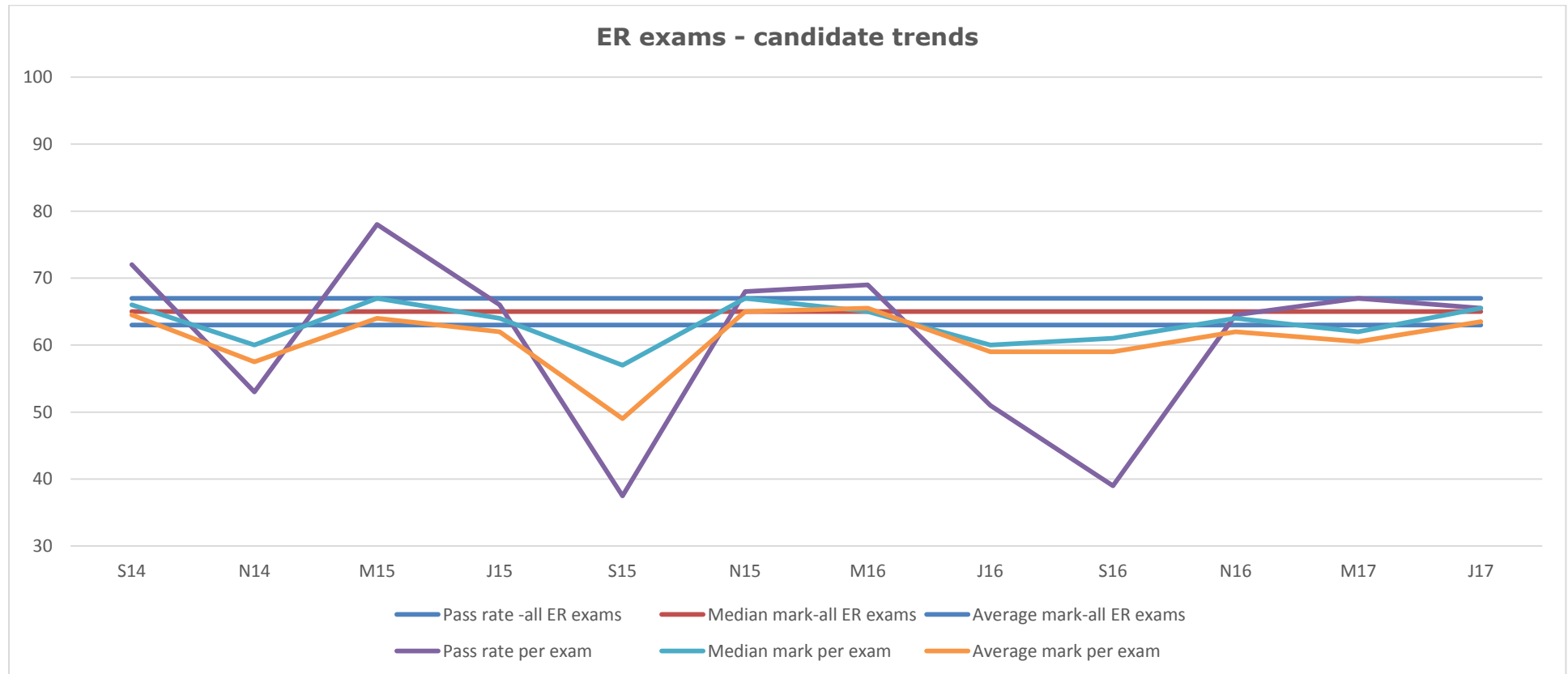
The trends in the pass rate, median mark and average mark are shown for the previous 12 EST examinations, including the examination that is the subject of this report (if applicable).



4.5 ER Examinations

This chart tracks the pass rate, median mark and average mark for all ER examinations conducted since 2004.

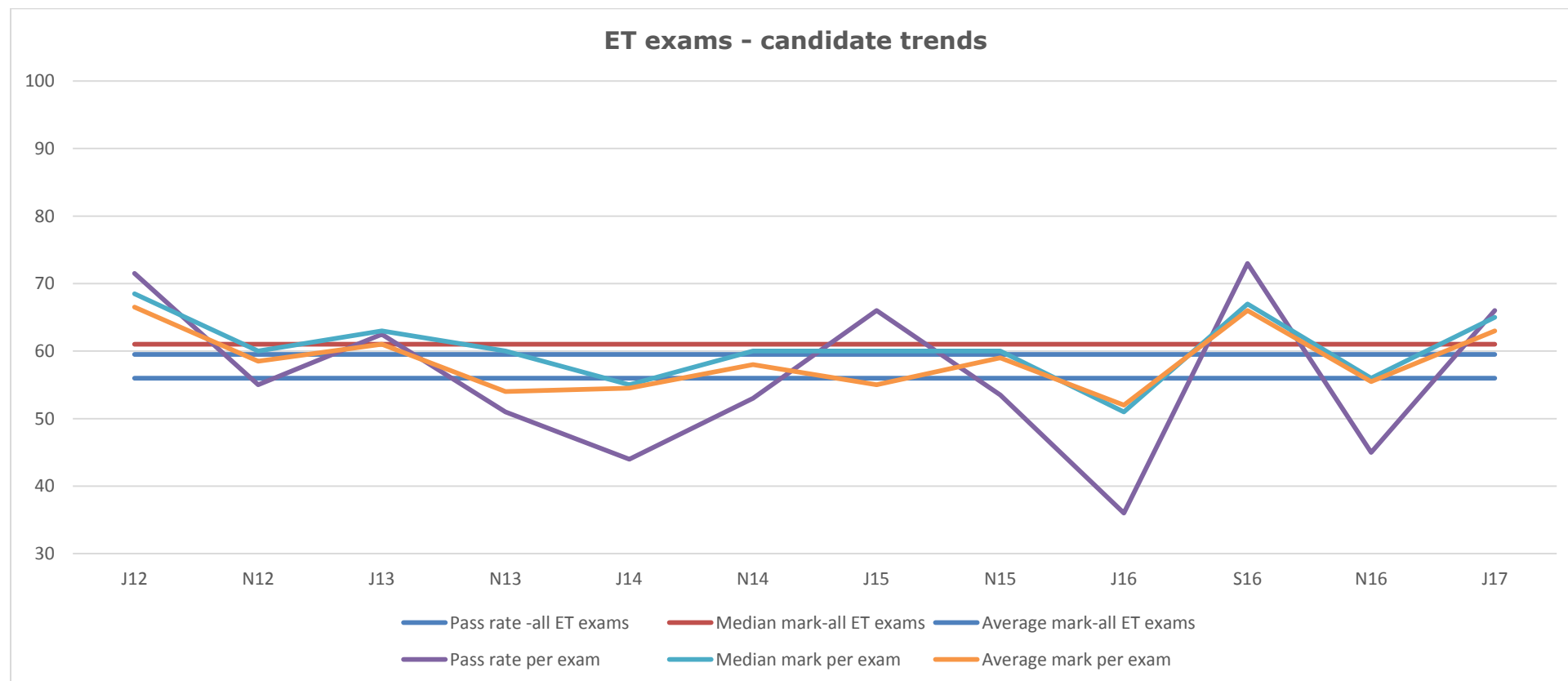
The trends in the pass rate, median mark and average mark are shown for the previous 12 ER examinations, including the examination that is the subject of this report (if applicable).



4.6 ET Examinations

This chart tracks the pass rate, median mark and average mark for all ET examinations conducted since 2004.

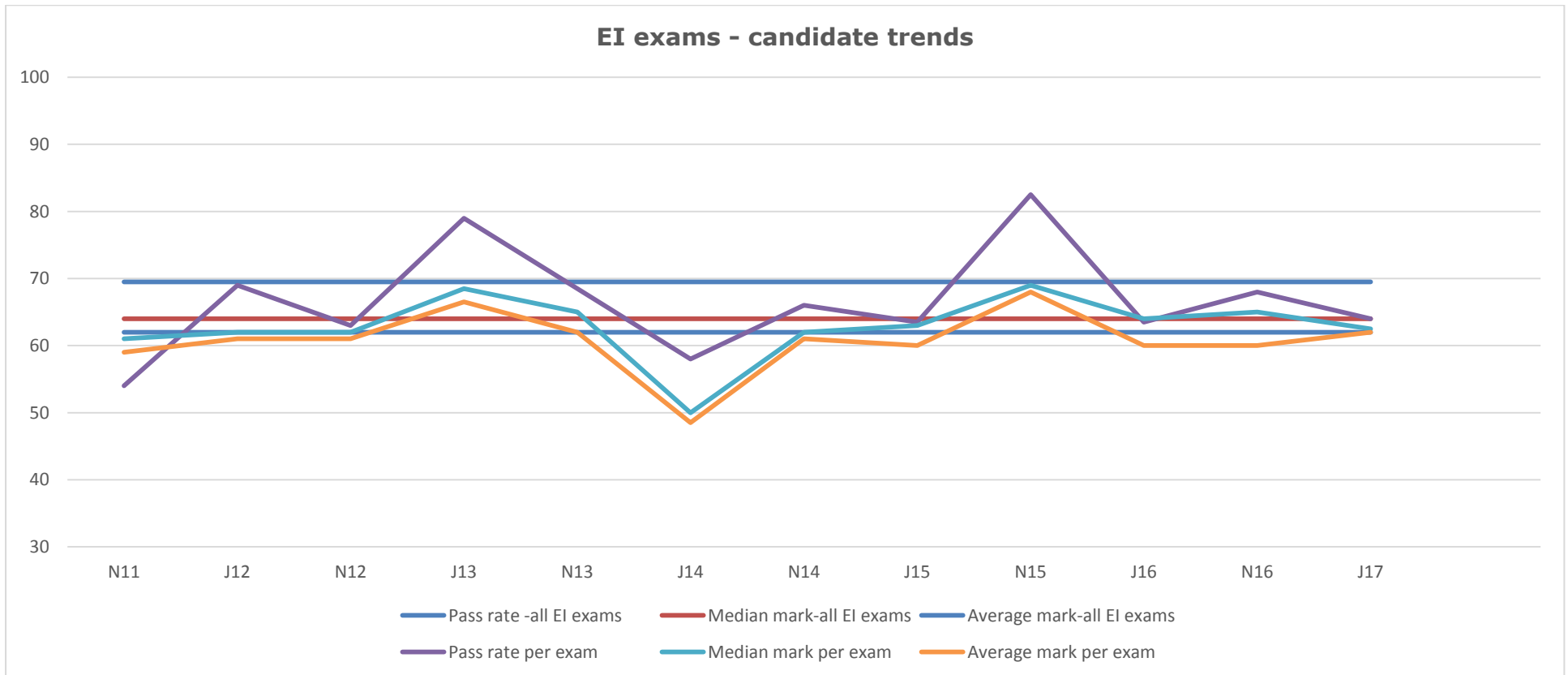
The trends in the pass rate, median mark and average mark are shown for the previous 12 ET examinations, including the examination that is the subject of this report (if applicable).



4.7 EI Examinations

This chart tracks the pass rate, median mark and average mark for all EI examinations conducted since 2004.

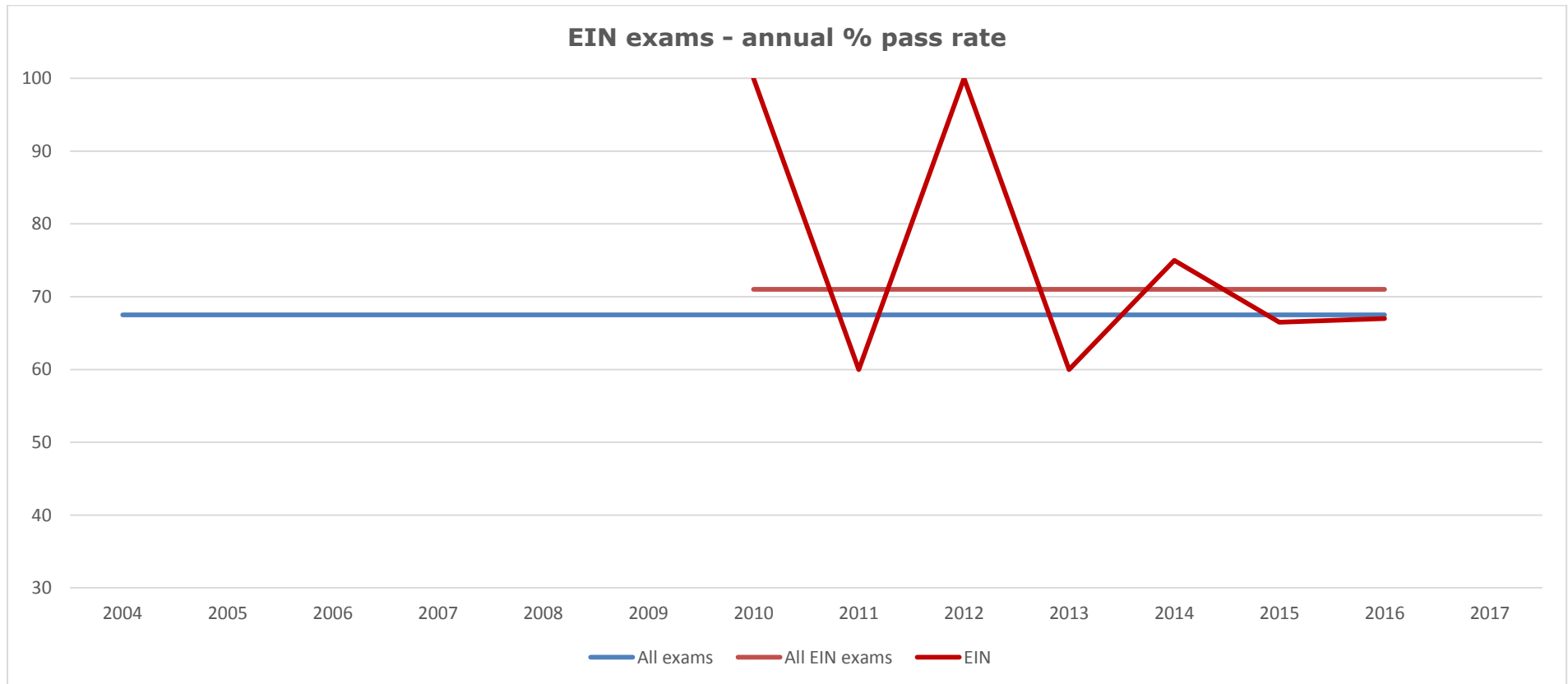
The trends in the pass rate, median mark and average mark are shown for the previous 12 EI examinations, including the examination that is the subject of this report (if applicable).



4.8 EIN Examinations

The pass rate for all exams sat since 2004 is 67.5%. The pass rate for all EIN exams sat since 2010 is 68%.

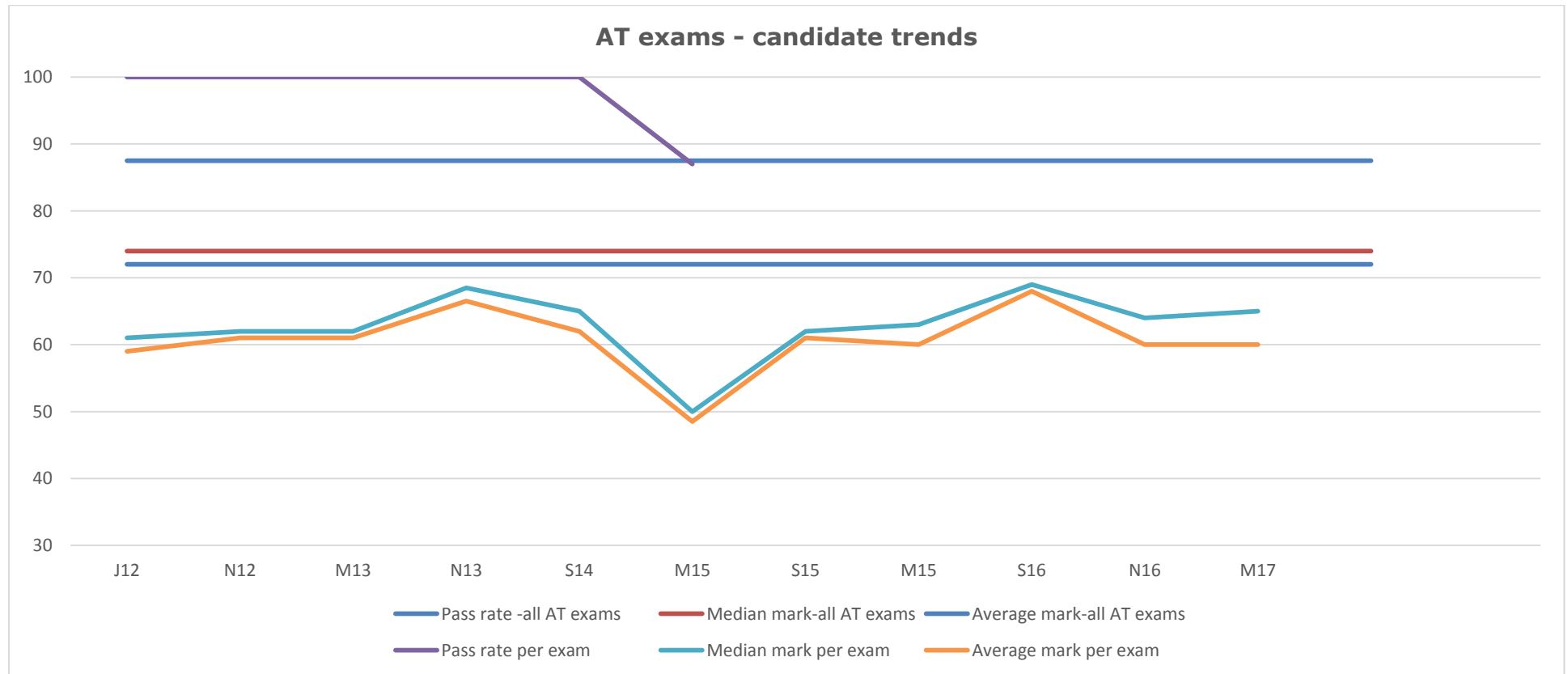
It is not possible to do any meaningful analysis on this examination. Only 25 candidates have sat since 2010.



4.9 AT Examinations

This chart tracks the pass rate, median mark and average mark for all AT examinations conducted since 2004.

The trends in the pass rate, median mark and average mark are shown for the previous 12 AT examinations, including the examination that is the subject of this report (if applicable).



5. Trends in examination centre pass rates

The examination centre pass rate data is derived from the calendar years 2009 to date. The calendar year is used because:

- (a) This coincides with the academic year.
- (b) New Board examination centre codes are issued each calendar year.

The examination centres shown are:

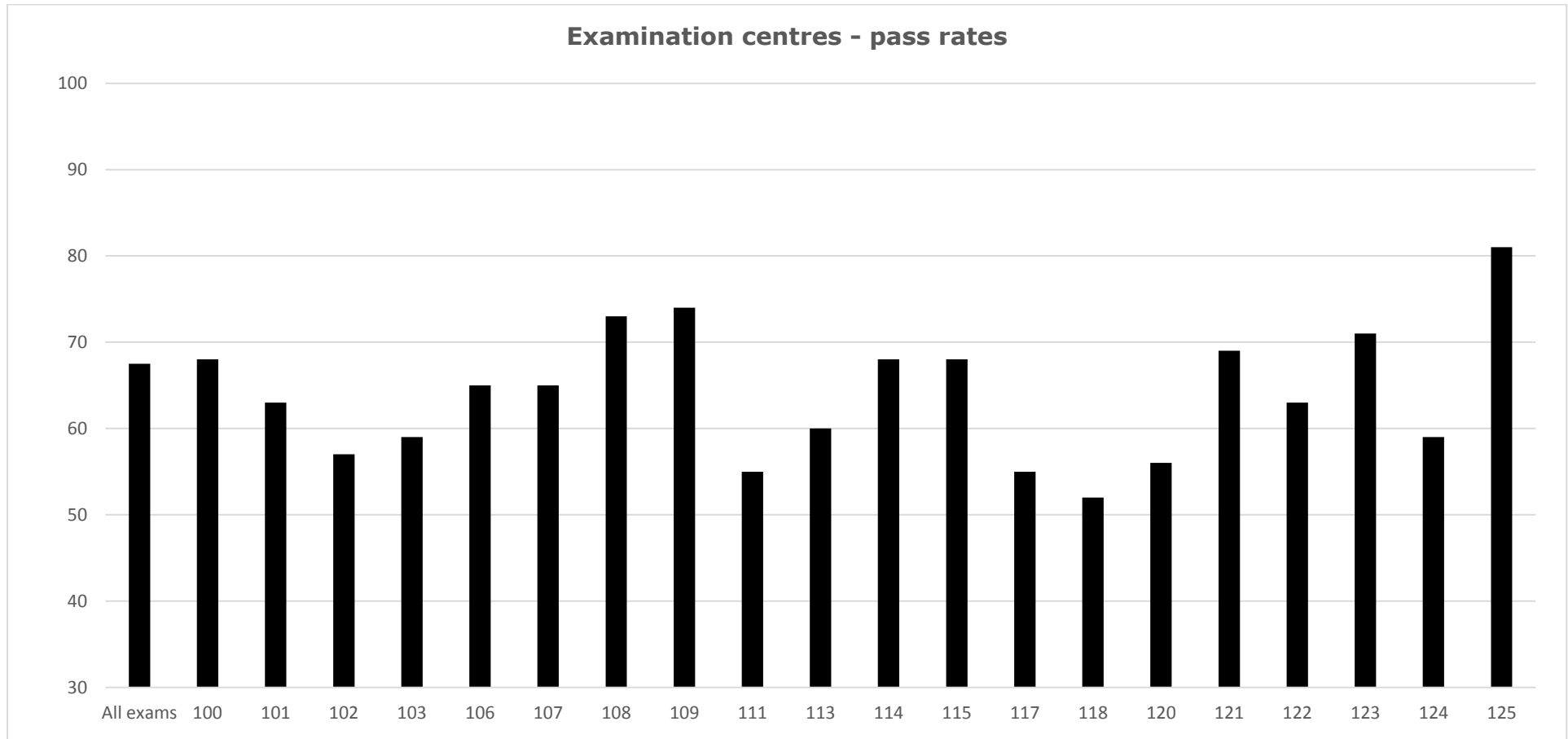
100
101
102
103
106
107
108
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114
115
117
118
120
121
122
123
124
125

- * These are centres that operate sporadically, such as the one in the United Kingdom

The charts for each individual examination show, in turn:

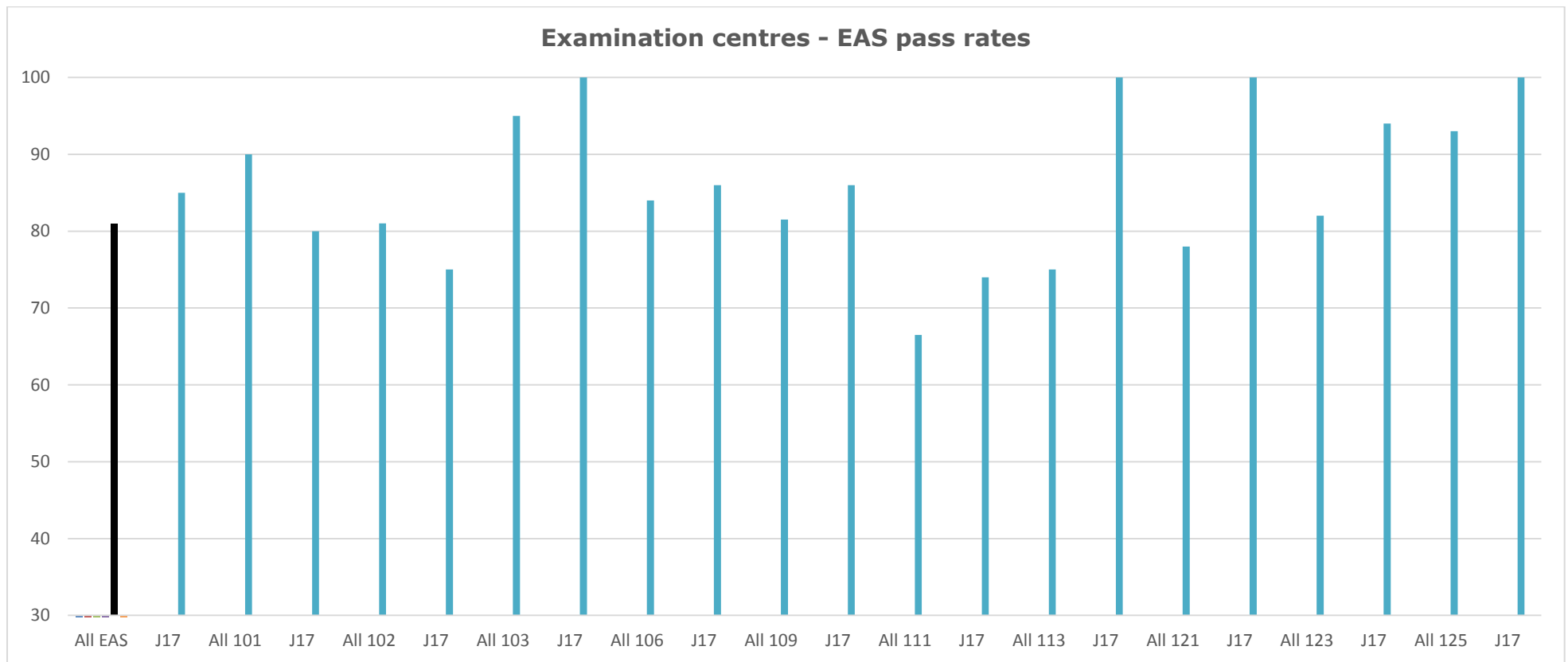
- The pass rate for all exams of that type since 2004.
- The pass rate for the examination in this examination round.
- For each examination centre that had candidates sit in this examination round:
 - * The pass rate for all examinations of that type sat at that centre since 2009 (All xxx).
 - * The pass rate at that centre for the examination in this examination round (M, Y).

5.1 All examinations



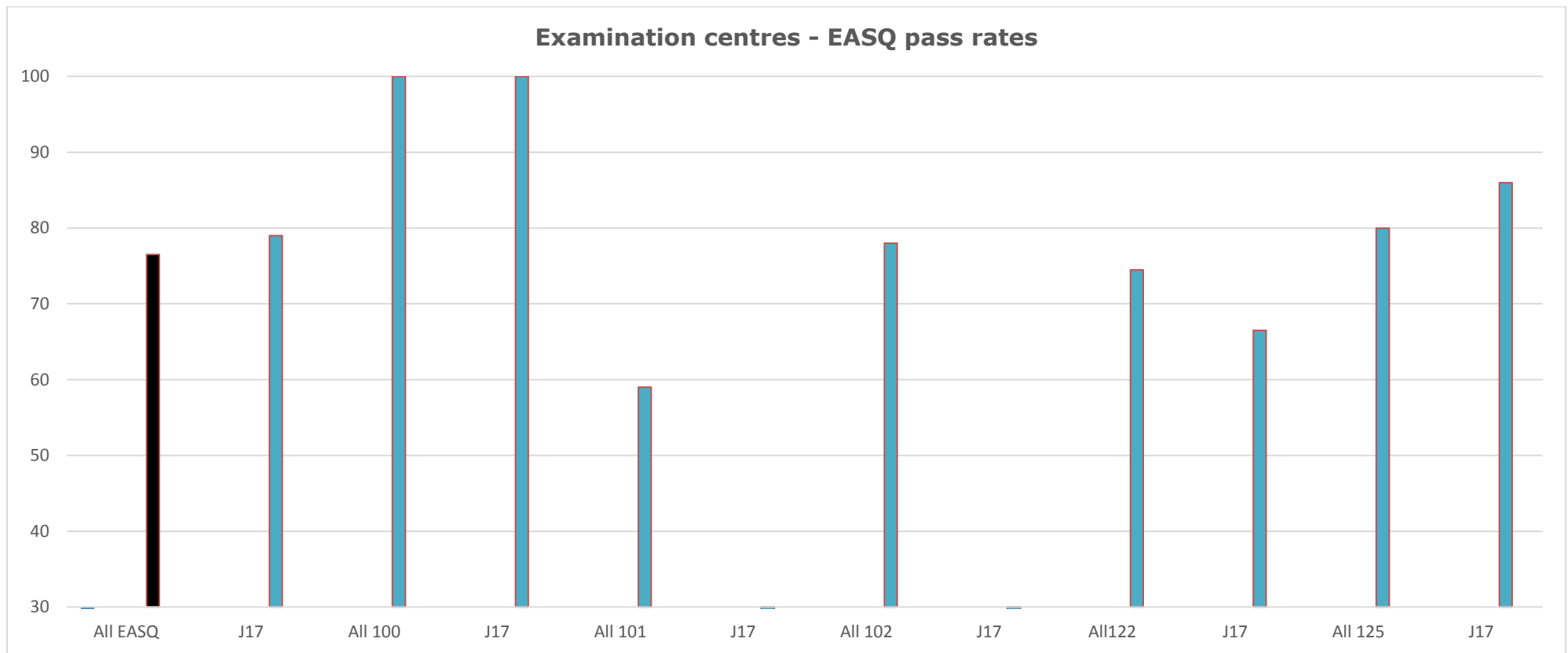
5.2 EAS Examinations

Centres 103 and 113 had one candidate each. Centres 121 and 125 had 3 candidates each



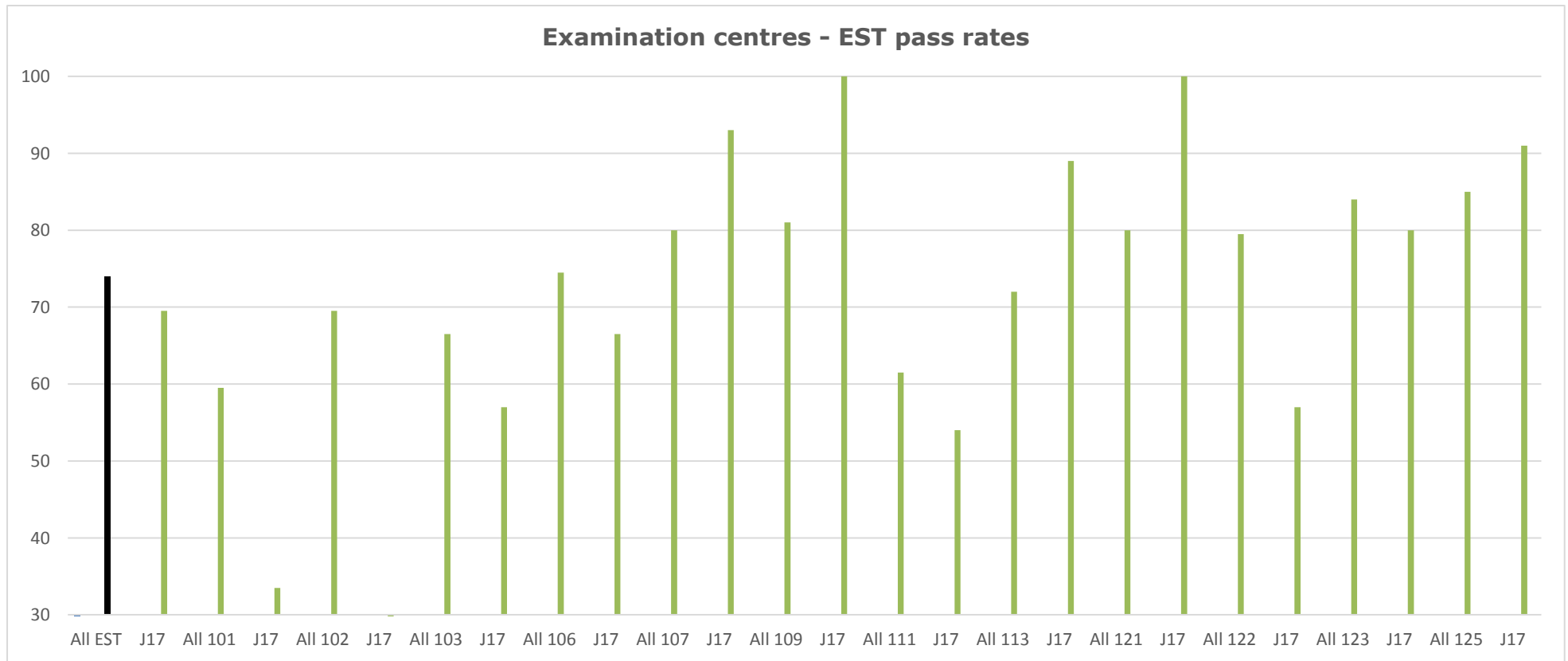
5.3 EASQ Examinations

Centre 101 had two candidates who failed. Centre 102 had one candidate who failed

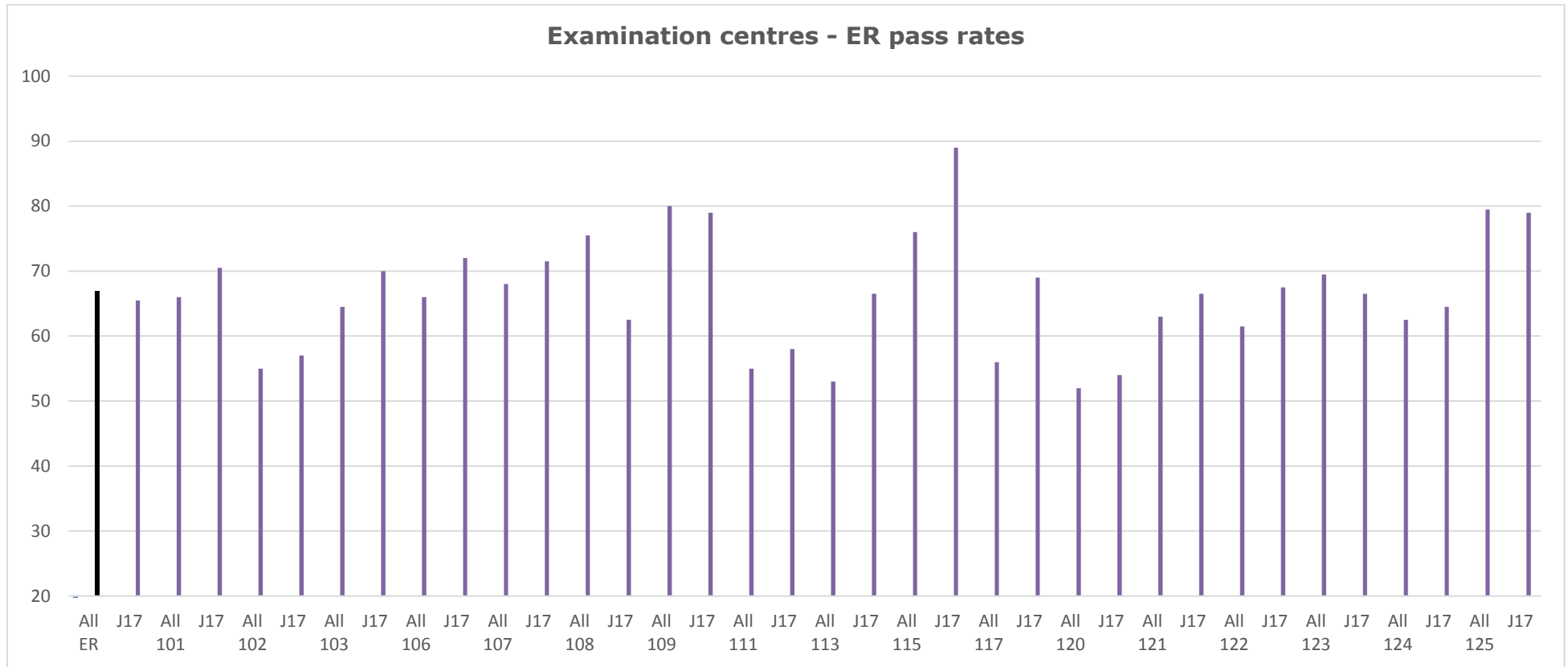


5.4 EST Examinations

Centre 109 had one candidate. Centre 121 had 3 candidates.

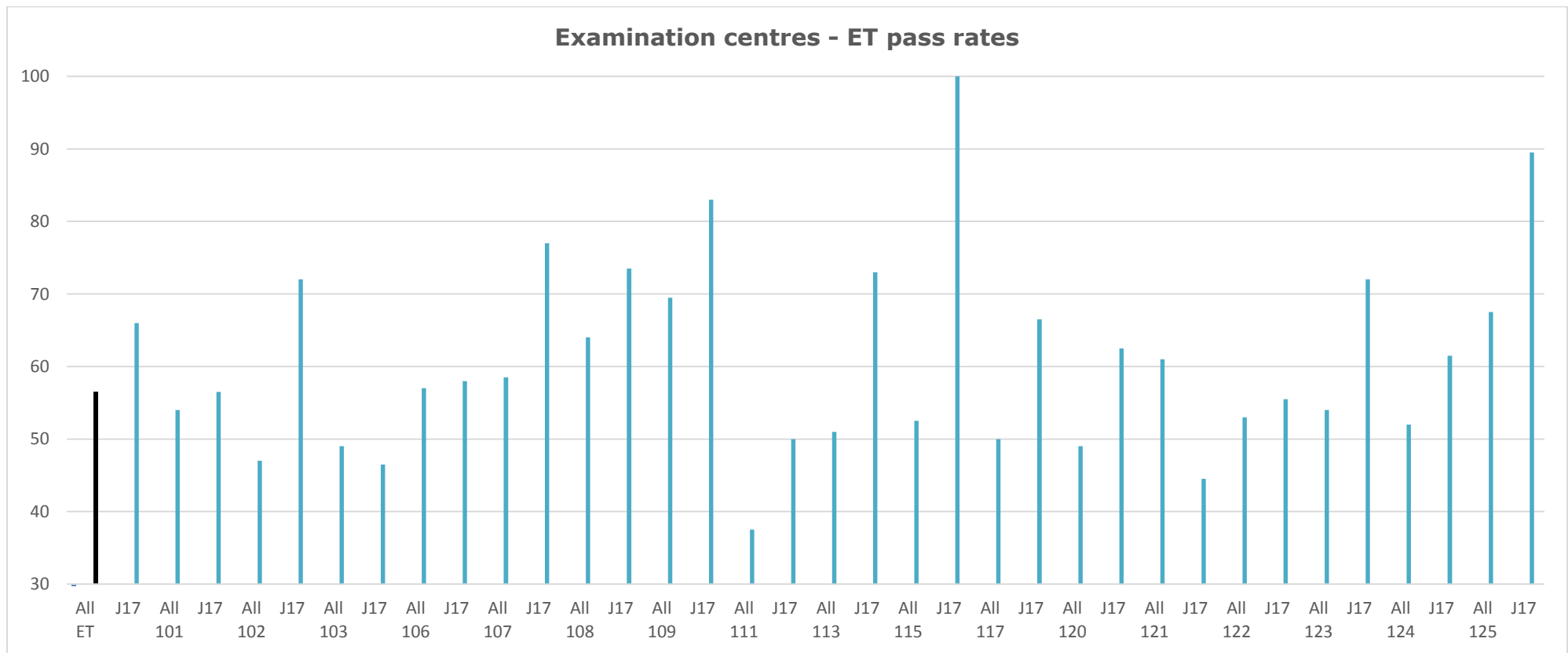


5.5 ER Examinations



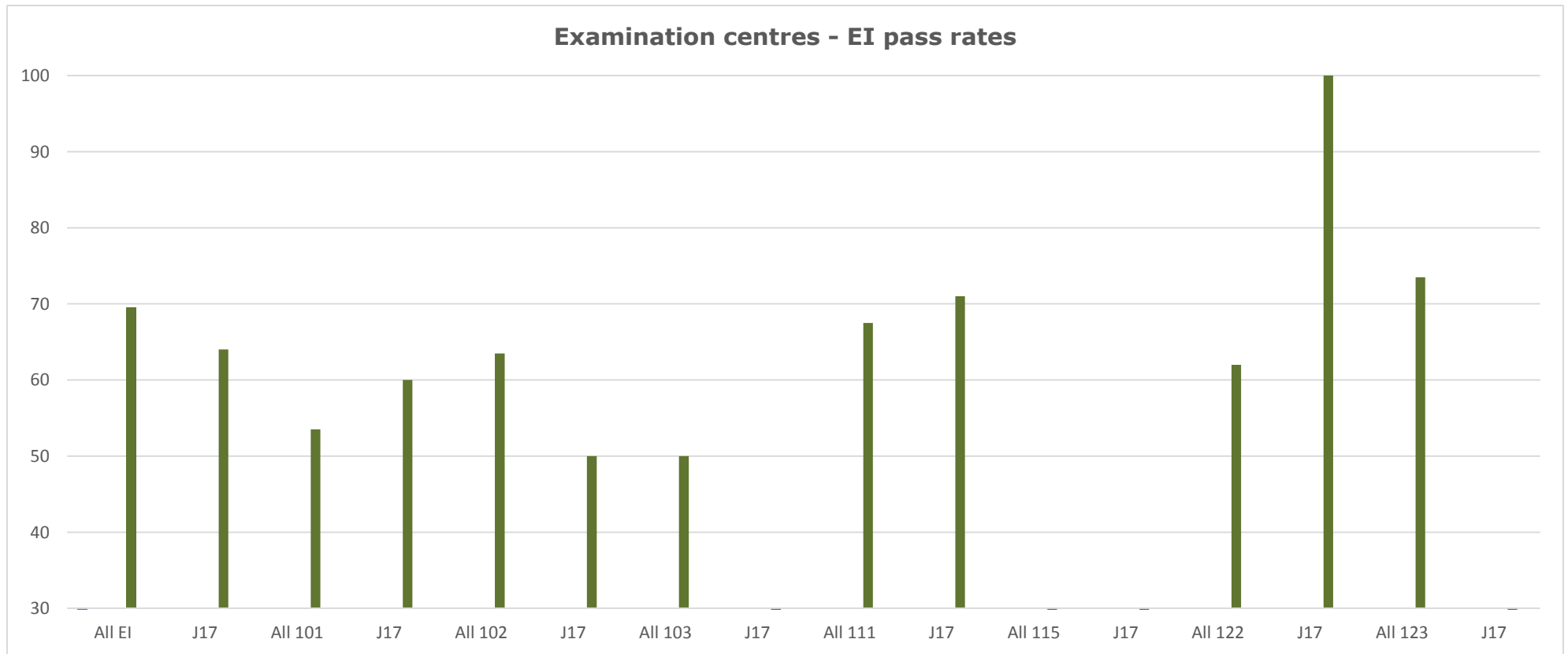
5.6 ET Examinations

Centre 115 had 2 candidates.

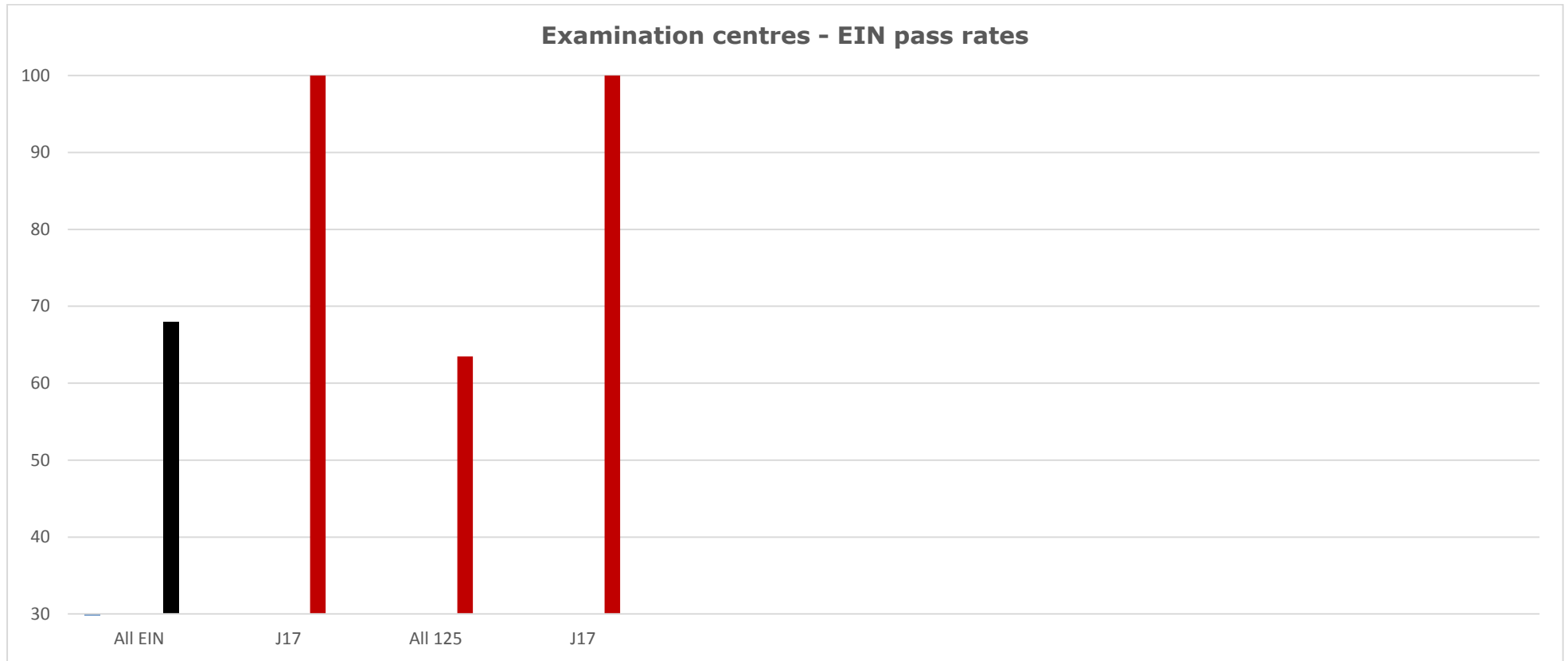


5.7 EI Examinations

Of the 50 candidates, 38 sat at centre 111. The candidates sitting at the other centres were 101 – 5, 102 – 2, 103 – 1, 115 – 2, 122 – 1 and 123 – 1.



5.8 EIN Examinations



5.9 AT Examinations

There was no AT examination in this examination round

