

**Section 57 of the Competition Act (Cap. 50B)**

**Grounds of Decision Issued by the Competition Commission of Singapore**

**In relation to the notification for decision of the proposed joint venture between CAE International Holdings Limited and Singapore Airlines Limited pursuant to section 57 of the Competition Act**

**31 January 2018**

**Case number: 400/010/17**

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Confidential information in the original version of this Decision has been redacted from the published version on the public register. Redacted confidential information in the text of the published version of the Decision is denoted by [X]
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## **I. INTRODUCTION**

### The notification

1. On 19 December 2017, CAE International Holdings Limited (“CAE”) and Singapore Airlines Limited (“SIA”) (collectively referred to as the “Parties”) filed a joint notification pursuant to section 57 of the Competition Act (Cap. 50B) (“the Act”) for a decision by the Competition Commission of Singapore (“CCS”) as to whether the proposed joint venture between CAE and SIA in respect of the provision of aircraft pilot training for Boeing aircraft platforms and any other aircraft type platforms, as mutually agreed between the Parties, in the Asia-Pacific (“APAC”)<sup>1</sup> region (“the Transaction”) will infringe the section 54 prohibition of the Act, if carried into effect.
2. In reviewing the Transaction, CCS contacted 12 competitors, such as other independent training centres and airline companies with capabilities for aircraft pilot training<sup>2</sup>, and 12 customers<sup>3</sup>. CCS also contacted the Civil Aviation Authority of Singapore (“CAAS”) for information as well as its views on the Transaction. While most of the third parties indicated that they have no concerns with the Transaction<sup>4</sup>, some competitors viewed the Transaction unfavourably<sup>5</sup>. Some customers and competitors have also provided feedback that the Transaction is likely to increase competition in the market for the provision of aircraft pilot training for Boeing aircraft platforms.<sup>6</sup>
3. At the end of the consultation process and after evaluating all the evidence, CCS concludes that the Transaction, if carried into effect, will not infringe section 54 of the Act.

## **II. THE PARTIES**

### CAE

4. CAE, which is a party to the Transaction, is an indirectly wholly-owned subsidiary of CAE Inc.<sup>7</sup> and is registered and incorporated in Canada.<sup>8</sup> CAE functions as an investment holding company of the CAE Inc. group of companies (“CAE

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<sup>1</sup> The Parties’ definition of APAC refers generally to Southeast Asia, East Asia, Polynesia, Australia, New Zealand, Melanesia, Micronesia and South Asia.

<sup>2</sup> [REDACTED].

<sup>3</sup> [REDACTED].

<sup>4</sup> [REDACTED].

<sup>5</sup> [REDACTED].

<sup>6</sup> [REDACTED].

<sup>7</sup> Paragraph 7.1 of Form M1.

<sup>8</sup> Paragraph 1.2 of Form M1.

Group”).<sup>9</sup> CAE had a branch office in Singapore, CAE International Holdings Limited (Singapore Branch), [REDACTED].<sup>10</sup>

5. CAE Inc. is the ultimate parent company of the CAE Group and it is a limited liability company incorporated in Canada, trading on the Toronto Stock Exchange and the New York Stock Exchange, having its registered office at 8585 Cote-de-Liesse, Saint-Laurent, Quebec, Canada H4T 1G6.<sup>11</sup>
6. The CAE Group organises its business into three business divisions, namely (i) Civil aviation training solutions; (ii) Defence and Security; and (iii) Healthcare.<sup>12</sup> The CAE Group designs, manufactures and supplies simulation equipment, provides training, and develops integrated training solutions for defence and security markets, commercial airlines, business aircraft operators, helicopter operators, aircraft manufacturers and for healthcare education and service providers. The CAE Group offers a range of flight training devices based on the same software used on its simulators. The CAE Group also operates a global network of training centres with locations around the world, including the Asia Pacific region where it provides training services for the Boeing Aircraft Types in Beijing and Tokyo.<sup>13</sup>
7. In Singapore, the CAE Group supplies the following goods and services<sup>14</sup>:
  - a. Aircraft pilot training services for the A320 aircraft type;
  - b. Supply of flight simulation equipment; and
  - c. Supply of medical simulation products and services, including patient, ultrasound and interventional (surgical) simulators, audio visual and simulation centre management solutions and courseware for simulation-based healthcare education and training.
8. The CAE Group’s subsidiaries in Singapore are Asian Aviation Centre of Excellence (Singapore) Pte. Ltd. (“AACE”) [REDACTED]<sup>15</sup>, CAE Aviation Services Pte. Ltd. [REDACTED], CAE Singapore (S.E.A) Pte. Ltd. [REDACTED]<sup>16</sup> and CAE Oxford Aviation Academy (Singapore) Pte. Ltd. [REDACTED].<sup>17</sup>

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<sup>9</sup> Paragraph 10.7 of Form M1.

<sup>10</sup> Paragraph 5.3 of Parties’ response dated 17 January 2018 to CCS’s RFI dated 12 January 2018.

<sup>11</sup> Paragraph 7.1 of Form M1.

<sup>12</sup> Paragraph 14.1 of Form M1.

<sup>13</sup> Paragraph 10.8 of Form M1. Annex 3 of Parties’ response dated 12 January 2018 to CCS’s RFI dated 8 January 2018.

<sup>14</sup> Paragraph 14.1 of Form M1.

<sup>15</sup> Paragraph 5.1 of Parties’ response dated 17 January 2018 to CCS’s Request for Information (“RFI”) dated 12 January 2018.

<sup>16</sup> Paragraph 10.12 of Form M1.

<sup>17</sup> Paragraph 5.2 of Parties’ response dated 17 January 2018 to CCS’s RFI dated 12 January 2018.

9. Global turnover for the CAE Group was approximately [X] in the fiscal year ended 31 March 2017.<sup>18</sup> Turnover in Singapore for the CAE Group for the same period was approximately [X].<sup>19</sup>

#### SIA

10. SIA is a company incorporated in Singapore and listed on the Singapore Exchange Securities Trading Limited (“SGX-ST”).<sup>20</sup> SIA is the ultimate parent company of the SIA group of companies (“SIA Group”).<sup>21</sup> The SIA Group’s activities in Singapore comprises of (a) passenger and cargo air transportation services; (b) engineering services; (c) training of pilots; and (d) air charters, tour wholesaling and related activities.<sup>22</sup>
11. SIA is the national airline of Singapore and therefore conducts the bulk of its operations from Singapore. SIA does not actively provide market facing aircraft pilot training services as its core business activity. Its involvement in pilot training is primarily for its own in-house training requirements, being ancillary and necessary to the provision of its core business activities (i.e. air passenger services and cargo transportation services).<sup>23</sup>
12. Global group turnover for SIA was approximately S\$14,868.5 million in the fiscal year ended 31 March 2017.<sup>24</sup> Group turnover in Singapore for SIA for the same period was approximately [X].<sup>25</sup>

#### Relationship between CAE and SIA

13. The following links exist between the Parties (including taking into account their respective groups):
- a. [X].<sup>26</sup>
  - b. [X].<sup>27</sup>
  - c. [X].<sup>28</sup>

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<sup>18</sup> Paragraph 13.2 of Form M1.

<sup>19</sup> Paragraph 13.4 of Form M1.

<sup>20</sup> Paragraph 7.4 of Form M1.

<sup>21</sup> Paragraph 7.5 of Form M1.

<sup>22</sup> Paragraph 14.1 of Form M1.

<sup>23</sup> Paragraph 11.5 of Form M1.

<sup>24</sup> Paragraph 13.1 of Form M1.

<sup>25</sup> Paragraph 13.3 of Form M1.

<sup>26</sup> Paragraph 9.1.1 of Form M1.

<sup>27</sup> Paragraph 9.1.2 of Form M1.

<sup>28</sup> Paragraph 9.1.3 of Form M1.

### III. THE TRANSACTION

14. The Transaction relates to the establishment of a full-function joint venture (“the Proposed JV”) which will establish, develop and operate a commercial fixed wing flight training centre in Singapore to offer type-rated, recurrent and conversion pilot training for certain Boeing aircraft platforms – B744, B777, B787 and B737MAX (the “Boeing Aircraft Types”) – and possibly other Boeing aircraft platforms, as well as any other aircraft type platforms as mutually agreed between the Parties. The Proposed JV will primarily support the training needs of SIA and SIA’s wholly-owned subsidiaries<sup>29</sup>, [REDACTED].<sup>30</sup> Where capacity allows, the Parties intend for the Proposed JV to provide its services to third party airlines and other customers.<sup>31</sup> The Parties also submitted that the Proposed JV targets to provide training to third parties amounting up to [REDACTED]<sup>32</sup> and [REDACTED].<sup>33</sup>
15. The Parties submitted that [REDACTED].<sup>34</sup> The Parties also submitted that the Proposed JV may potentially offer pilot training services for other aircraft type platforms [REDACTED].<sup>35</sup> [REDACTED].<sup>36</sup>
16. Further, the Parties submitted that aircraft pilot training providers may offer either “dry” training, which is the provision of access to equipment and infrastructure (i.e. providing simulator capacity to customers) without instructors, or “wet training”, which comprises the provision of access to equipment and infrastructure as well as the instructors and training material.<sup>37</sup> [REDACTED].<sup>38</sup> The Parties also submitted that the Proposed JV will be active in only the provision of type-rated (or conversion) and recurrent pilot training (i.e., not involved in *ab initio* training) for each of the Boeing Aircraft Types.<sup>39</sup>
17. Pursuant to a Memorandum of Understanding dated 10 August 2017, the Parties intend to enter into a Joint Venture Agreement (“JVA”) to set up the Proposed JV, to be incorporated in Singapore. The Parties have submitted a draft copy of the JVA to CCS<sup>40</sup>, [REDACTED].<sup>41</sup> [REDACTED].<sup>42</sup>

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<sup>29</sup> Paragraph 1.1 of Form M1.

<sup>30</sup> Footnote 1 of Form M1 and Clause 2 of the JVA. Pages 38 to 43, 162 and 163 of [REDACTED], Annex 4 of Form M1. [REDACTED].

<sup>31</sup> Paragraph 1.1 of Form M1.

<sup>32</sup> [REDACTED].

<sup>33</sup> Page 6 of the Memorandum of Understanding between CAE and SIA, Annex 12 of Form M1.

<sup>34</sup> Paragraphs 1.1 and 1.2 of the Parties’ response dated 3 January 2018 to CCS’s RFI dated 26 December 2017.

<sup>35</sup> Paragraphs 1.2 and 11.2 of Form M1.

<sup>36</sup> Paragraphs 1.1 and 11.2 of Form M1. Paragraph 1.2 of the Parties’ response dated 3 January 2018 to CCS’s RFI dated 26 December 2017.

<sup>37</sup> Paragraph 18.4 of Form M1.

<sup>38</sup> Paragraph 18.5 of Form M1.

<sup>39</sup> Paragraph 18.5 of Form M1.

<sup>40</sup> Annex 11 of Form M1.

<sup>41</sup> Annex 4 of Parties’ response dated 12 January 2018 to CCS’s RFI dated 8 January 2018.

<sup>42</sup> Paragraphs 18.1 and 18.2 of the Parties’ response dated 12 January 2018 to CCS’s RFI dated 8 January 2018.

18. [X].<sup>43</sup> The total capital contribution to the Proposed JV is estimated to be approximately [X], of which SIA will be contributing [X]<sup>44</sup>:

[X]	[X]
[X]	[X]
[X]	[X]
[X]	[X]
[X] <sup>45</sup>	[X]
[X]	[X]
[X]	[X]
[X]	[X]
[X]	[X]
[X]	

19. CCS notes that the Proposed JV is not yet completed and [X]. The Parties submitted that besides the notification to CCS, the Parties have also submitted their [X] merger notification to the European Commission on [X] and intends to submit merger notifications to [X].<sup>46</sup>
20. The creation of a joint venture to perform, on a lasting basis, all the functions of an autonomous economic entity is a merger subject to the section 54 prohibition of the Act. Paragraph 3.23 of the *CCS Guidelines on the Substantive Assessment of Mergers 2016* (“*CCS Merger Guidelines*”) states that, a joint venture that falls within the definition of a merger under section 54 of the Act must fulfil the following criteria:
- a. It must be subject to joint control;
  - b. It must perform all the functions of an autonomous economic entity; and
  - c. It must do so on a lasting basis.

#### Joint control

21. Joint control over an undertaking exists where two or more parties have the possibility of exercising decisive influence over that undertaking, including the

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<sup>43</sup> Clause 4.1.1 of the JVA.

<sup>44</sup> Paragraph 11.7 of Form M1; Page 14 of [X], Annex 10 of Form M1.

<sup>45</sup> [X].

<sup>46</sup> Paragraph 5.1 of Form M1.

power to block actions which determine the strategic commercial behaviour of an undertaking.<sup>47</sup> The Parties submitted that CAE and SIA will jointly control the Proposed JV.<sup>48</sup>

22. According to the JVA, the Board of Directors (“the Board”) will comprise of [X].<sup>49</sup> The Chairman of the Board will be appointed by the Parties [X].<sup>50</sup> The quorum for the meeting of the Board [X].<sup>51</sup> All decisions of the Board will be decided by [X].<sup>52</sup> The Parties submitted that reserved matters [X].<sup>53</sup>
23. In addition, CCS notes that [X].<sup>54</sup> The Chairman of the Board shall also [X].<sup>55</sup> [X].<sup>56</sup>

#### Autonomous economic entity

24. In order for a joint venture to operate on a market, perform the functions normally carried out by undertakings operating on that market and to conduct its business activities on a lasting basis, the joint venture must have a management dedicated to its day-to-day operations and access to sufficient resources, including finance, staff and assets (tangible and intangible).<sup>57</sup>
25. The Parties submitted that the Proposed JV will have a full management team dedicated to its day-to-day operations, hire its own staff and have access to sufficient resources to conduct business activities within the scope of the JVA, independently of the Parties.<sup>58</sup> Pursuant to the JVA, [X].<sup>59</sup> [X].<sup>60</sup> [X].<sup>61</sup> [X].<sup>62</sup>
26. The Parties submitted that the Proposed JV will provide the aircraft pilot training services to support the training needs of the SIA and its subsidiaries, as well as third party airlines and other customers, with a view to increasing and growing the Proposed JV’s customer base. The Parties also submitted that the Proposed JV

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<sup>47</sup> Paragraph 3.25 of the *CCS Merger Guidelines*.

<sup>48</sup> Paragraph 11.3.1 of Form M1.

<sup>49</sup> Clause 4.1.1 of the JVA and paragraph 11.3.1 of Form M1.

<sup>50</sup> Clause 4.1.2 of the JVA.

<sup>51</sup> Clause 4.3.2.4 of the JVA and paragraph 11.3.1 of Form M1.

<sup>52</sup> Clause 4.3.1 of the JVA and paragraph 11.3.1 of Form M1.

<sup>53</sup> Clause 4.5 and Schedule 4.5 of the JVA and paragraph 11.3.1 of Form M1.

<sup>54</sup> Clause 4.4.1 of the JVA.

<sup>55</sup> Clause 4.4.4 of the JVA.

<sup>56</sup> Clause 4.4.6 of the JVA.

<sup>57</sup> Paragraph 3.27 of the *CCS Merger Guidelines*.

<sup>58</sup> Paragraph 11.3.2 of Form M1.

<sup>59</sup> Clauses 4.2(a) and (b) of the JVA.

<sup>60</sup> Clause 8.1.2 of the JVA and paragraph 11.3.2 of Form M1.

<sup>61</sup> Clauses 8.1.3 and 8.1.6 of the JVA and paragraph 11.3.2 of Form M1.

<sup>62</sup> Schedule 8.1.4 of the JVA.

targets to provide training to third parties amounting up to [X]<sup>63</sup> and [X].<sup>64</sup> [X].<sup>65</sup>

27. Lastly, in addition to the [X] to be contributed by SIA to the Proposed JV, as referred to at paragraph 18 above, the capital contributions to be made by the Parties will be used to [X].<sup>66</sup>

#### Function on a lasting basis

28. The Parties submitted that the Proposed JV is expected to continue for an indefinite period of time. [X].<sup>67</sup>

#### *CCS's conclusion on whether the joint venture constitutes a merger*

29. Based on the Parties' submission that the Transaction consists of the creation, on a lasting basis, of a joint venture in respect of the provision of aircraft pilot training services for Boeing aircraft platforms and possibly other aircraft type platforms, as mutually agreed between the Parties, in the APAC region, and which is subject to effective joint control of its parent companies (i.e. CAE and SIA) and performs all the functions of an autonomous economic entity, the Transaction constitutes a merger falling under section 54(2)(b) of the Act.

## **IV. COMPETITION ISSUES**

30. For this Transaction, the Parties submitted that CAE and SIA technically overlap in relation to aircraft pilot training services, specifically for the B777 aircraft type.<sup>68</sup> While the Parties also overlap in the provision of aircraft pilot training services for A320 aircraft types, through CAE's ownership of AACE and through SIA's 45% shareholding of Airbus Asia Training Centre ("AATC"), the Parties submitted that it will not be considered relevant for the purpose of this Transaction as the joint venture will not be involved in the provision of training related to Airbus aircraft types.<sup>69</sup>
31. The Parties submitted that CAE currently provides aircraft pilot training for B777 and B787 aircraft types in the Asia Pacific region, through its various subsidiaries / joint ventures / associate companies, but currently has no presence in Singapore

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<sup>63</sup> [X].

<sup>64</sup> Page 6 of the Memorandum of Understanding between CAE and SIA, Annex 12 of Form M1.

<sup>65</sup> Paragraph 11.3.2 of Form M1

<sup>66</sup> Clauses 5.1.3 of the JVA.

<sup>67</sup> Paragraph 11.3.3 of Form M1.

<sup>68</sup> Paragraph 41.2 of Form M1 read with Paragraph 4.2.3 of the Parties' response dated 3 January 2018 to CCS's RFI dated 26 December 2017.

<sup>69</sup> Paragraph 15.2 of Form M1.



in relation to these aircraft types.<sup>70</sup> SIA does not actively provide market facing aircraft pilot training services as a core business activity.<sup>71</sup> It undertakes its own in-house pilot training for B744 and B777 aircraft types in Singapore.<sup>72</sup> The only exception was [X].<sup>73</sup>

32. In addition, CAE is also a supplier of training devices (i.e. Full Flight Simulator (“FFS”) and Fixed Training Device (“FTD”) equipment) and the simulation software required to operate and drive the primary functions of its training devices (i.e. to power and operate the basic, visual motion and other electronic functions).<sup>74</sup> CCS understands that the simulation software is different from the data packages supplied only by Boeing as the manufacturer of Boeing aircraft, which mimics the characteristics of the particular aircraft type to which the simulator is configured.<sup>75</sup>
33. In evaluating the potential impact of the Transaction, CCS considered whether the Transaction will lead to coordinated, non-coordinated and vertical effects that would substantially lessen competition or raise competition concerns in the markets for the provision of pilot training services in Singapore and/or Asia Pacific region and for the provision of training devices.

## V. COUNTERFACTUAL

34. As stated at paragraph 4.14 of the *CCS Merger Guidelines*, CCS will, in assessing mergers and applying the Substantial Lessening of Competition (“SLC”) test, evaluate the prospects for competition in the future with and without the merger. The prospective competitive situation without the merger is referred to as the “counterfactual”.
35. The *CCS Merger Guidelines* also states that in most cases, the best guide to the appropriate counterfactual will be prevailing conditions of competition, as this may provide a reliable indicator of future competition without the merger. However, CCS may need to take into account likely and imminent changes in the structure of competition in order to reflect as accurately as possible the nature of rivalry without the merger.<sup>76</sup>

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<sup>70</sup> Paragraph 19.4 of Form M1 read with Paragraph 4.2.2 of the Parties’ response dated 3 January 2018 to CCS’s RFI dated 26 December 2017.

<sup>71</sup> Paragraph 19.3 of Form M1.

<sup>72</sup> Paragraph 19.3 of Form M1.

<sup>73</sup> Paragraph 16.2 of Form M1.

<sup>74</sup> Paragraph 1.1 of the Parties’ response dated 15 January 2018 to CCS’s RFI dated 8 January 2018.

<sup>75</sup> Paragraph 1.2 of the Parties’ response dated 15 January 2018 to CCS’s RFI dated 8 January 2018.

<sup>76</sup> Paragraph 4.16 of the *CCS Merger Guidelines*.

### *The Parties' submission*

36. The Parties submitted that in the absence of the Transaction, CAE will continue to supply FFS and FTD equipment to SIA and other third parties while SIA will continue to provide its pilot training services internally.<sup>77</sup> Accordingly, the Parties consider that the counterfactual, for the purposes of the CCS's assessment of this notification, ought to be the status quo.<sup>78</sup>
37. CCS is of the view that the prevailing conditions of competition i.e. where CAE and SIA are potential competitors in the provision of aircraft pilot training services, and where CAE continues to supply training devices and simulation software to downstream aircraft pilot training service providers would be the appropriate counterfactuals on which CCS would base its competition assessment.

## **VI. RELEVANT MARKETS**

38. The Parties have submitted that the relevant market for the purpose of this notification is the provision of commercial aircraft pilot training services for the respective Boeing Aircraft Types.<sup>79</sup> The Parties also submitted that there are three broad categories of aircraft pilot training; *ab initio* training, type-rated or conversion pilot training and recurrent training.<sup>80</sup>
39. Further, the Parties submitted that the product market may be segmented by aircraft type.<sup>81</sup> On whether the product market can be segmented by the types of training, the Parties considered that it was not necessary nor appropriate for the purpose of assessing the Transaction.<sup>82</sup> The segmentation based on the types of aircrafts is described below.
40. CCS is of the view that given CAE is a supplier of training devices and the simulation software required to operate its training devices used by downstream aircraft pilot training service providers, the supply of training devices and their accompanying simulation software would also be relevant to CCS's assessment of vertical effects for this Transaction. However, as SIA does not supply training devices and simulation software and there is no indication that it would or could do so, SIA is not an actual or potential competitor in this market. Accordingly, the Parties do not overlap in this market and there are no horizontal effects arising from the Proposed JV in this market.

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<sup>77</sup> Paragraph 23.2 of Form M1.

<sup>78</sup> Paragraph 23.3 of Form M1.

<sup>79</sup> Paragraph 20.1 of Form M1.

<sup>80</sup> Paragraph 18.2 of Form M1.

<sup>81</sup> Paragraphs 20.2 and 20.3 of Form M1.

<sup>82</sup> Paragraphs 20.4, 20.5 and 20.6 of Form M1.

## **(a) Product market**

### Provision of pilot training for the Boeing Aircraft Types

41. The Parties submitted that the commercial aviation training services market comprises of aviation training solutions for, among others, flight, cabin, maintenance, ground personnel, and crew sourcing services. Aircraft pilot training is one segment of aviation training solutions.<sup>83</sup>
42. There are three broad categories of aircraft pilot training<sup>84</sup>:
  - a. *Ab initio* training;
  - b. Type-rated (or conversion) pilot training; and
  - c. Recurrent training
43. In practice, a pilot must first undergo *ab initio* training to obtain a licence. The pilot will then undergo type-rated pilot training in order to be able to fly on a specific aircraft. When a pilot is type-rated, they must then undergo recurrent training annually to retain the necessary licence endorsements.<sup>85</sup>
44. For commercial aviation training on Boeing and Airbus aircraft type platforms, aircraft pilot training providers may offer either “dry” training or “wet” training.<sup>86</sup>
45. The Parties submitted that there are generally three groups of suppliers of aircraft pilot training service providers, namely (i) the aircraft manufacturers (e.g. Boeing, Airbus), (ii) airlines, who primarily train their own pilots internally and may market excess capacity to other customers, and (iii) independent third-party training centres (e.g. HAITE).<sup>87</sup>
46. Intermediate customers are aircraft pilot training service providers (i.e., aircraft manufacturers, airlines or third-party training centres) who may be facing capacity constraints, and may require other pilot training services to fulfil excess demand. End customers are mainly airlines, and occasionally cadets or self-sponsored pilots who require type rating training, or individual pilots who attend private lessons to prepare for job interviews or renew their licences.<sup>88</sup> End-customers may be categorised according to whether they are contractual customers (i.e. the services are provided as part of the contract between aircraft manufacturers and airlines, also known as “entitlement training”), or whether they are customers who

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<sup>83</sup> Paragraph 18.1 of Form M1.

<sup>84</sup> Paragraph 6.1 of Parties’ response dated 3 January 2018 to CCS RFI.

<sup>85</sup> Paragraph 18.2 of Form M1; [3<]’s response dated 19 January 2018 to Question 5 of CCS’s RFI.

<sup>86</sup> Paragraph 18.4 of Form M1.

<sup>87</sup> Paragraph 18.6 and 18.7 of Form M1.

<sup>88</sup> Paragraph 18.10 and 18.11 of Form M1.

source for aircraft pilot training services separately and directly from aircraft pilot training providers.<sup>89</sup>

47. The Parties submitted a summary of the differences in training hours, costs and regulatory approvals across the types of pilot training services.<sup>90</sup>

<b>Types of training</b>	<b><i>Ab initio</i> training</b>	<b>Type-rated or conversion pilot training</b>	<b>Recurrent training</b>
How training is conducted	<p>A typical training consists of four phases.</p> <p>Phase 1A: Technical studies and exams.</p> <p>Phase 1B: Practical sessions on small airplane.</p> <p>Phase 2: Additional trainings in FTD.</p> <p>Phase 3: Further trainings in a FFS.</p> <p>Phase 4: Trainings on actual aircraft type (e.g. B777 etc.).</p>	<p>This training is designed for a commercial pilot certified to operate a specific type of aircraft, who wishes to switch to another type of aircraft. It would typically consist of three phases.</p> <p>Phase 1: Ground study (technical aspect of the aircraft intended to switch to).</p> <p>Phase 2: Trainings on FTD.</p> <p>Phase 3: Trainings on a FFS.</p> <p>Trainings are conducted using flight training devices and simulators.</p>	<p>This training is designed for all current crew on the aircraft. In Singapore, regulations require each commercial pilot to undertake this training every six month.</p> <p>Trainings are conducted solely on FFS.</p>
Length of training required	Approximately 25 calendar months	Approximately 6-8 weeks	Approximately up to 2 days for each recurrent training
Cost of training	[X]	[X]	[X]
Regulatory Approvals (Refer to <u>Annex A</u> for	In Singapore, a FTO approval of CAAS is required for a training organisation	In Singapore, a TRTO approval of CAAS is required for a training organisation to provide	In Singapore, this is required under the AOC (Aircraft Operating

<sup>89</sup> Paragraph 18.12 of Form M1.

<sup>90</sup> Paragraph 6.1 of the Parties' response dated 3 January 2018 to CCS's RFI dated 26 December 2017.

a detailed description of the regulatory environment)	to provide <i>ab initio</i> training. Trainees will receive certificates from the relevant aviation authority (CAAS in Singapore) provided that he/she has passed all exams and have met all competency requirements as set out by such aviation authority.	type-rated or conversion training.  Trainees will be rated (i.e. certified) on the new type of aircraft by the relevant aviation authority.	Certificate) issued to the airlines by CAAS. Records of recurrent training are maintained by the operators.
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*The Parties' submission on segmentation by aircraft types*

48. The Parties submitted that from a demand perspective, aircraft pilot training services for different Boeing aircraft types are non-substitutable, due to the difference in the physical layout, system and handling characteristics of each type of aircraft, which accordingly require specific training services.<sup>91</sup> The Parties cited the example where the flight control for a B744 aircraft is cable/hydraulic driven, whilst the flight control for a B777 is computer/hydraulic driven, and hence a pilot operating B744 would require different training from a pilot operating a B777 aircraft.<sup>92</sup>
49. In support of their submission, the Parties further cited the Airbus/SIA decision, where CCS assessed that different families of Airbus aircrafts require different training, have separate sets of regulatory requirements, and are not substitutable for one another. This would similarly apply to pilot training between Airbus and Boeing (or any other aircraft manufacturer) aircrafts.<sup>93</sup>
50. The Parties submitted that from a supply side perspective, training devices for Boeing aircraft, including parts of the simulation software, are aircraft type-specific, and cannot be reconfigured for training on a different aircraft type. Further, the different Boeing Aircraft Types have different regulatory requirements which are not substitutable for one another.<sup>94</sup>
51. Accordingly, the Parties submitted that the product market for pilot training services should be segmented by aircraft types.

<sup>91</sup> Paragraph 8.2 of the Parties' response dated 3 January 2018 to CCS's RFI dated 26 December 2017.

<sup>92</sup> Paragraph 8.1 of the Parties' response dated 3 January 2018 to CCS's RFI dated 26 December 2017.

<sup>93</sup> Paragraph 88 of Airbus/SIA Decision dated 19 December 2014.

<sup>94</sup> Paragraph 20.3 of Form M1.

*The Parties' submission on segmentation between type-rated and recurrent training*

52. The Parties cited and agreed with CCS's assessment for the Airbus/SIA decision, in particular that CCS noted from a demand-side substitution perspective, especially from a regulatory point of view, that type rating training and recurrent training are not directly substitutable for each other.
53. With regard to the supply-side perspective, the Parties submitted that they agree with CCS's observations in the Airbus/SIA decision that a TRTO which provides type-rating training would also be able to provide recurrent training with minimal cost.<sup>95</sup> This is despite CAE's perspective that [X].<sup>96</sup>
54. Accordingly, the Parties considered that it is not appropriate nor necessary to further delineate the product market with regard to the type of pilot training services.<sup>97</sup>

*CCS's assessment*

55. The Parties do not intend for the Proposed JV to provide *ab initio* training, and hence CCS has focused its assessment on the segmentation between aircraft types, and between type-rated and recurrent pilot training. CCS also notes that SIA mainly uses its capacity for internal training and does not actively provide training services to third parties, and hence the Parties may not be actual competitors at the moment. However, SIA's excess training capacity could be used to provide pilot training to third parties. As noted above, SIA has provided training capacity for the Boeing Aircraft Types to third parties on at least [X] occasions. Accordingly, CCS considers that the Parties would be potential competitors.
56. CCS notes the Parties' submission and the views of third parties<sup>98</sup> that pilot training services are non-substitutable across different types of Boeing aircraft, as different aircrafts have different physical layout and operate differently and have different set of training and regulatory approval requirements. The non-substitutability would similarly apply to pilot training between Airbus and Boeing family of aircrafts.<sup>99</sup>
57. On the segmentation between type-rated and recurrent training services, CCS notes from a demand-side perspective that these training services typically serve different training objectives<sup>100</sup>, and type-rated training will likely require more

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<sup>95</sup> Paragraph 19.13 of Form M1.

<sup>96</sup> Paragraph 19.15 of Form M1.

<sup>97</sup> Paragraph 20.5 of Form M1.

<sup>98</sup> [X]'s response dated 17 Jan 2018 to Question 13 of CCS's RFI, [X]'s response dated 17 January 2018 to Question 13 of CCS's RFI.

<sup>99</sup> Paragraph 11 of Notes of Call with [X] dated 16 January 2018.

<sup>100</sup> [X]'s response dated 17 January 2018 to Question 13 of CCS's RFI.

training hours on the training devices.<sup>101</sup> However, from a supply-side perspective, CCS notes that the feedback from third parties<sup>102</sup> corroborates with the Parties' submission that a supplier can easily switch between providing type-rated and recurrent training, given the same type of aircraft. CCS also notes that although the Parties observed that [X<]<sup>103</sup>, this does not contradict the Parties' submission that the suppliers have the ability to switch between providing different training services easily. CCS also notes examples of the same supplier providing both type-rated and recurrent training.<sup>104</sup>

58. While there is third party feedback<sup>105</sup> that Multi-Crew Pilot Licence (MPL) training may be considered as substitutes to type-rated training, CCS notes that MPL is typically considered as part of *ab initio* training<sup>106</sup>, which serves different purposes and are unlikely to be viable substitutes for type-rated training.
59. In light of the above, CCS considers that it is sufficient to segment the product market by aircraft types and there is no necessity to segment the product market further between type-rated and recurrent training for the purpose of this assessment.

#### Provision of pilot training devices for the Boeing Aircraft Types

60. The Parties submitted that the following training devices are generally used for the provision of aircraft pilot training services<sup>107</sup>:
- a. FFS;
  - b. FTD;
  - c. Integrated Procedures Trainers ("IPT"); and
  - d. Others (i.e., courseware, training materials and aeronautical database).
61. The Parties submitted that the FTD, as compared to the FFS, is a lower level flight training device, which may or may not have a motion system, a visual image, visual structures and screen, non-simulated area at the back of the device for the instructor and cockpit enclosure.<sup>108</sup>
62. IPTs are a lower end training device (or more specifically a lower level FTD), usually comprising panels, chairs and sometimes a visual. IPTs provide aircrews with realistic procedural training in a three-dimensional (3D) environment. The IPT can be used in free-play mode with the assistance of an instructor, or self-

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<sup>101</sup> Paragraph 6.1 of the Parties' responses dated 3 January 2018 to CCS's RFI dated 26 December 2017.

<sup>102</sup> [X<]'s response dated 11 January 2018 to Question 18 of CCS's RFI.

<sup>103</sup> Paragraph 19.15 of Form M1.

<sup>104</sup> [X<]'s response dated 11 January 2018 to Question 1 of CCS's RFI; [X<]'s response dated 17 January 2018 to Question 3 of CCS's RFI.

<sup>105</sup> [X<]'s response dated 11 January 2018 to Question 13 of CCS's RFI.

<sup>106</sup> Paragraphs 43 to 47 of Airbus/SIA decision.

<sup>107</sup> Paragraph 43.2.2 of Form M1.

<sup>108</sup> Paragraph 2.1 of the Parties' response dated 3 January 2018 to CCS's RFI dated 26 December 2017.

paced by running the simulation-based courseware. IPTs, as their name suggests, are used primarily to train flight procedures, rather than being a true flight simulation device.<sup>109</sup>

63. The Parties also submitted that the simulators require certain software to operate and to drive their primary functions (i.e., to power and operate the basic visual, motion, and other electronic functions). This underlying software is typically integrated into the simulator by the manufacturer of the training device. The Parties further submitted that a customer is able to choose to use the software of a competing supplier (i.e., a customer may choose to use the visual software of a competing supplier).<sup>110</sup> In addition, there is some software that is required to drive certain avionic / cockpit components that are obtained from third party suppliers (i.e., Boeing or from the aftermarket), and the software to drive such components are usually provided with the components and integrated into the simulator by a simulator manufacturer.<sup>111</sup>
64. The Parties submitted that the software provided for the motion and visual for most of the aircraft systems, are not part of the data package provided by Boeing, the aircraft manufacturer. CAE does not supply data packages, which are provided by aircraft manufacturers (such as Boeing) directly.<sup>112</sup>

*The Parties' submission on segmentation by aircraft types*

65. In relation to the supply of aircraft training devices, the Parties did not make a submission on whether the market should be segmented by aircraft types.
66. Nevertheless, the Parties submitted that FFS, FTD and IPTs are the primary training devices used in the provision of pilot training, as part of the statutory prescribed training requirements, with limited demand-side substitutes.<sup>113</sup>
67. Further, the Parties submitted that from a supply-side perspective, there are synergies and similarities in the construction of these different types of devices.<sup>114</sup> However, on the demand-side, different aircraft types require FFS equipment, software and data packages that are specific to each aircraft type.<sup>115</sup>

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<sup>109</sup> Paragraph 14.1 of the Parties' response dated 3 January 2018 to CCS's RFI dated 26 December 2017.

<sup>110</sup> CCS understands from [3<] and [3<] that while there is some common software that can be used against different training devices, each training device may also require its own specific software including that from the training device manufacturer.

<sup>111</sup> Paragraph 2.2 of the Parties' response dated 12 January 2018 to CCS's RFI dated 8 January 2018.

<sup>112</sup> Paragraph 2.2 of the Parties' response dated 3 January 2018 to CCS's RFI dated 26 December 2017.

<sup>113</sup> Paragraph 11.1 of the Parties' response dated 3 January 2018 to CCS RFI dated 26 December 2017.

<sup>114</sup> Paragraph 11.2 of the Parties' response dated 3 January 2018 to CCS RFI dated 26 December 2017.

<sup>115</sup> Paragraph 19.12 of Form M1.



### *CCS's assessment*

68. CCS notes that third party feedback supports the Parties' submission that training devices are specific to and hence non-substitutable across aircraft types.<sup>116</sup> CCS therefore agrees that the product market for the supply of pilot training devices should be segmented by aircraft types for the purpose of the assessment of vertical effects. As explained above, SIA is not an actual or potential competitor in this market and there are no horizontal effects arising from the Proposed JV in this market.

### **(b) Geographic market**

#### Provision of pilot training for the Boeing Aircraft Types

##### *The Parties' submission*

69. The Parties submitted that aircraft pilot training services, which require fixed training premises and equipment, are typically supplied on premise at specific locations.<sup>117</sup> However, commercial airlines are typically willing to send their pilots for training locally or regionally and there is little difference in cost between training pilots in their home country or abroad on one of the routes on which the airline flies. Similarly, self-sponsored candidates are typically willing to obtain training from anywhere within the region (and sometimes further afield). It is very common for self-sponsored pilots to obtain training within the USA, New Zealand or other such countries.<sup>118</sup>
70. The Parties further cited the Airbus/SIA decision which considered the relevant geographic market for the provision of pilot training services for each of the Airbus family aircrafts to be regional.
71. In view of the above, the Parties submitted that the relevant geographic markets for the provision of pilot training services would be at least regional (i.e. APAC).<sup>119</sup>

### *CCS's assessment*

72. CCS notes that CAE supplies pilot training services for the Boeing Aircraft Types in Beijing and Tokyo. From a demand-side perspective, the customers of CAE can and do travel to other parts of the Asia-Pacific region, including Singapore for

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<sup>116</sup> [X]’s response dated 11 January 2018 to Question 23 of CCS’s RFI, [X]’s response to Question 24 of CCS’s RFI dated 4 January 2018, [X]’s response dated 17 January 2018 to Question 24 of CCS RFI, [X]’s response dated 19 January to Question 35 of CCS’s RFI.

<sup>117</sup> Paragraph 19.17 of Form M1.

<sup>118</sup> Paragraph 19.16 of Form M1.

<sup>119</sup> Paragraphs 20.8, 20.9 and 20.10 of Form M1.

such services. The third parties<sup>120</sup> agree that airlines would typically engage third party training services in the Asia-Pacific region, if they do not own training devices in-house. CCS also notes that airlines that do own in-house training devices can also potentially provide training to third parties in the region, which further suggests that the market for the provision of pilot training services is regional. Feedback further indicates that pilot training service providers provide training on an Asia Pacific wide basis.<sup>121</sup> There is also feedback that the market for the provision of pilot training services may be global.<sup>122</sup> However, not all third parties agree that the market is global, due to the considerations that there could be significant costs incurred from air crew travelling and not being available for duty.<sup>123</sup>

73. In light of the above, CCS assesses that the geographic market for the provision of pilot training is likely to be at least the Asia Pacific region.

#### Provision of pilot training devices for the Boeing Aircraft Types

##### *The Parties' submission*

74. The Parties submitted that the geographic market for the supply of training devices is worldwide, given that there is no material barrier to the supply of such devices on a worldwide basis, and all suppliers of such devices, to CAE's understanding, supply on a worldwide basis.<sup>124</sup>

##### *CCS's assessment*

75. CCS notes that the major training device manufacturers such as CAE, L3 Technologies Inc. ("L3"), FlightSafety International Inc. ("FlightSafety"), and TRU Simulation + Training Inc. ("TRU") are all based overseas and training providers will procure training devices from these overseas manufacturers. Third party feedback also support that the supply of pilot training devices takes place on a worldwide basis.<sup>125</sup> Accordingly, CCS is of the view that the geographic market for the provision of training devices would be worldwide.

#### **(c) CCS's Conclusion on Market Definition**

76. In view of the considerations above, the relevant markets for CCS's assessment are (i) the provision of pilot training services segmented by the Boeing Aircraft Types in the Asia Pacific region, and (ii) the provision of pilot training devices for the Boeing Aircraft Types worldwide.

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<sup>120</sup> [X]'s response dated 11 January 2018 to Question 19 of CCS's RFI, [X]'s response dated 12 January 2018 to Question 20 of CCS's RFI, [X]'s response dated 17 January 2018 to Question 20 of CCS's RFI.

<sup>121</sup> [X]'s response dated 11 January 2018 to Questions 12 and 19 of CCS's RFI, [X]'s response dated 17 January 2018 to Questions 1 and 3 of CCS's RFI.

<sup>122</sup> [X]'s response dated 19 January to Question 23 of CCS's RFI.

<sup>123</sup> [X]'s response dated 12 January 2018 to Question 20 of CCS's RFI.

<sup>124</sup> Paragraph 11.1 of the Parties' response dated 17 January 2018 to CCS's RFI dated 12 January 2018.

<sup>125</sup> [X]'s response dated 19 January to Question 36 of CCS's RFI.

## VII. MARKET STRUCTURE

### Market shares and market concentration

#### Market for the provision of pilot training services for the Boeing Aircraft Types

77. The Parties submitted that they do not have information relating to the operations of their competitors, specifically the number of training hours, utilisation rates, fleet size, composition of airlines, crew details and maintenance schedules provided by third-party training providers or airlines, nor competitors' sales or revenue figures.<sup>126</sup>
78. Due to the lack of information, the Parties have estimated the market share figures based on the number of training devices in operation (with CAE's market share being based on the number of training devices at both its wholly-owned pilot training centres and affiliated pilot training centres<sup>127</sup>) in the particular year. Table 1 sets out the estimated market shares figures.
79. CCS notes that the Parties have included airlines' training capacity in their market share figures. CCS notes that airlines are potential competitors in pilot training services as they can provide excess training capacity to the market. Feedback from customers suggests that airlines are increasingly using their excess capacity to provide training to third parties in order to recover costs.<sup>128</sup> This implies that airlines are potential, and at times actual, competitors to training centres. For the Parties, in particular, CCS notes that CAE does not provide training for the Boeing Aircraft Types in Singapore and SIA is providing mostly internal training for its pilots. However, CCS notes that CAE has the ability to begin pilot training services for the Boeing Aircraft Types in Singapore, and [X] suggests that SIA does at times provide its excess capacity to third parties. As such, the Parties are potential competitors in the provision of pilot training services for the Boeing Aircraft Types.

**Table 1: Market shares for the provision of pilot training services in Asia Pacific region for each Boeing Aircraft Type (based on number of training devices in operation)**<sup>129</sup>

	Pilot training for B744 in Asia Pacific		
	2015	2016	2017
CAE	0-10%	0-10%	0-10%
SIA	0-10%	0-10%	0-10%

<sup>126</sup> Paragraph 9.1 of the Parties' response dated 3 January 2018 to CCS's RFI dated 26 December 2017 and Paragraph 5.1 of the Parties' response dated 15 January 2018 to CCS's RFI dated 8 January 2018.

<sup>127</sup> Paragraph 6.1 of the Parties' response dated 12 January 2018 to CCS's RFI dated 8 January 2018.

<sup>128</sup> Paragraph 14 of Notes of Call with [X] dated 16 January 2018.

<sup>129</sup> Market shares do not add up to 100% due to rounding errors.

Cathay Pacific	20-30%	10-20%	10-20%
China Airlines	10-20%	10-20%	10-20%
Korean Air	10-20%	10-20%	10-20%
Qantas Airways	10-20%	10-20%	10-20%
Others	40-50%	40-50%	40-50%
CAE & SIA Total	<b>0-10%</b>	<b>0-10%</b>	<b>0-10%</b>
Post-merger CR3	40-50%	30-40%	30-40%

Pilot training for B777 in Asia Pacific			
	2015	2016	2017
CAE	10-20%	10-20%	10-20%
SIA	10-20%	10-20%	10-20%
Cathay Pacific	10-20%	10-20%	10-20%
ANA/ PanAm	10-20%	10-20%	10-20%
Boeing	10-20%	10-20%	0-10%
Thai Airways	0-10%	0-10%	0-10%
Others	30-40%	30-40%	20-30%
CAE & SIA Total	<b>20-30%</b>	<b>30-40%</b>	<b>30-40%</b>
Post-merger CR3	50-60%	50-60%	50-60%

Pilot training for B787 in Asia Pacific			
	2015	2016	2017
CAE	0-10%	10-20%	10-20%
SIA	0-10%	0-10%	0-10%
Boeing	40-50%	30-40%	30-40%
Qantas Airways	10-20%	10-20%	10-20%
Air China	0-10%	0-10%	0-10%
Air New Zealand Aviation Institute	0-10%	0-10%	0-10%
ANA/ PanAm	0-10%	0-10%	0-10%
Hainan Airlines	0-10%	0-10%	0-10%
Shanghai Eastern	0-10%	0-10%	0-10%
CAE & SIA Total	<b>0-10%</b>	<b>10-20%</b>	<b>10-20%</b>
Post-merger CR3	60-70%	60-70%	70-80%

Pilot training for B737MAX in Asia Pacific			
	2015	2016	2017
CAE	0-10%	0-10%	0-10%
SIA	0-10%	0-10%	0-10%
Boeing	0-10%	0-10%	90-100%
CAE & SIA Total	<b>0-10%</b>	<b>0-10%</b>	<b>0-10%</b>
Post-merger CR3	0-10%	0-10%	90-100%

### Market for the provision of training devices for the Boeing Aircraft Types

80. As explained in the paragraphs above, the Parties do not overlap in the provision of training devices for the Boeing Aircraft Types as SIA is neither an actual nor a potential competitor. There is therefore no change in market shares arising from the Proposed JV in this market. CCS has, however, considered CAE's market shares in providing training devices for the Boeing Aircraft Types in assessing the vertical effects of the Transaction.
81. The Parties submitted that they are unable to provide market share figures in revenue terms for the upstream market of the provision of training devices, as they do not have reliable information regarding the sales revenue of its competitors.<sup>130</sup>
82. The Parties have, however, estimated CAE's market shares figures for the provision of training devices for the Boeing Aircraft Types, based on the number of training devices supplied/sold by CAE in the particular year (i) worldwide, (ii) within the Asia Pacific region.<sup>131</sup> Refer to Tables 3 and 4 for the CAE's estimated market shares figures worldwide and in the Asia Pacific region respectively.

**Table 3: CAE's market shares for provision of training devices worldwide for each Boeing Aircraft Type**

	<b>Training device for each of the Boeing Aircraft Types worldwide</b>		
	2015	2016	2017
B744	0-10%	0-10%	0-10%
B777	90-100%	70-80%	90-100%
B787	30-40%	90-100%	50-60%
B737MAX	0-10%	90-100%	80-90%

**Table 4: CAE's market shares for provision of training devices in Asia Pacific region for each Boeing Aircraft Type**

	<b>Training device for each of the Boeing Aircraft Types in the Asia Pacific region</b>		
	2015	2016	2017
B744	0-10%	0-10%	0-10%
B777	0-10%	40-50%	90-100%
B787	40-50%	90-100%	70-80%
B737MAX	0-10%	90-100%	80-90%

<sup>130</sup> Paragraph 10.1 of the Parties' response dated 3 January 2018 to CCS's RFI dated 26 December 2017.

<sup>131</sup> Paragraph 10.1 and 10.2 of the Parties' response dated 3 January 2018 to CCS's RFI dated 26 December 2017; Parties' response dated 23 January 2018 to question 3 of CCS's RFI dated 19 January 2018.

### *CCS's assessment*

83. As set out in the *CCS Merger Guidelines*, CCS is generally of the view that competition concerns are unlikely to arise in a merger situation unless the merged entity will have a market share of 40% or more, or the merged entity will have a market share of between 20% to 40% and the post-merger CR3 is 70% or more.<sup>132</sup>

### Provision of pilot training services for the Boeing Aircraft Types

84. CCS notes that market share figures based on the sales of pilot training services are not available. Nonetheless, the estimated figures using the number of training devices in operation would provide some indication of the share of capacity available. In this regard, none of the markets for the provision of pilot training services in the Asia Pacific region, segmented by the Boeing Aircraft Types, crosses the indicative thresholds set out in the *CCS Merger Guidelines*. Furthermore, there is no change in market shares for the B744, B787 and B737MAX aircraft types arising from the Transaction. In particular, as the Parties do not currently provide training for the B737MAX aircraft type in the Asia Pacific region, the Proposed JV would actually increase the number of competitors for this aircraft type.
85. Given that SIA has almost exclusively used its capacity to conduct internal training and does not actively provide training for the Boeing Aircraft Types to third parties, whereas the Parties intend for the Proposed JV to actively provide services to third parties, the Proposed JV would allow for more capacity to be made available to third parties, both in Singapore and in the Asia Pacific region. In this regard, CCS notes that the Parties have submitted evidence to show that the Proposed JV is likely to use its excess capacity to provide training to third-parties. Specifically, the Parties' Memorandum of Understanding indicates that [X].<sup>133</sup> The business plan for the Proposed JV also indicates that [X].<sup>134</sup>
86. The Proposed JV would therefore likely result in an increase in the capacity made available for training to third parties both within Singapore and in the Asia Pacific region. This could increase the level of competition in the provision of pilot training services for the Boeing Aircraft Types, which is a view that third parties also take.<sup>135</sup>

### Provision of training devices for the Boeing Aircraft Types

87. As noted above, CCS has considered CAE's market shares in providing training devices for the Boeing Aircraft Types for the purpose of assessing the vertical effects of the Transaction.

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<sup>132</sup> Paragraph 5.15 of the *CCS Merger Guidelines*.

<sup>133</sup> Page 6 of the Memorandum of Understanding between CAE and SIA.

<sup>134</sup> Annex 12 of Form M1.

<sup>135</sup> [X]'s email response dated 12 January 2018 to CCS's RFI, Paragraph 16 of Notes of Call with [X] dated 16 January 2018, and [X]'s response to Question 34 dated 18 January 2018 to CCS's RFI

88. Although the snapshot market shares of CAE are relatively high in absolute terms, CCS notes that CAE's market shares have been volatile in the period from 2015 to 2017 and the fluctuations in market shares are large. The actual quantities of training devices for the Boeing Aircraft Types that CAE supplied also fluctuated significantly from year to year, as can be seen in Table 5. CCS also notes that the typical lifespan of a pilot training device for Boeing aircraft is between 25 to 30 years.<sup>136</sup> The high volatility of market shares, fluctuating quantities of training devices sold, and the long lifespan of training devices suggest that customer purchases are likely to be sporadic. The market shares may therefore not be a good indicator of market power.

**Table 5: Quantities of training devices CAE sold for each Boeing Aircraft Type**

	CAE's sales of training devices worldwide		
	2015	2016	2017
B744	[REDACTED]	[REDACTED]	[REDACTED]
B777	[REDACTED]	[REDACTED]	[REDACTED]
B787	[REDACTED]	[REDACTED]	[REDACTED]
B737MAX	[REDACTED]	[REDACTED]	[REDACTED]

	CAE's sales of training devices in the Asia Pacific region		
	2015	2016	2017
B744	[REDACTED]	[REDACTED]	[REDACTED]
B777	[REDACTED]	[REDACTED]	[REDACTED]
B787	[REDACTED]	[REDACTED]	[REDACTED]
B737MAX	[REDACTED]	[REDACTED]	[REDACTED]

89. This is consistent with third party feedback that there are four major suppliers of training devices which customers can choose to procure from depending on the value for money: CAE, FlightSafety, L3, and TRU. Additionally, third party feedback suggests that the Parties may have overestimated their market shares for the provision of training devices for the Boeing Aircraft Types. According to volume sales figures that CCS obtained from a third party, [REDACTED].<sup>137</sup>
90. Further, CCS notes that CAE typically sells its training devices through a number of ways including competitive public tenders, closed tenders or direct purchase. CCS understands that for tenders, it is typical for customers to consider and approach a range of competing suppliers before making its purchase decision irrespective of the manner in which customers procure training devices.<sup>138</sup> This is corroborated by feedback from customers, which suggests that they typically source for suppliers with the best value considering factors such as financial

<sup>136</sup> Paragraph 14.1 of the Parties response dated 12 January 2018 to CCS's RFI dated 8 January 2018.

<sup>137</sup> [REDACTED]'s response dated 17 January 2018 to Question 27 of CCS's RFI.

<sup>138</sup> Paragraph 7.2 of the Parties' response dated 17 January 2018 to CCS's RFI dated 12 January 2018.

performance and they have had the experience of procuring from different suppliers before.<sup>139</sup>

### **Barriers to entry and expansion**

91. Entry by new competitors or the ability of rival firms in the market to expand their capacity quickly may be sufficient in likelihood, scope and time to deter or defeat any attempt by the merger parties or their competitors to exploit the reduction in rivalry flowing from the Transaction (whether through coordinated or non-coordinated strategies).<sup>140</sup>

#### Provision of pilot training services for the Boeing Aircraft Types

##### *The Parties' submission*

92. The Parties submitted that costs to entry and/or expansion to the provision of pilot training services are high but not insurmountable.
93. De novo entry into the provision of aircraft pilot training services by either the upstream suppliers (i.e. FFS and FTD manufacturers) or airlines would require significant capital investment, although not all investments are sunk cost, as the equipment will retain resale value. Specifically, such costs include:<sup>141</sup>
- a. Cost to prepare facilities in housing training equipment (including costs related to pipe suppression, floor reinforcement etc.), estimated to be [X].
  - b. Cost of purchasing training equipment, estimated to be [X].
  - c. Regulatory cost (i.e. ATO approval) involving [X].
94. Advertising and promotion expenditure can be limited and estimated by CAE to be [X].<sup>142</sup>
95. Specifically, the Parties also noted that there is generally a ready supply of trainers (comprising pilots or former pilots) available to airlines.<sup>143</sup>
96. The Parties also submitted that they considered [X] to be potential entrants which could potentially start to provide training services for all Boeing Aircraft Types in Singapore.<sup>144</sup> The Parties further cited market entries by various players in the

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<sup>139</sup> Paragraph 3 of Notes of Call with [X] dated 16 January 2018, and [X]'s response dated 11 January 2018 to Question 11 of CCS's RFI.

<sup>140</sup> Paragraphs 5.46 and 5.59 of *CCS Merger Guidelines*.

<sup>141</sup> Paragraph 26.1 and 26.2 of Form M1.

<sup>142</sup> Paragraph 27.2 of Form M1.

<sup>143</sup> Paragraph 19.19 of Form M1.

<sup>144</sup> Paragraph 24.5 of Form M1 and Paragraph 25.3 of the Parties' response dated 3 January 2018 to CCS's RFI dated 26 December 2017.



provision of pilot training services for different family of aircrafts (i.e. Airbus, ATR and Boeing) in Singapore within the past five years. In particular, the Parties submitted that the HAITE group opened its Aviation Safety and Training centre in Singapore, offering pilot training services for Boeing B737-800W aircraft types in 2015.<sup>145</sup> As such, the Parties are of the view that there is no restriction for HAITE to start supplying training services for any of the Boeing Aircraft Types in Singapore immediately, should there be a demand for it.<sup>146</sup>

97. With regards to expansion by existing competitors, the Parties submitted that it would not entail significant capital investment for any given supplier to supply more of its pilot training services to meet increase demand, as long as they have spare capacity in their existing equipment.<sup>147</sup>
98. In addition, TRTOs are generally able to switch from providing aircraft pilot training services for one aircraft type to another aircraft type, by purchasing new FFS software and equipment for the specific aircraft type, developing new courseware and obtaining approval for the training programme (i.e. to offer wet training).<sup>148</sup> While training equipment is aircraft specific, and new equipment would need to be purchased, existing competitors would have already sunk investments into the requisite facilities (i.e. building and infrastructure), and would likely be able to leverage on existing expertise in the provision of training services.<sup>149</sup> The Parties also considered HAITE and Boeing as well placed to expand and provide training services in respect of additional aircraft types.<sup>150</sup>

#### *Feedback from third parties*

99. Most third parties generally agree that existing suppliers in Singapore are able to expand their supply of dry training services to meet sudden increase in demand.<sup>151</sup> In particular, there is third party feedback that most simulators in Singapore are generally only operating between 65 to 85 per cent of their capacity.<sup>152</sup> Providing capacity as a new entrant in Singapore would be more difficult as a new entrant would need to obtain the relevant regulatory approvals, infrastructure and equipment.<sup>153</sup> However, it is possible for suppliers outside Singapore to provide offshore services, which is in line with the regional market definition.<sup>154</sup>

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<sup>145</sup> Paragraph 29.2 of Form M1.

<sup>146</sup> Paragraph 9.1 of the Parties' response dated 12 January 2018 to CCS's RFI dated 8 January 2018.

<sup>147</sup> Paragraph 24.6 of Form M1.

<sup>148</sup> Paragraph 19.14 of Form M1.

<sup>149</sup> Paragraph 24.7 of Form M1.

<sup>150</sup> Paragraph 24.5 of Form M1.

<sup>151</sup> [X]’s response dated 11 January 2018 to Question 32 of CCS’s RFI, [X]’s response dated 11 January 2018 to Question 33 of CCS’s RFI.

<sup>152</sup> [X]’s response dated 11 January 2018 to Question 32 of CCS’s RFI.

<sup>153</sup> [X]’s response dated 17 January 2018 to Question 33 of CCS’s RFI.

<sup>154</sup> [X]’s response dated 17 January 2018 to Question 33 of CCS’s RFI.

100. In terms of the costs of entry, third parties<sup>155</sup> submitted similar feedback on the cost required to purchase the type-specific simulators and to build a bay training centre. For suppliers which do not have in-house access to pilot instructors, the third party also estimated that the costs to hire and train instructors, build training systems and purchase training materials including text books, etc. is about US\$0.55 million.
101. In terms of timely entry into the market, third party feedback indicates that a new entrant would typically take 12 to 14 months to order the required training devices and have them delivered, but it could concurrently develop other necessary capabilities for the training services.<sup>156</sup> In terms of the time required to gain relevant regulatory approval, it is typically 3 to 6 months from application to certification and another 1 to 2 months to provide additional courses.
102. An independent third party training provider noted that access to pilot training devices pose minimal impact on barriers to entry, implying that a new entrant is unlikely to experience difficulty in obtaining access to training devices.<sup>157</sup> There is also feedback that airlines are increasingly providing aircraft pilot training services in the open market with their excess capacity in order to offset costs, which suggests the ease of expansion in the market.<sup>158</sup>

#### *CCS's assessment*

103. For the provision of pilot training services, a new entrant requires a high capital outlay to purchase training systems, devices and materials. CCS notes from the Parties' submission that in general, in order for the training device to be operational (at least for those relating to Boeing platforms), certain data packages from the aircraft manufacturer have to be integrated into the simulator.<sup>159</sup> Such data packages (for Boeing platforms) are currently only supplied by Boeing as the aircraft manufacturer. Accordingly, in addition to the cost of purchasing training devices, there could be costs arising from the need to procure the accompanying data packages from a sole supplier. Such expenditure has to be recovered over the typical 25 to 30 years' lifespan of the training devices.<sup>160</sup> CCS also notes that there are regulatory barriers in the form of obtaining the necessary approvals to provide training services.
104. CCS notes that the high costs and regulatory barriers to entry do not seem to be insurmountable, as seen from the entry of new players such as HAITE in 2015. Nonetheless, it is unlikely that there would be new entrants in a short period of time given the existing barriers. However, as noted by third party feedback, it is

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<sup>155</sup> [3<]'s response dated 11 January 2018 to Question 34 of CCS's RFI.

<sup>156</sup> [3<]'s response dated 11 January 2018 to Question 34 of CCS's RFI.

<sup>157</sup> [3<]'s response dated 11 January 2018 to Question 34 of CCS's RFI.

<sup>158</sup> Paragraph 14 of the Notes of Call with [3<] dated 16 January 2018.

<sup>159</sup> Paragraph 2.2 of the Parties' response dated 12 January 2018 to CCS's RFI dated 8 January 2018.

<sup>160</sup> Paragraph 14.1 of the Parties' response dated 12 January 2018 to CCS's RFI dated 8 January 2018.

possible for existing training providers in the region to offer services to meet sudden increases in demand. This includes many airlines who self-supply training, suggesting that the barriers for airlines to self-supply is not insurmountable. In addition, third party feedback also suggests that airlines are increasingly using their excess capacities to provide external training in the market in order to recover costs.<sup>161</sup> Accordingly, barriers to expansion do not appear to be high.

#### Provision of pilot training devices for the Boeing Aircraft Types

##### *The Parties' submission*

105. The Parties submitted that the barriers to entry and/or expansion into the provision of pilot training devices are not insurmountable. In particular, they submitted that the general technological development, the increasing availability of technical and engineering expertise, and the general lack of any restriction with regard to the availability of electrical and avionic components, is making potential entry increasingly easier.<sup>162</sup> Specifically, the Parties submitted that:

- a. Venyo Europe S.A., a Belgian company, is a new entrant which has launched its B737NG FTD in 2013, and it is understood that the production of its FFS design for B737NG was completed and Venyo has announced the supply of their B737 FFS in 2016<sup>163</sup>; and
- b. Boeing is now producing simulation software for some of its emerging aircraft platforms (e.g. the B737MAX) which can be integrated into an FFS platform, thus making it easier for new entrants to compete without developing their own software.<sup>164</sup>

##### *Feedback from third parties*

106. Third parties similarly agree that entry into the provision of training devices require high capital cost but such costs are not insurmountable.<sup>165</sup> There is, however, third-party feedback that manpower and knowledge to develop simulators are niche and not readily available.<sup>166</sup> In contrast, there is feedback that existing providers of training devices can expand to meet demand.<sup>167</sup>

##### *CCS's assessment*

107. For the provision of training devices, CCS notes that barriers to entry are also high but not insurmountable. The Parties submitted that there is increasing

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<sup>161</sup> Paragraph 14 of the Notes of Call with [X] dated 16 January 2018.

<sup>162</sup> Paragraph 3.1 of the Parties' response dated 12 January 2018 to CCS's RFI dated 8 January 2018.

<sup>163</sup> Paragraph 12.3.1 of the Parties' response dated 3 January 2018 to CCS's RFI dated 26 December 2017.

<sup>164</sup> Paragraph 12.3.2 of the Parties' response dated 3 January 2018 to CCS's RFI dated 26 December 2017.

<sup>165</sup> [X]'s response dated 11 January 2018 to Question 35 of CCS's RFI.

<sup>166</sup> Paragraph 13 of Notes of Call with [X] dated 16 January 2018.

<sup>167</sup> [X]'s response dated 12 January 2018 to Question 33 of CCS's RFI.

technological development and increasing availability of technical and engineering expertise, which could facilitate new entry. This is corroborated by third party feedback that there are disruptive innovations in the market, which may result in new technology substituting the training devices eventually, although this is unlikely to occur in the short term.<sup>168</sup> New entry in the short term therefore appears unlikely. However, existing providers of training devices can expand to meet demand and there is also feedback that the current market for the provision of training devices is competitive.<sup>169</sup>

### **Countervailing buyer power**

108. As noted in the *CCS Merger Guidelines*, the ability of a merged entity to raise prices may be constrained by the countervailing power of customers.<sup>170</sup>

#### Provision of pilot training services for the Boeing Aircraft Types

##### *The Parties' submission*

109. The Parties submitted that airlines are able to self-supply pilot training services as qualified TRTOs easily, as they have easy access to qualified instructors, and could outsource any unused capacity of the training equipment to recover part of its capital investment cost. SIA is one such airline which has developed in-house capabilities to do so.<sup>171</sup>

110. The Parties also submitted that there are no major switching costs to customers between suppliers, other than those specified in their contractual terms. From SIA's perspective, such contracts are [X]. From CAE's perspective, the typical term of such contracts [X].<sup>172</sup>

111. In addition, the Parties submitted that customers in practice do procure aircraft pilot training services from multiple providers and are generally able to, and do, negotiate on price or other supply terms.<sup>173</sup>

112. Accordingly, the Parties submitted that they will face significant competitive constraint arising from the strong countervailing power of customers.

##### *Feedback from third parties*

113. For the provision of pilot training services, third parties submitted that customers generally do have countervailing power, as they will typically source around for packages with competitive prices, and value-added benefits such as ground

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<sup>168</sup> [X]'s response dated 11 January 2018 to Question 13 of CCS's RFI.

<sup>169</sup> [X]'s response dated 17 January 2018 to Question 33 of CCS's RFI.

<sup>170</sup> Paragraph 5.60 of the *CCS Merger Guidelines*.

<sup>171</sup> Paragraph 32.1 of Form M1.

<sup>172</sup> Paragraph 32.2 of Form M1.

<sup>173</sup> Paragraph 34.12 of Form M1.

transportation, accommodation and meals, etc.<sup>174</sup> There is also third party feedback that the cost to switch suppliers of pilot training services are generally low for standard courses, and that the market is competitive.<sup>175</sup>

114. Further, third parties provided feedback that there is no requirement for customers to bundle the purchase of all the different types of pilot training services together from a single supplier, as training can be conducted at different times and at different training centres. This is despite the possibility for a supplier to bundle the services together in exchange for offering beneficial pricing, depending on the supplier's business model.<sup>176</sup> Third party feedback suggests that customers' bargaining power would be stronger if they purchase in bundles rather than negotiate for the services separately.<sup>177</sup>

#### *CCS's assessment*

115. CCS is of the view that customers do have countervailing buyer power, given the presence of numerous suppliers in the Asia Pacific region currently. This includes both airlines as well as third party training centres. The Proposed JV would actually increase the number of pilot training service providers in Singapore for Boeing aircraft and provide more training options in Singapore to customers. As noted above, feedback received from third parties also supports CCS's view that customers have countervailing buyer power.
116. CCS further notes that the majority of the customers are airlines and most of the airlines are typically able to self-supply and this has advantages such as allowing the airline to have access to pilots as training instructors. Furthermore, one of the main customers that requires training services in Singapore is SIA itself, which has strong buyer power by virtue of the fact of being one of the controlling shareholders of the Proposed JV. Most of the customers also expressed that they have no concerns with regards to the Transaction.<sup>178</sup>

#### Provision of pilot training devices for the Boeing Aircraft Types

##### *The Parties' submission*

117. The Parties submitted that as the value of each pilot training device is significant (potentially costing up to \$20 million), this would provide customers with

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<sup>174</sup> [3<]’s response dated 11 January 2018 to Question 30 & 31 of CCS’s RFI; [3<]’s response dated 17 January 2018 to Question 31 of CCS’s RFI; [3<]’s response dated 12 January 2018 to Question 31 of CCS’s RFI.

<sup>175</sup> [3<]’s response dated 17 January 2018 to Questions 31 and 32 of CCS’s RFI.

<sup>176</sup> [3<]’s response dated 12 January 2018 to Question 17 of CCS’s RFI, [3<]’s response dated 17 January 2018 to Question 17 of CCS’s RFI.

<sup>177</sup> [3<]’s response dated 17 January 2018 to Question 31 of CCS’s RFI.

<sup>178</sup> Email response by [3<] dated 12 January 2018, Email response by [3<] dated 9 January 2018, Email response by [3<] dated 17 January 2018.

significant countervailing power when negotiating with any particular supplier, especially given the strong competition from [REDACTED].<sup>179</sup>

#### *Feedback from third parties*

118. On the provision of training devices, there is third party feedback that customers generally have bargaining power, due to the competitive nature of the market.<sup>180</sup> Feedback also indicates that customers can procure their training devices through an open tender process, where they would source for suppliers with the best value. There are also numerous other providers of training devices such as Flight Safety, TRU and other smaller manufacturers.<sup>181</sup> Nevertheless, depending on the number of training devices already owned, third party feedback suggests that the cost to switch suppliers and replace all training devices owned could be substantial.<sup>182</sup>

#### *CCS's assessment*

119. CCS notes that there are numerous suppliers of training devices for Boeing aircrafts in the region, which would give customers the ability to purchase from alternative suppliers. While there are definitely high costs involved to switch training devices once they have been procured, there does not appear to be a strong impediment to deter customers from choosing between suppliers at the point of purchase.

120. CCS notes third party feedback suggesting that customers of training devices have bargaining power. There is also feedback to suggest that customers of training devices have even more countervailing buyer power compared to customers of pilot training services.<sup>183</sup> In particular, Boeing, which purchases training devices to provide training services and hence is both a customer and a competitor to the Parties, is also the sole supplier of Boeing data packages that are needed for the Boeing training devices to function. Boeing is therefore in a position to exercise its bargaining power. Accordingly, CCS is of the view that there is countervailing buyer power in the provision of training devices for the Boeing Aircraft Types.

## **VIII. COMPETITION ASSESSMENT**

### **(a) Non-coordinated effects**

121. Non-coordinated effects may arise where, as a result of the Transaction, the merged entity finds it profitable to raise prices (or reduce output or quality)

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<sup>179</sup> Paragraph 12.1 of the Parties' response dated 17 January 2018 to CCS's RFI dated 12 January 2018.

<sup>180</sup> [REDACTED]'s response dated 17 January 2018 to Question 31 of CCS's RFI; [REDACTED]'s response dated 11 January 2018 to Question 30 of CCS's RFI.

<sup>181</sup> Paragraph 3 of the Notes of Call with [REDACTED] dated 16 January 2018

<sup>182</sup> [REDACTED]'s response dated 17 January 2018 to Question 32 of CCS's RFI.

<sup>183</sup> [REDACTED]'s response dated 17 January 2018 to Question 31 of CCS's RFI

because of the loss of competition between the merged entities.<sup>184</sup> Other firms in the market may also find it profitable to raise their prices because the higher prices of the merged entity's product will cause some consumers to switch to rival products, thereby increasing demand for the rivals' products.<sup>185</sup>

122. The Parties submitted that given the low combined market shares of the Parties, the competitiveness of the aircraft pilot training services market, the multitude of suppliers from which customers may obtain services, not insurmountable barriers to entry, the presence of countervailing buyer power, and the minimal switching costs by customers between suppliers, the Transaction would not lead to a SLC in the market for the provision of pilot training services for the Boeing Aircraft Types.<sup>186</sup>
123. In particular, the Parties submitted that the Proposed Transaction will not lead to a material increase in market shares relating to the provision of pilot training services on the Boeing Aircraft Types, either in Singapore or in the Asia Pacific region.<sup>187</sup> In addition, the aircraft pilot training services is highly competitive and aircraft pilot training service providers compete on branding, reputation as well as quality of training materials and trainers.<sup>188</sup> Customers have strong countervailing buyer power given the alternative sources of supply, and as such, customers can and do procure aircraft pilot training services from multiple providers.<sup>189</sup> The airlines are also typically able to self-supply.<sup>190</sup>

*CCS's assessment and conclusion on non-coordinated effects*

124. CCS notes that the Transaction does not lead to a significant combined market share of the Parties for the provision of aircraft pilot training services in the Asia Pacific region. None of the market share figures cross the indicative thresholds set out in the *CCS Merger Guidelines*. Most of the third-party feedback also suggests that the market is competitive, and that Boeing is actually the largest player in the market for the provision of pilot training services for the Boeing Aircraft Types.<sup>191</sup> The market share figures corroborated this, as Boeing's market shares exceed that of the Proposed JV for all the Boeing Aircraft Types except for B777 in Asia Pacific.
125. Given that SIA mainly uses its capacity for internal training and does not actively provide training services to third parties, CCS notes that the Proposed JV will

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<sup>184</sup> Paragraph 5.21 of *CCS Merger Guidelines*.

<sup>185</sup> Paragraph 5.30 of *CCS Merger Guidelines*.

<sup>186</sup> Paragraph 34.1 of Form M1.

<sup>187</sup> Paragraph 34.2 of Form M1.

<sup>188</sup> Paragraph 33.2 of Form M1.

<sup>189</sup> Paragraph 34.12 of Form M1.

<sup>190</sup> Paragraph 34.12 of Form M1.

<sup>191</sup> Paragraph 28 of [X]'s response dated 17 January 2018 to CCS's RFI; Paragraph 27 of [Y]'s response dated 11 January 2018 to CCS's RFI.

likely increase the training capacity available to third parties for the Boeing Aircraft Types in the Asia Pacific region. This can help to raise the level of competition in the market. In particular, for the B737MAX aircraft type, the Proposed JV would actually create a new provider of training services as the Parties currently do not provide such training. Third party feedback also supported the view that competition would increase in the provision of pilot training services on the Boeing Aircraft Types.<sup>192</sup> In fact, [X] acknowledged that the JV will not only result in *more* competition but also *strong* competition in its provision of pilot training services for the Boeing Aircraft Types, given the branding that SIA would add to the Proposed JV.<sup>193</sup>

126. One third party provided feedback that the Proposed JV might reduce the incentive for future new entrants to start pilot training services for the Boeing Aircraft Types in Singapore, since both Boeing's training centre and the Proposed JV would already provide such training services.<sup>194</sup> CCS is of the view that given the counterfactual is one in which Boeing's training centre is already present in Singapore before the Proposed JV, the Proposed JV would increase the number of training service providers in Singapore compared to the counterfactual.
127. As noted above, the capital outlay of setting up for a new entrant is high in absolute terms. However, CCS also notes that rapid fleet expansion by airlines has resulted in a shortage of pilots which correspondingly increases global demand for pilot training that could attract potential new entry into the market.<sup>195</sup> [X] highlighted that in terms of aircraft orders, airlines in Asia Pacific are expected to take delivery of approximately [X] aircraft by 2032, which forms a third of global aircraft orders. [X] also highlighted that Boeing specifically has forecasted worldwide demand for [X] new commercial pilots over the next two decades, with [X] of these pilots for the Asia Pacific region. [X].<sup>196</sup> Furthermore, as described above, the barriers to expansion for existing suppliers do not appear to be high.
128. In view of the above, CCS finds that the Transaction is unlikely to give rise to uncoordinated effects in the market for the provision of pilot training services for the Boeing Aircraft Types. As the Parties do not overlap in the provision of training devices for the Boeing Aircraft Types, CCS has considered training devices in assessing potential vertical effects below.

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<sup>192</sup> Paragraph 16 of the Notes of Call with [X] dated 16 January 2018, Email response of [X] dated 12 January 2018.

<sup>193</sup> Paragraph 16 of the Notes of Call with [X] dated 16 January 2018.

<sup>194</sup> [X]'s response to Question 37 dated 17 January 2018 and 18 January 2018 of CCS's RFI;

<sup>195</sup> Paragraph 15 of the Notes of Call with [X] dated 16 January 2018. Paragraph 27 of [X]'s response dated 19 January to CCS's RFI.

<sup>196</sup> [X]'s response dated 19 January 2018 to Question 27 of CCS's RFI.



## **(b) Coordinated effects**

129. A merger may also lessen competition substantially by increasing the possibility that, post-merger, firms in the same market may coordinate their behaviour to raise prices, or reduce quality or output. Given certain market conditions, and without any express agreement, tacit collusion may arise merely from an understanding that it will be in the firms' mutual interests to coordinate their decisions. Coordinated effects may also arise where a merger reduces competitive constraints in a market, thus increasing the probability that competitors will collude or strengthen a tendency to do so.<sup>197</sup> Vertical mergers may facilitate coordination, for example by increasing market transparency. Integration may afford the merged entity better knowledge of selling prices in the upstream or downstream market, thereby facilitating collusion in either of those markets.<sup>198</sup>
130. The Parties submitted that coordinated effects will not arise as they are unable to align their behaviour in the market and coordinated behaviour is not sustainable in the face of competitive constraints in the market.<sup>199</sup> In particular, the Parties submitted that there are numerous competitors in the provision of aircraft pilot training services, and the ease of switching by, and the ability of customers in the industry to self-supply, creates strong commercial incentives for suppliers to continue pricing competitively.<sup>200</sup> Further, the Parties submitted that barriers to entry in the provision of aircraft pilot training services are generally not insurmountable, and there is high potential for increased competition which creates disruptive effects and reduces the sustainability of any coordinated behaviour.<sup>201</sup>

### *CCS's assessment and conclusion on coordinated effects*

131. CCS is of the view that given the number of players in the market for the provision of pilot training services on the Boeing Aircraft Types in the Asia Pacific region as well as the ability of airlines to self-supply, customers have strong countervailing buyer power and this is likely to render cooperation between competitors unsustainable. In addition, CCS notes that the Parties are currently active in different markets with CAE supplying both market-facing pilot training services and training devices while SIA largely focuses on providing internal training for its own pilots. The Parties also entered the Transaction with different strategic objectives, with [X].<sup>202</sup> This suggests that the degree of similarity between the Parties is small which would make it difficult for them to align their behaviour in the market. Further, the Transaction does not result in a combined market share that would raise competition concerns.

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<sup>197</sup> Paragraph 5.35 of *CCS Merger Guidelines*.

<sup>198</sup> Paragraph 6.14 of *CCS Merger Guidelines*.

<sup>199</sup> Paragraph 35.1 of Form M1.

<sup>200</sup> Paragraph 35.2.1 of Form M1.

<sup>201</sup> Paragraph 35.2.2 of Form M1.

<sup>202</sup> Paragraphs 12.1 and 12.2 of Form M1.

132. In light of the above, CCS is of the view that the Transaction is unlikely to raise concerns in terms of coordinated effects.

### **(c) Vertical effects**

#### *CCS's assessment and conclusion on vertical effects*

133. As CAE is in the upstream market of supplying pilot training devices for the Boeing Aircraft Types, CCS considered whether the Transaction would result in anti-competitive vertical effects. CAE could, if it had the market power, restrict its supply of training devices for the Boeing Aircraft Types to third parties so as to force customers to purchase training services from the Proposed JV.

134. The Parties submitted that, with regard to the provision of training devices and simulation software, there is no incentive for CAE to restrict its supply to third parties once the joint venture is entered into, and CAE will continue to supply training devices to third parties wishing to provide pilot training services.<sup>203</sup> The Parties also submitted that CAE has, in other markets outside Singapore where it has established similar training centres, continued to sell training devices to third parties.<sup>204</sup>

135. CCS first notes that the feedback received from third parties does not suggest that CAE has the market power to restrict the supply of training devices. As noted above, there is likely to be countervailing buyer power and barriers to expansion for competitors are not high. Additionally, despite the Parties' submitted high market shares for CAE's supply of training devices for the Boeing Aircraft Types worldwide, CCS notes that the Parties may have overestimated their market shares.

136. Second, CCS notes that CAE currently operates a network of pilot training centres in the region (both its wholly-owned pilot training centres and affiliated pilot training centres). CCS is of the view that if CAE had wanted to restrict the supply of training devices in order to direct pilot training to its training centres, CAE would already have the incentive to do so. In this regard, CCS notes that CAE has submitted evidence on its continued supply of training devices to third parties, in markets outside Singapore where it also operates training centres.<sup>205</sup> Given that CAE had not restricted its supply of training devices before, CCS is of the view that the Transaction does not create any additional incentive for CAE to do so.

137. Third, CCS notes that even if CAE has the ability to act anti-competitively against its competitors in the downstream market for the provision of pilot training services, the incentives to do so are limited as CAE has an interdependent relationship with many of its competitors in training services, namely (i) airlines and training centres, who are also its customers in the purchase of training devices

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<sup>203</sup> Paragraph 36.3 of Form M1.

<sup>204</sup> Paragraph 36.3 of Form M1.

<sup>205</sup> Paragraph 15.2 of the Parties' response dated 3 January 2018 to CCS's RFI dated 26 December 2017.

and simulation software, and which contributes the main bulk of its business; and (ii) aircraft manufacturers/training service provider such as Boeing, who is both a customer in the purchase of training devices, and also a supplier supplying proprietary data packages that CAE needs in order for its training devices to function. In this regard, CCS notes that Boeing specifically might be able to exert significant countervailing power against CAE, as it is the sole supplier of Boeing data packages needed for training devices for Boeing aircraft. In contrast, while CAE may be a large supplier of training devices, it is not the sole supplier and customers can effectively turn to alternative large suppliers such as L3, FlightSafety, and TRU. Customers also need not necessarily use the Proposed JV's services even if CAE restricted supply of its training devices, and hence CAE is unlikely to have the incentive to do so.

138. CCS also notes the concern of third parties that the Proposed JV would lock in SIA as a potential customer of training devices for Boeing aircraft and the provision of pilot training services.<sup>206</sup> In this regard, CCS notes that SIA has not bought a Boeing training device for more than ten years and has been conducting Boeing training in-house, and therefore may not be a significant customer in the market for the provision of pilot training devices or services.
139. CCS notes third party feedback suggesting that the Proposed JV might result in tying/bundling such that if a customer buys CAE's training device or the Proposed JV's training services for a specific aircraft type, the Proposed JV may offer the customers discounts in training services for another aircraft type.<sup>207</sup> CCS notes that for such tying/bundling to give rise to anti-competitive effects, the Parties would need to have significant market power in the sale of training devices or training services. However, as noted above, there is likely to be countervailing buyer power in both the provision of pilot training services and training devices for the Boeing Aircraft Types. While the Parties have submitted a high market share for CAE's sale of training devices for the Boeing Aircraft Types, the fluctuating market shares, fluctuating volume of sales and long lifespan of the training devices suggest that the market share figures may not be a good reflection of market power. Third party feedback also suggest that the Parties may have overestimated CAE's market share in the provision of training devices for the Boeing Aircraft Types. CCS is of the view that it is unlikely for the Proposed JV to create additional incentive for the Parties to engage in the conduct of tying/bundling given that CAE already runs training centres in Asia Pacific and there is no evidence to suggest that CAE engages in anti-competitive tying/bundling.
140. Finally, CCS notes a potential concern that CAE could restrict or slow down the updates to the simulation software specific to the training devices that it supplies, in order to direct pilot training to the Proposed JV at the expense of other downstream competitors. However, CAE would lack the incentive to restrict

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<sup>206</sup> [X]'s response to Question 40 dated 12 January 2018 to CCS's RFI.

<sup>207</sup> [X]'s email response dated 18 January 2018 to Question 2 of CCS's RFI.

supply of its simulation software given that its core business is in selling training devices and it would want its training devices to continue to be functional. Additionally, customers need not necessarily use the Proposed JV's services even if CAE restricted supply of its simulation software, and hence, CAE is unlikely to have the incentive to do so.

141. In view of the above, CCS concludes that the risk is low for the Transaction to give rise to vertical effects that would raise competition concerns in the upstream market for the supply of training devices and simulation software and/or the downstream market for the provision of pilot training services.

## **IX. EFFICIENCIES**

142. The Parties submitted that the Transaction will generate significant cost synergies gained through maximizing the usage of training devices and making surplus capacity available to third parties.<sup>208</sup> The combination of SIA's quality training and CAE's expertise in marketing and outreach, will help to establish Singapore as a "Centre of Excellence" for pilot training services, catering to airlines' demand for pilot training in the region.<sup>209</sup>

### *CCS's assessment*

143. CCS notes that the claimed efficiencies may be taken into account at two separate points in the analytical framework; first, where they increase rivalry in the market so that no SLC will result from the merger and second, efficiencies can be taken into account where they do not avert an SLC, but will nevertheless bring about lower costs, greater innovation, greater choice or higher quality and be sufficient to outweigh the detriments to competition caused by the merger in Singapore.<sup>210</sup>
144. Given that CCS has not found an SLC, it is not necessary to make an assessment on the claimed efficiencies by the Parties.

## **X. ANCILLARY RESTRAINTS**

145. Paragraph 10 of the Third Schedule to the Act states that "the section 34 prohibition and the section 47 prohibition shall not apply to any agreement or conduct that is directly related and necessary to the implementation of a merger" (the "Ancillary Restriction Exclusion"). In order to benefit from the Ancillary Restriction Exclusion, a restriction must not only be directly related, but also necessary to the implementation of the merger.<sup>211</sup> A restriction is not

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<sup>208</sup> Paragraph 42.1 of Form M1.

<sup>209</sup> Paragraph 42.1 of Form M1.

<sup>210</sup> Paragraphs 5.66 to 5.70 of *CCS Merger Guidelines*.

<sup>211</sup> Paragraph 9.6 of *CCS Merger Guidelines*.

automatically deemed directly related to the merger simply because it is agreed at the same time as the merger or is expressed to be so related.<sup>212</sup> In order to be directly related, the restriction must be connected with the merger but subordinate to its main object.<sup>213</sup> In determining the necessity of the restriction, consideration such as whether its duration, subject matter and geographical field of application are proportionate to the overall requirements of the merger will be taken into account.<sup>214</sup>

146. The Parties have submitted that the following constitute ancillary restrictions to the Transaction. The restrictions involved in the Transaction are detailed in JVA and consist of (i) the CAE [X] guarantee obligation, and (ii) CAE and SIA [X] obligations. The Parties have submitted that the CAE [X] guarantee obligation does not raise competition concerns under sections 34 or 47 of the Act. Nonetheless, they had raised this obligation in their submissions for completeness.<sup>215</sup> The restrictions are set out below:

**(a) CAE [X] guarantee obligation**

147. Clause 3.6.2 of the JVA requires CAE to commit that [X].<sup>216</sup>
148. The Parties have submitted that the CAE [X] guarantee obligation would not fall under section 34 of the Act because [X].<sup>217</sup> Further, the CAE [X] guarantee obligation would not fall under section 47 of the Act because the arrangement is not likely to give rise to any foreclosure or exclusionary effect on the market and may in fact be viewed as pro-competitive and generate efficiencies in respect of search costs and negotiation costs.<sup>218</sup>
149. In the alternative, the Parties have submitted that the CAE [X] guarantee obligation is, in any event, an ancillary restriction. The Parties submitted that the CAE [X] guarantee obligation reduces the search and negotiation costs for the Proposed JV [X]. [X], it was recognised that efficiencies in respect of search costs and negotiation costs do arise from the use of sections that operate in the same manner.<sup>219</sup> The said obligation also safeguards the economic interests of the Proposed JV by ensuring that the Proposed JV [X].<sup>220</sup>

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<sup>212</sup> Paragraph 9.9 of *CCS Merger Guidelines*.

<sup>213</sup> Paragraph 9.7 of *CCS Merger Guidelines*.

<sup>214</sup> Paragraph 9.10 of *CCS Merger Guidelines*.

<sup>215</sup> Paragraphs 2.1, 3.2 and 4.2 of the Parties' response dated 17 January 2018 to CCS's RFI dated 12 January 2018.

<sup>216</sup> Paragraph 17.1 of the Parties' response dated 12 January 2018 to CCS's RFI dated 8 January 2018.

<sup>217</sup> Paragraph 17.2.1 of the Parties' response dated 12 January 2018 to CCS's RFI dated 8 January 2018.

<sup>218</sup> Paragraph 17.2.2(iii) of the Parties' response dated 12 January 2018 to CCS's RFI dated 8 January 2018.

<sup>219</sup> Paragraph 43.7 of Form M1 and paragraph 17.4.2 of the Parties' response dated 12 January 2018 to CCS's RFI dated 8 January 2018.

<sup>220</sup> Paragraph 4.4 of the Parties' response dated 17 January 2018 to CCS's RFI dated 12 January 2018.

*CCS's assessment regarding the CAE [X] guarantee obligation*

150. CCS's present assessment of the CAE [X] guarantee obligation under section 57 of the Act is limited to whether the said obligation would satisfy the Ancillary Restriction Exclusion in the event it is found to infringe the section 34 prohibition and/or the section 47 prohibition.
151. As the main object of the JVA relates to the provision of aircraft pilot training services on Boeing Aircraft Platforms by the Proposed JV to SIA and SIA's subsidiaries to enable SIA to outsource its pilot training activities, CCS agrees that the CAE [X] guarantee obligation which deals with [X] is directly related to the Proposed JV.
152. CCS also notes that restrictions to the effect of a parent company giving the joint venture the benefit of [X] customer terms have been recognised to be necessary as the joint venture would require some support during the launching period, and it allows more rapid market penetration of the joint venture and allows the future development of the joint venture at a lower cost.<sup>221</sup> Further, in view of [X], the CAE [X] guarantee obligation would help to support the ongoing viability and commercial interest of the joint venture.
153. As such, CCS is of the view that the CAE [X] guarantee obligation constitutes an ancillary restriction and consequently falls within the exclusion under paragraph 10 of the Third Schedule to the Act insofar as it applies to Singapore.

**(b) CAE and SIA [X] obligation**

154. Clause 3.9.1 of the JVA requires that both CAE and SIA [X].
155. The Parties have submitted that the CAE and SIA [X] obligation is an ancillary restriction. This obligation is necessary to ensure that the Parties afford the Proposed JV the necessary focus in order to ensure its ongoing viability and success. The obligation is reasonable in both its length [X] and its breadth [X].<sup>222</sup>

*CCS's assessment regarding the CAE and SIA [X] obligation*

156. The *CCS Merger Guidelines* state that [X] clauses, if properly limited, are generally accepted as essential if the purchaser is to receive the full benefit of any goodwill and/or know-how acquired with any tangible assets. CCS will consider the duration of the clause, its geographical field of application, its subject matter and the persons subject to it. Any restriction must relate only to the goods and

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<sup>221</sup> *COMP/JV.5 – Cegetel/Canal + AOL/Bertelsmann* and *COMP/JV.31 – HMI International Holdings/ Arnoldo Mondadori Editore*.

<sup>222</sup> Paragraph 43.8 of Form M1.

services of the acquired business and apply only to the area in which the relevant goods and services were established under the previous/current owner.<sup>223</sup>

157. The CAE and SIA [X] obligation essentially [X]. CCS is of the view that the CAE and SIA [X] obligation is limited to the services [X] and is also limited to the geographical area [X] and therefore does not exceed the scope of the Transaction.
158. CCS notes that the Commission Notice on restrictions directly related and necessary to concentrations (2005/C 56/03) (“EC Notice on Ancillary Restraints”) states that [X] obligations can be regarded as directly related and necessary to the implementation of the concentration for the life time of the joint venture.<sup>224</sup> For the current Proposed JV, the duration of the [X] obligation is limited to [X]. CCS has assessed that it is reasonable for the CAE and SIA [X] obligation to last for [X].
159. As such, CCS is of the view that the CAE and SIA [X] obligation is directly related to and necessary for the Proposed JV and in the context of the Proposed JV, constitutes an ancillary restriction which falls within the exclusion under paragraph 10 of the Third Schedule to the Act insofar as it applies to Singapore.

## **XI. CONCLUSION**

160. For the reasons above and based on information available, CCS assesses that the Transaction is unlikely to lead to an SLC, and accordingly, will not infringe the section 54 prohibition if carried into effect.
161. The Parties submitted that the Memorandum of Understanding between CAE and SIA was entered into on 10 August 2017, [X].<sup>225</sup> In accordance with section 57(7) of the Competition Act, this decision shall be valid for a period of one year from the date of this decision.



Toh Han Li  
Chief Executive  
Competition Commission of Singapore

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<sup>223</sup> Paragraph 9.12 of the *CCS Merger Guidelines*.

<sup>224</sup> Paragraph 36 of the EC Notice on Ancillary Restraints.

<sup>225</sup> Paragraph 11.8 of Form M1.

**Regulatory environment of Civil Aviation Training**

1. On a global basis, civil aviation training is driven by a highly-regulated environment through global and national standards for pilot licensing and certification, among other regulatory requirements. These mandatory and recurring training requirements are regulated by national and international aviation regulatory authorities such as the International Civil Aviation Organization, European Aviation Safety Agency, and Federal Aviation Administration.<sup>226</sup>
2. In Singapore, the following are regulated by the CAAS<sup>227</sup>:
  - a. organisations which conduct training leading to a Singapore flight crew licence or an aircraft type rating;
  - b. training equipment used in the provision of aircraft pilot training services; and
  - c. flying instructors and flight examiners.
3. Organisations intending to conduct pilot training leading to the issuance of a Singapore professional pilot licence, or the endorsement of an aircraft type rating on a Singapore pilot licence must obtain an ATO approval from the CAAS. The ATO is classified into Flight Training Organisation (“FTO”) and Type Rating Training Organisation (“TRTO”).<sup>228</sup> A training organisation intending to train pilots leading to the grant of a Singapore commercial pilot licence (i.e. *ab initio* training) or a Flying Instructor Rating, is required to hold a FTO approval.<sup>229</sup> A training organisation intending to train pilots leading towards the endorsement of a new aircraft type rating onto their Singapore pilot licence, is required to hold a TRTO approval.<sup>230</sup>
4. In order to obtain an ATO approval, the organisation must fulfil the requirements as specified in paragraph 20 of the Air Navigation Order, and the Singapore Air Safety Publication (the “SASP”) Part 10 – Approval of an Aviation Training Organisation.<sup>231</sup> Key requirements include the implementation of a quality management system, a documentation management system, a safety management system, employment of qualified and adequate number of instructors, as well as the provision of suitable training facilities.<sup>232</sup> The ATO is audited yearly by CAAS to determine its continued compliance with the SASP requirements.<sup>233</sup> Equivalent approvals issued by foreign authorities are not accepted by CAAS as a substitute for

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<sup>226</sup> Paragraph 18.14 of Form M1.

<sup>227</sup> Paragraphs 18.15 to 18.18 of Form M1.

<sup>228</sup> Paragraph 18.16 of Form M1, [S&C]’s response dated 19 January 2018 to Question 1 of CCS’s RFI.

<sup>229</sup> [S&C]’s response dated 19 January 2018 to Question 5 of CCS’s RFI.

<sup>230</sup> [S&C]’s response dated 19 January 2018 to Question 5 of CCS’s RFI.

<sup>231</sup> Paragraph 18.16 of Form M1, [S&C]’s response dated 19 January 2018 to Question 1 of CCS’s RFI.

<sup>232</sup> [S&C]’s response dated 19 January 2018 to Question 4 of CCS’s RFI.

<sup>233</sup> [S&C]’s response dated 19 January 2018 to Question 4 of CCS’s RFI.



the ATO approval.<sup>234</sup> The main differences in the regulatory requirements for FTO and TRTO are in the qualifications of instructors, training programmes and the facilities used for training.<sup>235</sup> In FTOs, pilots are trained to fly on single-pilot aircraft and FTOs are required to have access to aircraft for the provision of pilot training.<sup>236</sup> In TRTOs, the training aims to qualify pilots to operate multi-pilot aircraft such as Boeing and Airbus aircraft.<sup>237</sup> Training in TRTOs is typically conducted in simulators and instructors are required to have actual experience in operating multi-pilot aircraft.<sup>238</sup>

5. CAAS also provides safety oversight of the equipment used for flight training, such as training aircraft or flight simulation training devices (“FSTD”).<sup>239</sup> CAAS issues a Certificate of Registration (CoR) and a Certificate of Airworthiness (CoA) for the training aircraft if it is registered in Singapore.<sup>240</sup> If a FSTD is used, CAAS qualifies and approves the FSTD to ensure that it meets the required fidelity and capability needed to meet the training objectives.<sup>241</sup>
6. CAAS also regulates flying instructors and flight examiners to ensure the quality of training provided.<sup>242</sup> Flying instructors in an FTO and those in a TRTO have to meet specific requirements under the SASP.<sup>243</sup> Flying instructors in a FTO have to obtain the necessary flying instructor ratings under SASP Part 3, and are subject to regular tests to ensure continued competency.<sup>244</sup> The tests are conducted by flight examiners who are authorised by CAAS and are required to meet the requirements in SASP Part 7.<sup>245</sup> Flying instructors in a TRTO have to meet the experience requirements in SASP Part 10.<sup>246</sup>

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<sup>234</sup> [SC]’s response dated 19 January 2018 to Question 3 of CCS’s RFI.

<sup>235</sup> [SC]’s response dated 19 January 2018 to Question 6 of CCS’s RFI.

<sup>236</sup> [SC]’s response dated 19 January 2018 to Question 6 of CCS’s RFI.

<sup>237</sup> [SC]’s response dated 19 January 2018 to Question 6 of CCS’s RFI.

<sup>238</sup> [SC]’s response dated 19 January 2018 to Question 6 of CCS’s RFI.

<sup>239</sup> [SC]’s response dated 19 January 2018 to Question 1 of CCS’s RFI. FFS and FTDs are FSTDs.

<sup>240</sup> Paragraph 18.17 of Form M1, [SC]’s response dated 19 January 2018 to Question 1 of CCS’s RFI.

<sup>241</sup> [SC]’s response dated 19 January 2018 to Question 1 of CCS’s RFI.

<sup>242</sup> Paragraph 18.18 of Form M1.

<sup>243</sup> Paragraph 18.18 of Form M1.

<sup>244</sup> [SC]’s response dated 19 January 2018 to Question 1 of CCS’s RFI.

<sup>245</sup> [SC]’s response dated 19 January 2018 to Question 1 of CCS’s RFI.

<sup>246</sup> [SC]’s response dated 19 January 2018 to Question 1 of CCS’s RFI.