

Case No COMP/M.7353 - AIRBUS/ SAFRAN/ JV

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**REGULATION (EC) No 139/2004
MERGER PROCEDURE**

Article 6(1)(b) in conjunction with Art 6(2)
Date: 26/11/2014

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EUROPEAN COMMISSION

Brussels, 26.11.2014
C(2014) 9165 final

In the published version of this decision, some information has been omitted pursuant to Article 17(2) of Council Regulation (EC) No 139/2004 concerning non-disclosure of business secrets and other confidential information. The omissions are shown thus [...]. Where possible the information omitted has been replaced by ranges of figures or a general description.

PUBLIC VERSION

MERGER PROCEDURE
ARTICLE 6(2) DECISION

To the notifying parties:

Dear Madam(s) and/or Sir(s),

Subject: Case M.7353 – Airbus/ Safran/ JV
Commission decision pursuant to Article 6(1)(b) in conjunction with Article 6(2) of Council Regulation No 139/2004¹ and Article 57 of the Agreement on the European Economic Area²

- (1) On 8 October 2014, the European Commission received notification of a proposed concentration pursuant to Article 4 of the Merger Regulation by which the undertaking Airbus Group N.V. ("Airbus") and the undertaking Safran S.A. ("Safran") create within the meaning of Article 3(4) of the Merger Regulation a joint venture performing on a lasting basis all the functions of an autonomous economic entity (the "Transaction"). Airbus and Safran hereinafter are referred to as the "Parties" and the joint venture established by the Transaction as the "Joint Venture".

¹ OJ L 24, 29.1.2004, p. 1 ('the Merger Regulation'). With effect from 1 December 2009, the Treaty on the Functioning of the European Union ('TFEU') has introduced certain changes, such as the replacement of 'Community' by 'Union' and 'common market' by 'internal market'. The terminology of the TFEU will be used throughout this decision.

² OJ L 1, 3.1.1994, p.3 ("the EEA Agreement").

1. THE PARTIES

- (2) Airbus is a Dutch-based company active in aeronautics, space and defence. Through its division Defence and Space, in particular its business line Space systems, Airbus designs, manufactures and sells worldwide civil space launchers, launcher subsystems and equipment, satellites, satellite subsystems and equipment. Airbus is also active in the field of strategic and tactical missiles.
- (3) Safran is a French-based company active in aerospace propulsion, aircraft equipment, defence and security. Through its Aerospace propulsion business, Safran produces liquid rocket and solid rocket motors propulsion systems for launchers as well as electric propulsion subsystems for satellites. Safran is also active in the field of strategic and tactical propulsion for missiles.

2. THE OPERATION AND CONCENTRATION

- (4) The Transaction consists of the creation of a 50/50-owned joint venture, to which the Parties intend to contribute their respective activities in space launchers, satellite systems and subsystems and missile propulsion.
- (5) According to the Memorandum of Understanding of 10 June 2014 and the Term Sheet of 30 July 2014 ("Term Sheet"), the Parties will contribute to the Joint Venture the following activities: (i) Airbus' activities as prime contractor for the development and manufacturing of European civil space launchers, as well as a supplier of related subsystems and equipment; (ii) Airbus' and Safran's stakes in Arianespace of respectively 28.5 % and 10.6 %;³ (iii) Safran's activities as a supplier of civil space launcher propulsion systems and related subsystems and equipment; (iv) Airbus' and Safran's activities in satellite propulsion (electric and chemical) and other satellite subsystems; (v) Airbus' and Safran's activities related to strategic missiles; and (vi) Safran's tactical propulsion activities. Airbus' activities as a prime satellite contractor will not be contributed to the Joint Venture.
- (6) According to the Parties, the Transaction would rationalise the industrial organisation of the launcher industry in order to significantly reduce costs and improve competitiveness of the European launcher business.
- (7) The Transaction will be implemented in two phases. In the first phase, [...]. In the second phase, [...].
- (8) Upon completion of the Transaction, the Joint Venture will have sufficient financial resources and assets, as well as dedicated management and staff, to conduct on a lasting basis the functions of an autonomous economic entity. According to the Term Sheet "[...]". Besides, as also indicated in the Term Sheet: "[...]".
- (9) Consequently, the Transaction constitutes the creation of a joint venture performing on a lasting basis all the functions of an autonomous entity within the meaning of Article 3(4) of the Merger Regulation and, therefore, a concentration within the meaning of Article 3(1)(b) of the Merger Regulation.

³ Arianespace is the European space launcher provider. The Parties will contribute to the Joint Venture their stakes in Arianespace Participation SA, respectively 28.5 % and 10.6 %, and in Arianespace SA. [...].

3. JURISDICTION

- (10) The Joint Venture will have 39 % of the capital of Arianespace with the remaining participations of the Parties (less than 5 %) kept outside the Joint Venture. The French Space Agency ("CNES") will be the second largest shareholder in Arianespace with a 35 % stake, followed by MT Aerospace (Germany) with 8 %, RUAG (Switzerland and Sweden), Avio (Italy) and SABCA (Belgium) with participations of around 3 % each.
- (11) During the Commission's investigation, some concerns were raised as regards the increase of the Parties' influence in Arianespace's activities.⁴ Some respondents to the Commission's investigation mentioned that the combination of the Parties' stakes in Arianespace may result in a transfer of control of Arianespace to the Joint Venture. However, the Commission considers that the Transaction would not result in a change of control of Arianespace for the following reasons.

No acquisition of sole control over Arianespace

- (12) The Commission considers that subsequent to the Transaction the Parties will not be able to exercise any voting rights or other forms of *de jure* or *de facto* sole control over Arianespace.
- (13) The Commission's investigation confirmed that in Arianespace the strategic decisions are taken by simple majority of the Board members.⁵ Additionally, the Board members are appointed by the ordinary shareholder's meeting by simple majority and the attendance rates at shareholder meetings are systematically very high.
- (14) Currently, Airbus appoints three administrators and Safran only one out of 12 and post-Transaction the total contribution of the Parties' participations in Arianespace to the Joint Venture will be 39 %. Therefore, the Joint Venture would not be in a position to exercise any sole control over Arianespace.
- (15) In addition, pursuant to the Launchers Exploitation Arrangement ("LEA")⁶ between the European Space Agency ("ESA") and Arianespace, which entrusts the commercial exploitation of ESA's launchers to Arianespace, ESA has the power to request any information regarding the activities of Arianespace and has a role of censor in Arianespace.
- (16) [...].⁷
- (17) [...]. The censor role in Arianespace thus gives ESA and its Member States considerable influence on Arianespace's main strategic decisions.

⁴ Replies to question 49 of Questionnaire Q2 - Satellites primes and question 11 of Questionnaire Q4 - Launcher subsystems and equipment producers.

⁵ Articles 17 and 18 of the Arianespace's by-laws.

⁶ The LEA provides for a mandate from ESA Member States to Arianespace to exploit the European launchers developed by ESA in order to guarantee the European access to space and strictly limit Arianespace's choices in terms of industrial organisation. Annex 3.1.2.c of the Form CO.

⁷ Article 5.3 of the LEA.

- (18) According to Arianespace, the combination of the Parties' shareholdings will neither change anything in terms of governance of Arianespace, nor in terms of access to information about Arianespace's operations between the different participants (shareholders and customers). In fact, both ESA and CNES' roles ensure the neutrality of Arianespace.⁸

No acquisition of joint control over Arianespace

- (19) The Commission considers that the Transaction will not lead to an acquisition of joint control over Arianespace by CNES and the Joint Venture.
- (20) First, as set out in paragraphs (12) to (18), the Joint Venture's representation on the Board of Arianespace does not give the Joint Venture the possibility to block strategic decisions by exercising any veto right.
- (21) Second, CNES' role is to (i) ensure the neutrality of Arianespace, (ii) ensure the transparency of Arianespace's processes and (iii) prevent discriminatory behaviour. Under the French Space Operation Act, CNES is commissioned by the French government to monitor the space operator's compliance with the French Space Act and its associated technical regulations. Thus, CNES' interests are not aligned with those of the Joint Venture. Consequently, the Joint Venture will not have *de facto* joint control together with CNES subsequent to the Transaction.
- (22) CNES also confirmed that the Joint Venture will not have any privileged access to information about the operations of Arianespace.
- (23) Finally, the strong control of ESA Member States over Arianespace (as explained in paragraphs (16) and (17)), makes any joint control on a *de facto* basis even more unlikely to arise.

Future acquisition of CNES' stake in Arianespace a separate transaction

- (24) The Parties confirmed their intention of acquiring the CNES' stake in Arianespace. However, the Parties submit that although initial meetings were held with the French authorities, the negotiations to acquire CNES' stake have not been concluded at this stage.
- (25) CNES confirmed that [...]. On [...].⁹
- (26) The Parties also confirmed that the Transaction and the acquisition of CNES' stake in Arianespace are not linked by condition. Moreover, the Parties confirmed that should the acquisition of CNES' stake not materialise in the future, the Joint Venture would remain viable [...].¹⁰

⁸ Minutes of a call with Arianespace on 17 October 2014.

⁹ CNES' reply to question 3 of the Commission's request for information, 23 October 2014.

¹⁰ Parties' reply to question 10 of the Commission's request for information, 20 October 2014.

- (27) Finally, Arianespace confirmed as well that that the acquisition of the CNES' participation by the Joint Venture would be a potential transaction that is separate from rather than a prerequisite for the creation of the Joint Venture.¹¹
- (28) The Commission thus considers that the acquisition of CNES' stake in Arianespace by the Joint Venture would be a separate transaction. Consequently, the competitive impact of a possible acquisition of CNES's stake in Arianespace by the Joint Venture is not assessed in this decision.

4. EU DIMENSION

- (29) The undertakings concerned have a combined aggregate worldwide turnover of more than EUR 5 000 million¹² [Airbus: EUR 59 256 million, Safran: EUR 14 695 million]. Each of them has an EU-wide turnover in excess of EUR 250 million [Airbus: EUR [...], Safran: EUR [...]], but they do not achieve more than two-thirds of their aggregate EU-wide turnover within one and the same Member State.
- (30) The Transaction therefore has an EU dimension within the meaning of Article 1(2) of the EU Merger Regulation.

5. INTRODUCTION TO THE SPACE INDUSTRY

- (31) The Transaction involves the space industry which can be subdivided into the following main sectors: launch services, launchers and ground systems, satellites and space infrastructure.¹³ Moreover, the Transaction involves the missile activities. The present decision analyses below the competitive impact of the Transaction in those areas.¹⁴

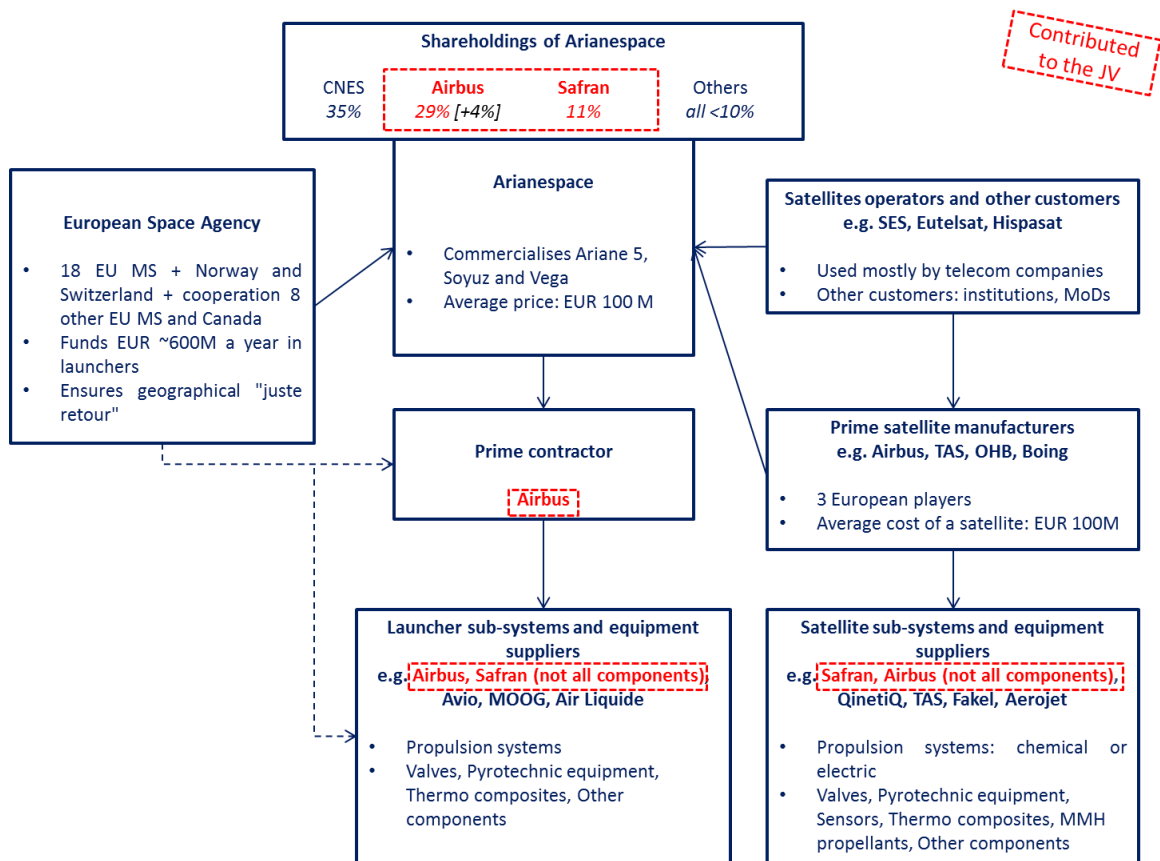
¹¹ Minutes of a call with Arianespace on 17 October 2014.

¹² Turnover calculated in accordance with Article 5(1) of the Merger Regulation and the Commission Consolidated Jurisdictional Notice (OJ C95, 16.04.2008, p1).

¹³ Commission's decision of 5 June 2001 in case COMP/M.2437 - *NEC/Toshiba*.

¹⁴ The Parties are not active in launch services and in ground systems, and therefore these areas will not be analysed in detail in the competitive assessment in the present decision.

Figure 1: Relationship between main actors in space industry



5.1. Space launchers

- (32) Space launchers are vehicles based on rocket engines and used to deliver space systems (satellite and space infrastructure elements) into orbit. Depending on their class, launchers can deliver satellites of up to 10 tons to orbits varying from 160 km high (low earth orbit or "LEO") to 36 000 km (geostationary transfer orbits or "GTO"). Launchers can usually reach a rather wide range of orbits but are optimised for a specific orbit. In particular, launchers can be categorised between (i) launchers with GTO capacity and (ii) launchers with only LEO capacity.
- (33) The Parties are essentially active in the development and manufacture of launchers with GTO capacity, in particular the Ariane programme.

5.1.1. Institutional framework for the development of launchers in Europe

- (34) In Europe, space launchers are ordered and developed by ESA, an intergovernmental organisation with 20 Member States (18 EU Member States, Switzerland and Norway) dedicated to the exploration of space. It co-operates closely with the European Union through various cooperation agreements.
- (35) ESA has a Member State funded budget of EUR 4.3 billion through which it funds various research and development programmes conducted by European space industry participants including the Parties. In particular, this budget is used to fund civil space launchers and satellite programs.
- (36) After the initial R&D and feasibility studies, the programmes essentially consist of (i) a development phase including subsequent production; and (ii) an exploitation phase where Ariane rockets based on the qualified design provide launch services.

- (37) The fleet of launchers developed by ESA today comprises the Ariane 5, the Soyuz and the Vega rockets. The configuration of and specifications for the launchers are decided by the so-called "design authority", which is traditionally a national space agency. CNES is the design authority for Ariane 5, and ELV, a joint venture between Avio and the Italian Space Agency, assumes this task for Vega.
- (38) The manufacturing of the launcher is entrusted to European industry participants such as the Parties. ESA selects one main contractor, the "prime contractor", which will be responsible for building the launcher, and several subcontractors, which will produce the different launcher subsystems and equipment.
- (39) For a large part of those contracts ESA does not conduct open tenders, but designates its industrial partners on the basis of those partners' known expertise and the so-called geographical "*juste retour*" principle. According to this principle, the share of business awarded to manufacturers in a given Member State needs to be closely related to the share of financial contribution from that Member State to the respective programme.
- (40) This process does not always lead to the selection of the most price-competitive operators, which will be reflected in the final price of the launcher, thus negatively impacting prices on the downstream market for the provision of launch services to satellite operators. This is considered a major drawback for Arianespace, the private company to which ESA has entrusted the exploitation of its launchers, which in the past few years has had difficulties in competing with new, aggressive entrants on the market for launch services for commercial satellites.

5.1.2. Exploitation of launchers in Europe

- (41) Arianespace is a company incorporated under French law. It offers, through the fleet of launchers developed by ESA, commercial launch services to private and institutional satellite operators on the basis of the 2008 LEA signed with ESA. For that purpose, Arianespace procures from European suppliers the launchers which they have developed for ESA.
- (42) The current main launcher being exploited by Arianespace is Ariane 5 which captured 30 % of the launch of commercial satellites in 2013 (six out of 19 satellites launched). However, this launcher currently suffers from the relative imbalance between commercial and institutional launch demand in Europe (non-European launch systems rely much more significantly on institutional launches). This implies that Arianespace can rely only to a limited extent on institutional launches to ensure sustainability (only one institutional satellite was launched with Ariane 5 in 2013, out of 67 worldwide). This in turn requires that Arianespace captures a significant presence with respect to commercial launches in order to sustain its business model.
- (43) Currently, Arianespace faces competition by several providers of launch services for commercial satellites.
- (44) Traditionally, the main competitor of Arianespace on the market for launch services for commercial satellites has been the US-based company International Launch Services ("ILS"), which commercialises the Russian launch vehicle Proton M. However, competition on this market has increased in the past years with the entry of US companies such as SpaceX and Orbital Science Corporation, which respectively develop and commercialise the Falcon 9 and Antares launchers, and which have adopted a very aggressive pricing policy.

- (45) SpaceX (Falcon 9) and ILS (Proton M) are able to offer low prices for commercial launches due to (i) their access to guaranteed institutional launches and (ii) their integrated manufacturing chain.
- (46) It is in the context of this highly competitive environment that ESA is currently reflecting on the development of a new framework for its Ariane programme. In fact, in order for Arianespace to be competitive, there is a need for decreasing the price of a launch from \$[...] million per ton to \$[...] million with a new launcher project.

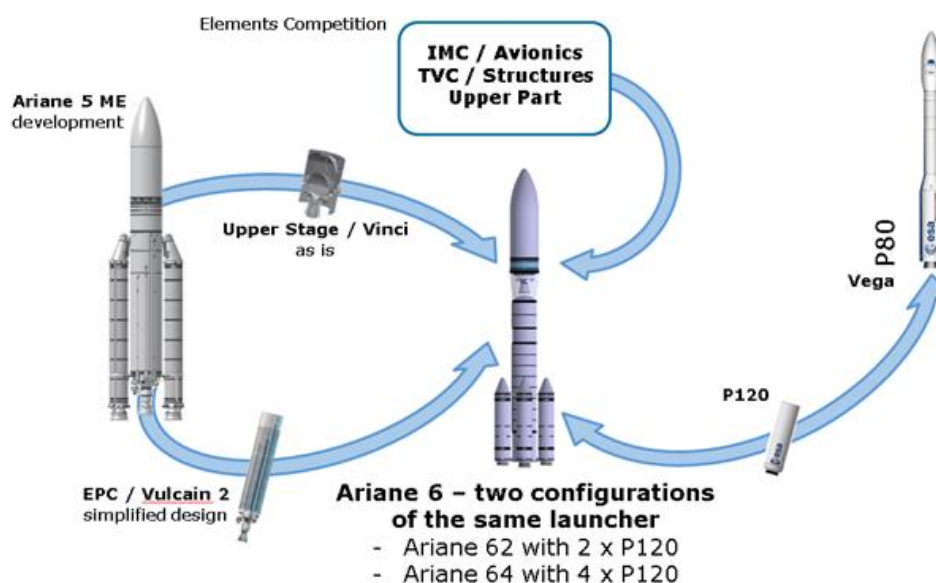
5.1.3. The future of the Ariane programme

- (47) During a Ministerial Council held in Naples in November 2012, ESA Member States discussed potential ways to improve the competitiveness of European launchers by decreasing the price per ton in orbit of its launchers.¹⁵ The objective would be to achieve a cost reduction of 20-30 %. On this occasion, it was decided to launch two complementary programmes to reach this objective.
- (48) The first one, Ariane 5ME, is a launcher similar to Ariane 5 with certain improvements. In particular, the upper-stage¹⁶ of the launcher was changed to incorporate a cryogenic engine, Vinci, which will allow the launcher to re-ignite. This programme is already at an advanced phase of its development and the qualification flight is expected to take place in 2017 or 2018.
- (49) The second one, Ariane 6, is an entirely new launcher. The initial configuration proposed by ESA entailed a solid propulsion first and central stage, and a cryogenic upper-stage (the "PPH version").
- (50) ESA subsequently asked Airbus to submit an offer for Ariane 6. In June 2014 the Parties submitted a counter-proposal where the first stage would remain as initially designed, the central stage would use a cryogenic engine, and the upper-stage would be designed in two versions: Ariane 6.1, with a Vinci engine, and Ariane 6.2, with an Aestus engine, to allow for more flexibility ("the PHH version").
- (51) This revised proposal was discussed at the ESA Ministerial Meeting of 23 September 2014, which finally agreed on a hybrid solution between the PPH and PHH versions, such as depicted in Figure 2.

¹⁵ Minutes of a call with ESA on 20 October 2014.

¹⁶ A satellite is constituted by three stages: the first stage is at the bottom (denominated propulsion stage), the second and subsequent upper stages are above it, usually decreasing in size.

Figure 2: Ariane 6 industrial scenario



Source: Form CO.

- (52) The next ESA Ministerial Meeting will be held on 2 December 2014, on which occasion the ESA Member States will discuss whether to continue both programmes, or discontinue the Ariane 5ME programme and proceed directly with Ariane 6.¹⁷
- (53) Following discussions within the ESA/industry governance working group, the governance scheme of the new project will be based on a Public Private Partnership between ESA, CNES and the industry, to be defined and implemented by 2016, where the industry will be given more responsibility but would in return have to bear more costs and risks associated with the programme.
- (54) The design authority for the Ariane 6 programme will then be transferred to Airbus/the Joint Venture pursuant to an agreement with ESA.¹⁸ Consequently, the Joint Venture will be responsible for designing the configuration of the Ariane 6 launcher.

5.1.4. Selection of prime contractors and subcontractors for Ariane 6

- (55) The launcher system prime contractor and the integrators for the main subsystems for Ariane 6 have already been selected by ESA through direct negotiations, with respect to the development of the Ariane 6 PPH versions. In these negotiations Airbus was selected to be the prime contractor and Safran (through its subsidiary Snecma) to be the integrator of the cryogenic upper stage.
- (56) In 2013, ESA also issued a first tender for six consolidated launcher equipment ("CLEs"), for which certain manufacturers were preselected as subcontractors:
 - (i) CLE 1: Upper Parts, the fairing of the launcher;

¹⁷ Minutes of a call with ESA on 20 October 2014.

¹⁸ Annex 6.1.8 of the Form CO.

- (ii) CLE 2: Aerostructures, various metallic structures intended for the different stages of the launcher;
 - (iii) CLE 3: Insulated Motor Case, the booster composite motor case;
 - (iv) CLE 4: Equipped Insulated Tank, for the upper cryogenic stage;
 - (v) CLE 5: Thrust Vector Control; and
 - (vi) CLE 6: Avionics Main Systems.
- (57) Given that the proposed design for Ariane 6 was modified in September 2014, Airbus issued a new request for quotation to the preselected candidates. The final subcontractors for these CLEs have not yet been decided on. So far no tender has been launched for the remaining CLEs.

5.2. Satellites

- (58) Satellites are space systems orbiting or revolving around celestial objects. Satellites are delivered into orbit by space launchers.
- (59) There are different types of satellites depending of their missions and the different customers (satellites operators):
- (i) Commercial satellites are purchased by private satellite operators, and are used in the field of telecommunications (for example, fixed telephony, mobile telephony and internet) and for television broadcasting. The main operators in Europe are SES, Intelsat, Eutelsat, and Hispasat.
 - (ii) Institutional satellites are purchased by national or supra-national space agencies to carry out specific missions such as earth observation, scientific missions, navigation or telecommunication.
 - (iii) Military satellites are purchased by ministries of defence or multinational defence organisations such as NATO. They are used for telecommunications, and for radar and optical observation.

5.2.1. Prime contractors and subcontractors

- (60) Satellite operators order satellites from satellite prime contractors, which design, develop, manufacture and commercialise satellites. There are three satellite prime contractors active in the EU: Airbus, OHB and Thales Alenia Space ("TAS"). Outside the EU, the main satellite prime contractors are Boeing and Lockheed Martin.
- (61) Prime contractors for commercial and institutional satellites are typically chosen through a tender organised by the satellite operator. They may have the capacity to manufacture in-house some of the material integrated into a satellite, but will usually need to source certain subsystems and/or equipment externally. For instance, many satellite prime contractors have to procure propulsion subsystems for their satellites from external suppliers. As a result, two categories of players are active in the supply chain for satellites: the prime contractor and the subcontractor(s).
- (62) When the final customer is a private satellite operator, prime contractors are usually free to choose their business partners. When the final customer is a space agency, prime contractors may be restricted in their selection of subcontractors. This is

particularly the case when ESA is funding the project, in which case the prime contractor may be subject to the *juste retour* principle described in paragraph (39).

5.2.2. Neosat programme

- (63) TAS and Airbus are currently participating in a programme of ESA, led in cooperation with CNES, for the development of a new generation of satellite platforms, called Neosat. Neosat is part of ESA's Advanced Research in Telecommunications Systems programme (ARTES-14), which aims at developing, qualifying and validating in orbit next-generation satellite platforms for commercial satellites.
- (64) The main purpose of the Neosat platform is to strengthen the European suppliers base to address the needs of telecommunications satellite operators. It will develop several building blocks. According to ESA,¹⁹ in the Neosat programme, items can be:
 - (i) unified items: TAS' and Airbus' platforms would use the same item, that is the same design and the same supplier;
 - (ii) interchangeable items for which TAS and Airbus would have agreed on the performances requirements and interfaces; and
 - (iii) core items for the strategic prime activities, specific to proprietary prime systems.
- (65) ESA expects the prime contractors to finalise their agreement on the common specifications for all items (including propulsion) in the upcoming months, and ESA will be checking these specifications in order to make sure that the design will be useful for both prime contractors and suppliers.
- (66) In the Neosat programme, the electric propulsion engine is planned to be an interchangeable item. According to ESA, there are three potential suppliers for the electric thruster which could be used in this platform:
 - (i) Safran (Snecma) with the PPS 5000;
 - (ii) European Space Propulsion ("ESP", UK), with the European version of Aerojet Rocketdyne's ("Aerojet") XR 5E thruster; and
 - (iii) EDB Fakel ("Fakel", Russia), with the SPT 140.

6. LAUNCHER PRIME CONTRACTING AND LAUNCHER COMPONENTS

6.1. Relevant product markets

6.1.1. Prime contracting for ESA space launchers

- (67) A prime contractor is responsible for the design, R&D, engineering, manufacturing and assembly of the launcher in cooperation with ESA during the development phase. Once the development is over, the prime contractor is responsible for the manufacture and sale of launchers to launch service providers.

¹⁹ Minutes of a call with ESA on 20 October 2014.

- (68) The Commission has previously considered that the space industry could be split into (i) satellites, (ii) space infrastructure (mainly space stations), (iii) launch services, (iv) launchers and (v) ground systems. In all these sectors, a further distinction has to be made between the prime contracting level and the equipment level.²⁰ However, the Commission has never analysed the prime contracting market for space launchers in the past.
- (69) The Parties argue that there is no open market for launcher prime contracting for the following reasons.
- (70) First, the Parties submit that ESA is the only customer with regards to the prime contracting of launchers development in Europe. Given the unique competences required and *juste retour* constraints, there has never been a tender process to select the prime contractor for ESA launchers. This role has always been attributed by ESA through bilateral negotiations to the industry of the main contributing Member State based on the *juste retour* principle. In fact, since 2003, based on its technical expertise and know-how required to act as prime contractor and on the contributions of ESA Member States, Airbus has been appointed as the prime contractor of all Ariane programmes (Ariane 5, Ariane 5ME and Ariane 6) without any competitive tender.
- (71) Second, the Parties submit that Airbus has already been selected as a prime contractor in the context of the initial PPH configuration of Ariane 6. Moreover, there are no other foreseeable launcher programmes for which a prime contractor would need to be selected in Europe.
- (72) Third, the Parties submit that it is not possible to change the prime contractor once it has been selected and the development phase has started, and even less during the exploitation phase.
- (73) Finally, the Parties argue that even if the Commission concluded that there existed an open market, Airbus would be the only industrial player with the demonstrated capacity to be prime contractor for launchers with heavy GTO capacity.
- (74) In view of the fact the Transaction does not raise serious doubts as to its compatibility with the internal market in relation to prime contracting for ESA space launchers, the existence of relevant market, as well as its exact scope, can be left open for the purposes of the competitive assessment of the Transaction.

6.1.2. Propulsion systems for ESA space launchers

- (75) Propulsion systems generate the thrust that propels space launchers forward. There are two types of propulsion systems: solid propulsion systems, also called solid rocket motors ("SRM"), and liquid propulsion systems.
- (76) In its previous decisions, the Commission has considered that each system and subsystem likely constitutes a relevant market.²¹ However, in some decisions the possibility of whether key systems, such as the propulsion system, should be

²⁰ Commission's decision of 5 June 2001 in case COMP/M.2437 - Nec/Toshiba (2001), paragraph 12.

²¹ Commission's decision of 21 March 2000 in case COMP/M.1636 - MMS/DASA/Astrium, paragraph 122; Commission's decision of 11 May 2000 in case COMP/M.1745 - EADS, paragraph 76 and Commission's decision of 10 March 2009 in case COMP/M.5426 - Dassault Aviation/TSA/Thalès, paragraph 13.

considered as an open market or not was also discussed, based on the fact that suppliers are selected on the basis of expertise, know-how, capabilities, and in the light of the *juste retour* principle.²² As regards in particular propulsion systems, the Commission identified SRM for launchers as a relevant product market, distinct from liquid propulsion systems.²³

- (77) The Parties consider that there is no open market for propulsion systems in Europe for the following reasons.
- (78) First, the Parties submit that propulsion system suppliers are not selected by the prime contractor. In fact, propulsion system suppliers are chosen by ESA on a bilateral basis based on their unique competences and in accordance with the *juste retour* principle. Since propulsion systems represent up to [50-60]% of the launcher value, propulsion systems are supplied by the relevant industrial partner of the main contributing Member State in the programme.
- (79) Second, the Parties submit that suppliers of propulsion systems have already been chosen through bilateral negotiations with ESA for all Ariane programmes (Ariane 5, Ariane 5 ME and Ariane 6 PPH). Even if the industrial solution for Ariane 6 is not definitely fixed yet, Safran (through its subsidiary Herakles) and Avio have already been granted direct responsibility for the whole solid propulsion systems, and Safran (Snecma) has been selected by ESA as the supplier of the cryogenic systems in the context of Ariane 6 PPH. This would not change in the new configuration proposed by the Parties.
- (80) Third, the Parties submit that any switch of supplier, assuming such were technically possible, would result in a costly, complex and time-consuming qualification process that is incompatible with the ESA budget and timing constraints.
- (81) The Parties also argue that if the Commission concluded that there was an open market for the supply of propulsion systems for launchers in Europe, this market should be further segmented between SRMs and liquid propulsion systems; and within liquid propulsion, between cryogenic and hypergolic propulsion systems. This is based on the absence of supply side substitutability and limited demand side substitutability.
- (82) In view of the fact that the Transaction does not raise serious doubts as to its compatibility with the internal market in relation to propulsion systems for ESA Developed Launchers, the existence of relevant market, as well as its exact scope, can be left open for the purposes of the competitive assessment of the Transaction.

6.1.3. Other Systems, Subsystems and Equipment for launchers

- (83) Space launchers are made up of systems, subsystems and equipment. Systems are composed of subsystems. According to the Parties, subsystems are complex parts of the launcher, such as the fairing, whereas equipment consists of components used in systems and subsystems (for example, pyrotechnic devices, valves).

²² Commission's decision of 21 March 2000 in case COMP/M.1636 - MMS/DASA/Astrium, paragraphs 121-122; and Commission's decision of 30 March 2011 in case COMP/M.6104 - Safran/SNPE Matériaux énergétiques/Regulus, paragraphs 22-23.

²³ Commission's decision of 30 March 2011 in case COMP/M.6104 - Safran/SNPE Matériaux énergétiques/Regulus, paragraph 26.

- (84) In its previous decisions, the Commission considered that each system and subsystem likely constitutes a relevant market.²⁴ However, in some decisions the possibility of whether key subsystems should be considered as an open market or not was also discussed, based on the fact suppliers are selected on the basis of expertise, know-how, capabilities, and in the light of the *juste retour* principle.²⁵
- (85) The Parties state that each subsystem and equipment is designed specifically for a given launcher programme, and that there is no interchangeability. The Parties state that in the past 10 years there have been tender procedures carried out by ESA for Ariane 5 ME, VEGA and Ariane 6, and each tender constitutes a separate product market.
- (86) For Ariane 6 PPH, the Parties submit that ESA decided to distinguish between two categories of subsystems and equipment.
- (87) The first category covered the main subsystems and equipment which was grouped into six CLEs open to tender as described in paragraph (56). These CLEs have each been attributed through an open tender to a specific supplier and therefore have been treated as a relevant product market.
- (88) The second category covers the remaining tenders for subsystems and smaller equipment, which will take place at a later stage. These tender procedures will be managed by the industry players already directly designated or selected following a tender by ESA as suppliers for a system or subsystem. If each subsystems and equipment should be considered as a separate market, the Parties submit that the following smaller equipment will be relevant for the future Ariane 6 programme: (i) pyrotechnic equipment; and (ii) valves equipment.
- (89) Pyrotechnic equipment consists of products performing various functions and using the energy provided by exothermic chemical reactions.
- (90) The Parties, in line with previous decisions taken by the Commission, submit that the market for pyrotechnic equipment can be segmented according to the field of application and that equipment used for one application generally cannot be used for other applications due to technical reasons. Moreover, the Parties submit that the supply of pyrotechnic subsystems and equipment should be distinguished from the supply of pyrotechnic systems, which require in-depth knowledge of the launcher specifications as well as design and integration expertise.
- (91) Valves equipment includes valves, plates, and pressurisation systems that regulate the passage of fluid in liquid propulsion launcher engines and stages.
- (92) The Parties submit that valves equipment for launchers must be distinguished from valves equipment for other fields of application since equipment for one application generally cannot be used for the other applications due to technical reasons. Moreover,

²⁴ Commission's decision of 21 March 2000 in case COMP/M.1636 - MMS/DASA/Astrium, paragraph. 122; Commission's decision of 11 May 2000 in case COMP/M.1745 - EADS, paragraph 76 and Commission's decision of 10 March 2009 in case COMP/M.5426 - Dassault Aviation/TSA/Thalès, paragraph 13.

²⁵ Commission's decision of 21 March 2000 in case COMP/M.1636 - MMS/DASA/Astrium, paragraph 121-122; and Commission's decision of 30 March 2011 in case COMP/M.6104 - Safran/SNPE Matériaux énergétiques/Regulus, paragraphs 22-23.

the Parties submit that in the area of Ariane launchers, valves may be distinguished between cryogenic valves²⁶ and non-cryogenic valves²⁷, both of which have different and specific product characteristics.

- (93) In view of the fact that the current Transaction does not raise serious doubts as to its compatibility with the internal market in relation to launcher components for ESA, the exact scope of the relevant product markets can be left open for the purposes of the competitive assessment of the Transaction.

6.2. Relevant geographic markets

- (94) The Commission considered in previous decisions that competition for systems, subsystems and equipment for Ariane launchers takes place at European level. This is due to the fact that the selection of suppliers of those products usually takes place during the development phase and is governed by the *juste retour* principles.²⁸
- (95) The Parties submit that, due to the *juste retour* principle enshrined in the ESA Convention, the relevant market for prime contracting for ESA space launchers and launchers' subsystems or equipment should be considered as EEA-wide in scope.
- (96) The responses obtained by the Commission in the course of its market investigation confirmed that the procurement of systems, subsystems and equipment for all ESA launcher programmes takes place at European level.²⁹
- (97) In any event, the scope of the relevant markets can be left open for the purposes of the competitive assessment of the Transaction as no serious doubts arise as to its compatibility with the internal market in relation to any launcher components irrespective of the geographic market definition applied.

6.3. Competitive assessment

6.3.1. Parties' activities

- (98) Airbus is currently the prime contractor on all Ariane programmes, including Ariane 5, Ariane 5 ME and Ariane 6. Safran is not active as a prime contractor for launchers. Therefore, there are no horizontal overlaps between the Parties' activities at this level.
- (99) The Parties are mainly active in the supply of systems, subsystems and equipment for heavy launchers (Ariane programme). For small launchers as VEGA, the Parties are only marginally active.³⁰

²⁶ Cryogenic valves are used in connection with very low temperature oxygen and hydrogen in cryogenic propulsion subsystems.

²⁷ Non-Cryogenic valves are used in non-cryogenic propulsion systems and in connection with non-oxygen/hydrogen related function (for example, in connection with helium – in cryogenic propulsion systems).

²⁸ Commission's decision of 10 March 2009 in case COMP/M.5426 - Dassault Aviation/TSA/Thalès, paragraph 11.

²⁹ Replies to question 6 of Questionnaire Q4 – Launcher subsystems and equipment producers.

³⁰ Airbus provides limited equipment such as non-cryogenic valves while Safran provides equipment for the SRMs. The Parties submit that [...] and there are no vertical relationships between the Parties' activities.

- (100) Safran is active in propulsion systems for launchers through (i) Europropulsion and Regulus (two joint ventures with Avio) and Herakles for solid propulsion systems, and (ii) Snecma for liquid cryogenic propulsion.³¹ Outside the Joint Venture, neither Airbus nor Safran operate as a supplier of propulsion system for other non-ESA launchers, whether for solid or liquid propulsion.
- (101) As regards Ariane 6, the Parties were in competition for CLE 3 (Insulated Motor Case) and CLE 6 (Avionics Main Systems). Safran [...]. In the other Ariane programmes, the Parties' activities overlap in the supply of pyrotechnic separation systems as well as valves equipment.
- (102) In addition, the Transaction would lead to vertically related affected markets since Safran supplies propulsion systems and equipment to Airbus for integration into launchers. The Parties also have some vertical relationships at the level of smaller subsystems and equipment.

6.3.2. Assessment of potential horizontal effects

6.3.2.1. Parties' arguments

- (103) According to the Parties, the Transaction would lead to a horizontal overlap between the Parties' activities regarding Avionics Main Systems. As regards the Insulated Motor Case, Airbus and Safran have complementary capabilities. Moreover, the Transaction will also lead to a horizontal overlap in the supply of small equipment: (i) pyrotechnic equipment and (ii) valves equipment, although not all of these activities will be contributed to the Joint Venture.

Avionics Main Systems

- (104) The Parties are currently active in the launcher avionics sector as follows: (i) avionics system designers for launchers and (ii) avionics component manufacturers for launchers. However, the Parties submit that there is no affected market as regards avionics main systems.
- (105) First, the Parties submit that there will only be an indirect horizontal overlap since only Airbus' competence as systems designer for launcher avionics will be contributed to the Joint Venture.
- (106) Second, the Parties submit that since Airbus has already been selected by ESA for the Ariane 6 programme (PPH), there will be no open market for launcher avionics in the foreseeable future. In fact, it is very unlikely that ESA will decide to reopen this CLE in the context of the new Ariane 6 configuration proposed by the Parties since (i) the avionics should not significantly differ from the initial Ariane 6 configuration and (ii) the overall key objective for Ariane 6 consists in reducing development and exploitation costs, which itself requires to avoid any redevelopment which is not absolutely necessary.
- (107) Third, the Parties argue that even if ESA decided to reopen competition for avionics, the setup of the Joint Venture would not negatively affect competition in the launcher avionics sector for the following reasons:

³¹ [...].

- (i) Safran would have no incentive to reduce competition and favour a 50%-owned entity to the detriment of a 100%-owned entity, Sagem Défense Sécurité. Conversely, Airbus would have no incentive whatsoever in reducing the competitive pressure exerted on Sagem Défense Sécurité by the Joint Venture.
- (ii) The new tender would be organised under ESA's Procurement Rules.³² As a sophisticated buyer, ESA would have the power to prevent any possible negative impact of the Transaction on price.
- (iii) Several other suppliers would be available.

Insulated Motor Case

- (108) In the context of the Ariane 6 programme (PPH version), ESA organised a competitive tender bid for the Insulated Motor Case. There was no direct competition between Airbus and Safran for this CLE, [...]. Avio ultimately won the CLE.
- (109) The Parties argue that the Insulated Motor Case CLE in the context of the Ariane 6 programme is not an affected market.
- (110) First, the Parties submit that they are not direct competitors for Insulated Motor Cases for Ariane launchers but only have complementary capabilities. On the one hand, [...]. On the other hand, [...].
- (111) Second, the Parties submit that since Avio has already been selected by ESA for the Ariane 6 programme (PPH), there will be no open market for Insulated Motor Cases in the foreseeable future. In fact, the new configuration of Ariane 6 proposed by the Parties would not require to organise a new tender for this CLE, since the technical requirements for the solid propulsion stage would not significantly differ between the PHH and the PPH configurations.
- (112) Third, the Parties argue that if a new tender were organized by ESA for the composite Insulated Motor Case in the context of the new configuration of Ariane 6 (PHH), Avio would still remain a strong competitor of the Joint Venture, and the Joint Venture would not have the capacity to foreclose the participation of Avio in such possible new tender for the Insulated Motor Case for the following reasons:
 - (i) The organisation of a new tender would fall within the exclusive purview of the ESA's decision-making powers with respect to the selection of suppliers for the development phase, and would follow ESA's Procurement rules.
 - (ii) Avio could bid against the newly-formed Joint Venture entirely on its own, [...], since Avio has the capability to manufacture all parts of an Insulated Motor Case in-house.
 - (iii) Even if Avio wanted to continue [...] in a competing bid against the Joint Venture, ESA is a very sophisticated buyer that would be in a position to check precisely the commercial conditions applied [...].

³² ESA's Procurement Rules consist of the rules governing ESA procurements. They are laid down in the ESA Convention and are implemented through the ESA Procurement Regulations and the General Clauses and Conditions for ESA Contracts. Annex 6.1.3 and 6.1.4 of the Form CO.

(113) Fourth, the Parties submit that two other competitors manufacture composite booster cases for launchers, and were consulted by ESA in the Insulated Motor Case CLE tender organised for the initial Ariane 6 configuration:[...].

Pyrotechnic equipment

(114) Airbus will contribute to the Joint Venture its activity in pyrotechnic systems for the Ariane programmes. Airbus will not contribute to the Joint Venture any pyrotechnic subsystem and equipment manufacturing capabilities.³³ Safran will contribute its launcher pyrotechnic activities at the subsystem and equipment level.³⁴

(115) The Parties argue that the Transaction will not have a significant negative impact on competition in the pyrotechnic sector.

(116) First, the Parties submit that their activities do not overlap with respect to pyrotechnic systems, as only Airbus is active at the system level.

(117) Second, the Parties submit that Airbus is only marginally active in launcher pyrotechnics at the subsystem level. The only overlap with Safran's activities concerns hard point separation subsystems. However, since Airbus CASA will not be contributed to the Joint Venture the Transaction would only result in an indirect overlap.

(118) Third, the Parties argue that despite their market position,³⁵ the Transaction will not have a negative impact on competition for the following reasons:

- (i) Market shares do not accurately reflect market power in such a bidding market with a very limited number of bids.
- (ii) [...].
- (iii) In Europe, RUAG, a competitor, supplies both dispensers and hard point separation subsystems. RUAG has been selected to provide the dispenser for the Galileo constellation.
- (iv) There are numerous other competitors worldwide for the manufacture and supply of hard point separation subsystems.
- (v) There are separation technologies available other than hard point separation subsystems.

Valves equipment

(119) Both Parties are active in the supply of valves equipment for space launchers. However, only Airbus will contribute launcher valves equipment activities to the Joint

³³ Airbus CASA, which will not be contributed to the Joint Venture, is also active in the launcher pyrotechnic sector at the system and subsystem level.

³⁴ Safran is not active at the system level.

³⁵ In the last five years, the Parties supplied hard point separation subsystems for all the constellations launched worldwide. However, for the next constellation scheduled for launch an American supplier has been selected for the hard point separation subsystem.

Venture.³⁶ The Transaction will thus only result in an indirect horizontal overlap in valves equipment for launchers.

(120) The Parties argue that the Transaction will not lead to any significant competition concerns, even if a narrow segmentation of the market were applied, for the following reasons.

(121) First, the Parties argue that there will be no open market for cryogenic valves equipment in the foreseeable future. The valves equipment suppliers for Ariane 5 and Ariane 5 ME have already been selected under ESA's Procurement Rules, and therefore there will not be any competition for the supply of valves equipment in that respect.

(122) Second, the Parties argue that the Ariane 6 launcher, irrespective of the final configuration retained will not give rise to new developments for the cryogenic stage(s), and therefore no new competition for valves is anticipated.

(123) Third, the Parties argue that even if there were a tender, the Transaction would not have any significant impact on competition for the following reasons:

- (i) Safran would have no incentive to reduce competition and favour a 50%-owned entity to the detriment of a majority-owned entity (that is Techspace Aero). Conversely, Airbus would have no incentive whatsoever in reducing the competitive pressure exerted on Safran by the Joint Venture.
- (ii) The Joint Venture and Safran will have complementary activities in the cryogenic valves equipment sector.
- (iii) Valves and other flow control equipment represent less than [0-5] % of the total launcher value, and thus coordination of the competitive behaviour of the Joint Venture and Safran is unlikely.
- (iv) It is ESA policy to reuse as much as possible already developed equipment and maximise commonalities of Ariane 5 and Ariane 6, including valves equipment. Any development of new valves equipment would be subject to a strict “test of necessity” at ESA level and in any case subject to ESA's Procurement Rules. ESA can also sponsor the entry of a new competitor.

(124) As regards non-cryogenic valves, the Parties argue that the impact of the Transaction will be negligible since (i) there are numerous competitors supplying or able to supply non-cryogenic valves for European launchers; and (ii) valves represent only [0-5] % of the total launcher value, and non-cryogenic valves only account [50-60]% of the valves' total value.

6.3.2.2. The Commission's assessment

(125) During the Commission's investigation no concerns were raised regarding those horizontal relationships.

³⁶ Safran will not contribute its subsidiary Techspace Aero which is active in valves equipment.

- (126) As regards Avionics Main Systems, ESA confirmed that the tender organised in 2013 will not be affected since this component is rather independent of the configuration of Ariane 6.³⁷
- (127) As regards the Insulated Motor Case, there may be a change in the number of boosters (from four to two), and therefore the CLE will be affected by the new configuration. However, ESA will ensure that the results of the CLEs will be used as most as possible, as this gives credibility and stability to the process.³⁸ Moreover, the Parties are not direct competitors for this CLE [...].
- (128) Additionally, ESA confirmed that there is competition for all of those components and for none of them the Parties were the only two possible suppliers. In fact, ESA received between three to five replies for each of the CLEs tendered.³⁹
- (129) The Commission's investigation also confirmed that all suppliers will be selected according to ESA's Best Practices.⁴⁰ Moreover, the geographic *juste retour* principle will be followed in full when selecting subcontractors.⁴¹ Both these factors will be discussed in more detail below in paragraphs (148) to (177).
- (130) In light of the above and the evidence available to it, the Commission considers that the Transaction does not raise serious doubts as to its compatibility with the internal market due to horizontal overlaps in the markets for launcher components.

6.3.3. Assessment of potential non-horizontal effects

- (131) There are several vertical relationships between the Parties' activities in relation to (i) Ariane 5, (ii) Ariane 5 ME, and (iii) Ariane 6.
- (132) Ariane 5 is composed of three stages: (i) a solid propulsion stage, (ii) a main cryogenic stage and (iii) an upper cryogenic stage.⁴² For each of these stages, the Transaction would lead to non-horizontal relationships between the Parties' activities. In the solid propulsion stage, Safran (Europropulsion), is the integrator of the solid propulsion systems while Airbus supplies systems and equipment. As regards the main cryogenic stage, Safran (Snecma) is the integrator for the liquid propulsion system and supplies as well other systems and subsystems while Airbus provides the electrical equipment for the main stage and other subsystems. As regards the upper cryogenic stage, Safran is the integrator of the cryogenic propulsion system for Ariane 5 ECA⁴³ and Airbus is the integrator of the hypergolic propulsion system for Ariane 5 ES⁴⁴. Moreover, both Parties supply equipment and subsystems in the last stage.

³⁷ Minutes of a call with ESA on 28 October 2014.

³⁸ Minutes of a call with ESA on 28 October 2014.

³⁹ Minutes of a call with ESA on 20 October 2014.

⁴⁰ Best Practices for the Selection of Subcontractors by Prime Contractors in the frame of ESA's Major Procurements ("ESA's Best Practices") have been laid down by ESA for the selection of sub-contractors by Prime Contractors in the frame of ESA's major procurements. Annex 6.1.5 of Form CO.

⁴¹ Minutes of a call with ESA on 20 October 2014.

⁴² See Figure 2.

⁴³ Ariane 5 ECA is the "heavy-lift workhorse" for missions to GTO.

⁴⁴ Ariane 5 ES is tailored for LEO orbit missions with the automated transfer vehicle.

- (133) As regards Ariane 5 ME, Safran (Snecma) is the integrator of the cryogenic propulsion system and Airbus supplies the trust chamber of the engine as well as other systems and subsystems.
- (134) As regards Ariane 6, Safran is the integrator for the liquid propulsion system and the subcontractor for internal thermal protections in the CLE 3 in which Avio is the integrator of the solid propulsion systems.
- (135) In addition to the vertical relationships described, it should be noted that Airbus is currently the prime contractor for all Ariane programmes.

6.3.3.1. Parties' arguments

- (136) According to the Parties, the Transaction does not give rise to any risk of foreclosure as regards the development and production of civil launchers because of ESA's buying power and ESA's Procurement Rules.
- (137) First, the Parties submit that ESA, as the sole final buyer of launchers, has strong buyer power vis-à-vis its suppliers. ESA's high degree of sophistication enables it to closely scrutinise the cost structure of companies and to detect potential uncompetitive pricing from its suppliers.
- (138) Second, the Parties submit that for a large part of ESA's contracts there is no open tender. Instead, industrial partners are designated on the basis of their known expertise and the geographical *juste retour* principle. For instance, prime contracting accounts for approximately [30-40] % of the launcher value and propulsion for [40-50]%, so that those work shares may only be attributed to undertakings that (i) have the necessary competencies, and (ii) belong to the programme's main contributing Member States. In the case of Ariane 6, they were attributed respectively to Airbus and Safran.
- (139) Third, the Parties submit that the selection of suppliers has been definitely made for Ariane 5, Ariane 5 ME and the largest part of Ariane 6 main systems and subsystems.
- (140) Fourth, the Parties submit that all the remaining selection processes will be conducted in accordance with ESA's Procurement Rules and Best Practices and that the contemplated evolution of the governance scheme for the Ariane 6 programme, namely the fact that the Joint Venture will assume the role of design authority, will not have any impact in that respect.
- (141) Finally, the Parties submit that the vertical integration of their activities will also have pro-competitive effects as the Transaction will generate significant synergies indispensable to allow the Ariane launcher family to remain competitive *vis-à-vis* other launchers.

6.3.3.2. Concerns expressed by competitors

- (142) Market participants stated that ESA's role will diminish with the attribution of the design authority to Airbus/the Joint Venture, and fear that ESA's Procurement Rules

and Best Practices will not be sufficient to prevent the adoption of a foreclosure strategy by the Joint Venture.⁴⁵

- (143) A launcher subsystem supplier stated that the *"integration of Airbus and Safran may prove particularly problematic for (...), which is a competitor of Safran's subsidiary. Indeed, if (...) were to have bidden against (...) for Ariane 6, there may be a risk that Airbus would favour JV's bids"*.⁴⁶ For the case of pyrotechnic subsystems, this supplier was concerned that Safran would be favoured since no supplier has been officially selected for the moment.⁴⁷
- (144) Another launcher subsystem supplier also stated that there is *"the risk that JV would opt for manufacturing the equipment in-house instead of opening the selection process to competition (...) the JV may place politics and internal industrial policy considerations above competition"*.⁴⁸ At the same time this supplier stated that the *"JV will however strive to make a cost efficient rocket. The current functioning in Europe cannot continue, in view of the competition of SpaceX"*.⁴⁹
- (145) Similar concerns were mentioned by another launcher subsystem supplier: *"The JV could have an incentive to manufacture launcher parts in-house instead of opening the selection process to competition. (...) Indeed, (...) submits from past experience that when a prime contractor acts in the same field as sub-contractors, there is a conflict of interest (...). In these cases, there is a need for a counter-balancing power"*.⁵⁰ At the same time this supplier stated that the *"JV may actually have positive effects on the market, provided that ESA were to continue to exercise its mitigating and leveraging power. In particular, a positive impact of the JV would be to decrease the number of complicated interfaces that currently exist for the manufacture of Ariane launchers"*.⁵¹
- (146) Moreover, another launcher subsystem supplier stated that *"the JV may have the ability and incentive to bring all production of liquid and solid propulsion within itself and keep (...) away from the process. In order to work alone on the whole booster for Ariane 6, the JV would have to invest large amounts in time and facilities, but such strategy could be rewarding in that it would lead to a consolidation of its position in the EU to the detriment of other technology suppliers, and thus lead to higher returns for the JV from these activities"*.⁵²
- (147) In relation to the CLEs, one supplier of launcher subsystems expressed concerns as regards the fact that suppliers have received from Airbus requests for quotations that are not subject to ESA's Procurement Rules, for only parts of some subsystems. According to this supplier, *"those new requests for quotations were different from the previous public tenders in two main ways: (i) the scope of the request has changed,*

⁴⁵ Replies to questions 9 and 10 of Questionnaire Q4 – Launcher subsystems and equipment producers.

⁴⁶ Minutes of a call with a launcher subsystem supplier on 27 October 2014.

⁴⁷ Reply to question 8.1 of Questionnaire Q4 - Launcher subsystems and equipment producers.

⁴⁸ Minutes of a call with a launcher subsystem supplier on 27 October 2014.

⁴⁹ Minutes of a call with a launcher subsystem supplier on 27 October 2014.

⁵⁰ Minutes of a call with a launcher subsystem supplier on 28 October 2014.

⁵¹ Minutes of a call with a launcher subsystem supplier on 28 October 2014.

⁵² Minutes of a call with a launcher subsystem supplier on 15 October 2014.

and (ii) there will be no ESA tender for the turnkey product".⁵³ However, this same launcher subsystems supplier recognised that these concerns were more related with the transfer of the design authority to Airbus, and not to the merger itself.

6.3.3.3. The Commission's assessment

- (148) First, satellite operators mentioned that the Transaction will influence the industrial organisation of Ariane launchers, improving the internal effectiveness. Other satellites operators mentioned that as a result of the Transaction European launchers would become more competitive and thus more satellites would be launched.⁵⁴
- (149) Second, the Commission's investigation showed that the attribution of the role of design authority to Airbus is not dependent on the Transaction. This implies that any eventual incentive of the Joint Venture to favour an Airbus subsidiary would not be merger specific. Only if the Transaction itself created an eventual incentive for Airbus to favour Safran or its subsidiaries, the resulting effects would be merger specific.
- (150) Third, the Commission's investigation confirmed that ESA has the powers to avoid any competitor foreclosure by the Joint Venture, both during the development phase and the exploitation phase of launchers. In fact, the new Ariane 6 subcontractors will be selected according to ESA's Best Practices even though Airbus/the Joint Venture will be the design authority.
- (151) According to Article 10 of ESA's Procurement Rules, procurement rules for launcher components shall always be interpreted so as to ensure:
- (i) *"transparency and fair and equitable treatment of all economic operators;*
 - (ii) *that the participation of a Tendering Body does not cause any distortion of competition in relation to private economic operators;*
 - (iii) *the most economic and effective employment of the Agency's resources;*
 - (iv) *the implementation of the defined industrial policy and to guarantee a distribution, of work among Member States provided in Article VII and Annex V of the Convention."*
- (152) Pursuant to Article 13(1) of ESA's Procurement Rules, *"open competitive tender shall be the normal procedure for the placing of contracts, unless, in specific circumstances, ESA waives this right and directly appoints the supplier of its choice"*. In the specific case of pyrotechnic equipment, in relation to which concerns were raised during the Commission's investigation, ESA imposes it to be selected under a competition process.⁵⁵
- (153) Moreover, pursuant to Article 17 of ESA's Procurement Rules, ESA has the right to contractually impose on the prime contractor and integrators of key subsystems the tendering requirements that they have to follow in the selection of their subcontractors, in order to ensure that the principle of transparency and fair and

⁵³ Minutes of a call with a launcher subsystem supplier on 22 October 2014.

⁵⁴ Replies to questions 25, 26 and 27 of Questionnaire Q1 – Satellite operators.

⁵⁵ Annex 6.8.1 of Form CO: "ESA's Request for Submission".

equitable treatment of all economic operators are implemented throughout its procurements.

- (154) ESA also applies ESA's Best Practices whose underlying objective is *"to ensure that Prime Contractors together with their Sub-contractors when required to perform the selection of sub-contractors in the framework of an Agency Program, conduct their procurement in line with the principles of fairness and equity"*.
- (155) The Commission's investigation showed that under ESA's Best Practices, ESA effectively exercises control of the selection process, validates and approves key elements of the tender documentation, and retains important veto rights with respect to the final selection decision.
- (156) ESA's Best Practices stipulate that a prime contractor should prepare and submit to ESA the Industrial Procurement Plan ("IPP") describing the procurement approach to be followed for each development phase in order to achieve the requirements set out by ESA. For each component to be procured, the IPP contains, *inter alia*, (i) the procurement method and if relevant its justification, (ii) list of potential tenderers, and (iii) indicative or target budget, which are all subject to ESA's approval. The IPP is then used by ESA for identifying and assessing activities in order to determine if they should be produced directly through the prime contractor (make) or from source outside (buy). ESA must approve the IPP.
- (157) According to ESA's Best Practices, for each request for quotation, a tender evaluation board is generally established by the prime contractor. Even in such case, the prime contractor's discretion in the composition of the board is limited, including the required participation of ESA. This rule is specifically designed to ensure the fairness of the selection process and removes potential concerns of conflict of interest in the choice of subcontractors. Indeed, it ensures that the prime contractor does not have the ability (that is, the decision-making power) to select its internal subsidiary or otherwise preferred company as its subcontractor.
- (158) For instance, in situations of conflict of interests, notably when the prime contractor (or any of its affiliates) wishes to participate in the bidding for any element for which such prime contractor will carry out the competitive tendering procedure, ESA shall in the interest of impartiality exclude the prime contractor from the evaluation of tenders submitted.
- (159) Moreover, and still according to ESA, if a company considers its offer on a specific part as the most competitive and has doubts on the fairness of the attribution of this part, it will have the possibility to go to the ESA Ombudsman, then appeal to the Head of Procurement and then to the Procurement Board.⁵⁶
- (160) During the exploitation phase, ESA will remain the most important customer and will maintain certain key facilities operational (for example, launch pads). According to ESA, their role will then guarantee that there will be no discrimination or abuse from the Joint Venture.⁵⁷

⁵⁶ Minutes of a call with ESA on 28 October 2014.

⁵⁷ Minutes of a call with ESA on 28 October 2014.

- (161) The Commission's investigation revealed that the exploitation phase of launchers is divided into two stages. The first stage corresponds to an initial quantity of launchers determined by ESA in such a way as to ensure that the cumulative turnover of the industry of each Member State having contributed to the Ariane 6 activities during the development phase will be equivalent to its contribution to those activities.
- (162) During this first production quantity of launchers, subcontractors may only be modified in case of:
- (i) material breach of the contract concluded between a subcontractor and its direct customer;
 - (ii) subcontractor's failure to meet the technical requirements of the subcontract to such an extent as to jeopardise the execution of the subcontract; or
 - (iii) subcontractor's insolvency or discontinuation of the development or manufacturing of the products under its responsibility.
- (163) In case one of the above mentioned conditions is fulfilled, the prime contractor may initiate a procedure to change the subcontractor, which shall follow ESA's Best Practices.
- (164) As from the second production quantity of Ariane 6 launchers, a change of subcontractors is only possible if the subcontractor:
- (i) has failed technically;
 - (ii) increases substantially the prices for its production activities compared to the prices for the first production quantity;
 - (iii) refuses to decrease its prices to its direct customer for the relevant manufacturing activity in the same proportion as the reduction made by the prime contractor towards the launch provider; or
 - (iv) becomes insolvent or decides not to continue the development or manufacturing of the products under its responsibility.
- (165) In case one of the above mentioned conditions is fulfilled, the prime contractor may initiate a procedure to change the subcontractor. This procurement procedure shall also follow a competitive procurement procedure inspired by ESA's Best Practices. In case of conflict, a concerned party may request the involvement of the ESA Ombudsman as mediator.
- (166) According to the contractual principles defined by ESA [...], ESA's Best Practices will be applied.⁵⁸ In this context, the design authority must:
- (i) list suppliers and subcontractors foreseen for the execution of the contract;
 - (ii) make available to ESA the contracts with its subcontractors and its suppliers; and

⁵⁸ Annex 6.1.8. of Form CO "ESA's Request for Submission".

- (iii) provide full visibility to ESA over the subcontractors and main suppliers technical and financial implementation of the contract.
- (167) The Commission's investigation showed that the power of Airbus/the Joint Venture to manufacture in-house will be limited by the *juste retour* principle. In fact, ESA stated that the geographic *juste retour* principle will be followed in full in the development phase of Ariane 6. ESA has already provided Airbus with a list of potential contributions discussed by the Member States, which will have to be taken into account when selecting subcontractors. In the exploitation phase, the geographic *juste retour* principle will be followed for the first quantity of launchers.⁵⁹
- (168) This is also confirmed by ESA's Request for Submission in the context of the attribution of the role of design authority to Airbus/the Joint Venture where it is stated that "*the request for submission of a Committing Ariane 6 Programme File shall match the following targets for geo return*".⁶⁰
- (169) Fourth, Commission's investigation showed that it is very costly to switch the supplier of a component from the development stage to the exploitation stage.⁶¹ Thus, those suppliers that are selected in the development stage will most probably remain in the exploitation stage.
- (170) Fifth, and as regards the request for quotation sent by Airbus to the subcontractors selected in the previous tenders for Ariane 6, ESA stated that it would make sense for Airbus to send them in order to confirm the prices initially quoted. However, ESA will ensure that Airbus will use the results of the CLEs as much as possible, as this gives credibility and stability to the process.⁶²
- (171) In fact, an ESA's document shows that its objective is for the Ariane 6 industrial scenario to be mainly based on heritage coming from previous competition organised for Ariane 6 PPH, for which a consolidated industrial proposal exists and has been evaluated.⁶³
- (172) Sixth, the Commission's investigation showed that in assessing Airbus/the Joint Venture's global offer, ESA will have all the information contained in the procurement plan and will thus have enough material to control and monitor whether prices are offered at, or above, market-price since it also knows the existing suppliers in the market. This should ensure that Airbus/the Joint Venture will not choose to manufacture in-house when purchasing from an external supplier would be less costly.
- (173) Even for equipment where Airbus/the Joint Venture will decide not to issue a tender, if ESA learns that the selection has not been carried out at market price, ESA will have the power to make Airbus/the Joint Venture open a competition for the particular equipment.

⁵⁹ Minutes of a call with ESA on 28 October 2014.

⁶⁰ Annex 6.1.8. of Form CO "ESA's Request for Submission".

⁶¹ Replies to question 12 of Questionnaire Q4 – Launcher subsystems and equipment producers.

⁶² Minutes of a call with ESA on 28 October 2014.

⁶³ ESA's document "Progress report on the Implementation of decisions taken at C/M 12 on Launchers", 23 September 2014.

- (174) Seventh, the Commission's investigation also confirmed that the creation of the Joint Venture is aimed at creating efficiencies and rationalising costs at the level of the new Ariane 6 programme.
- (175) ESA confirmed that the main rationale behind the Ariane 6 programme is to create efficiencies which will result in a decrease of the price and cost of launch services. Many of these efficiencies will come also from the integration of Airbus and Safran. One key efficiency will be the elimination of transaction costs between the two companies. Indeed, each time Airbus purchases hardware from Safran, a series of tests has to be done in order to transfer responsibility, which has an impact on costs. This will no longer be the case after the creation of the Joint Venture.⁶⁴
- (176) On the other hand, the Joint Venture would also have a strong interest to develop a launcher at the lowest cost possible since the new Ariane 6 will have to compete with other launchers, like SpaceX.
- (177) In conclusion, the Commission considers, on the basis of the above and the evidence available to it, that the Transaction does not raise serious doubts as to its compatibility with the internal market due to vertical relationships between the Parties in the markets for launcher components.

6.4. Conclusion

- (178) In conclusion, the Commission considers, on the basis of the above and the evidence available to it, that the Transaction does not raise serious doubts as to its compatibility with the internal market in relation to the markets for launcher components.

7. SATELLITE PRIME CONTRACTING AND SATELLITE COMPONENTS

7.1. Relevant product markets

- (179) The Commission has previously considered the satellites markets. In particular, as regards satellites equipment, the Commission further distinguished between the platform and the payload of the satellite, and indicated that there might be separate product markets for the different subsystems and components assembled on a satellite.⁶⁵

7.1.1. Satellite prime contracting

- (180) The Commission has previously distinguished between satellites used for military applications and those used for civil applications. In the civil sector, a further distinction can be made between the institutional segment and the commercial segment.⁶⁶

⁶⁴ ESA stated that the efficiencies behind the creation of the Joint Venture would not be specific for Ariane 6, but would also have cost-cutting effects in the context of the Ariane 5ME project.

⁶⁵ Commission's decision of 5 June 2001 in case COMP/M.2437 - NEC/Toshiba, paragraph 12.

⁶⁶ Commission's decision of 17 December 2008 in case COMP/M.5168 - EADS/SSTL, paragraphs 8-17; Commission's decision of 4 April 2007 in case COMP/M.4403 - Thales/Finmeccanica/Alcatel Alenia Space & Telespazio, paragraphs 38-41; and Commission's decision of 28 April 2005 in case COMP/M.3680- Alcatel/Finmeccanica/Alcatel Alenia Space & Telespazio, paragraphs 14-23.

- (181) The Parties submit that, given the absence of any significant impact on competition, the precise definition of the relevant product markets may be left open.
- (182) The results of the market investigation are in line with the Commission's previous decisions. All satellite prime contractors⁶⁷ responding to the Commission's market investigation have confirmed the relevance of those distinctions. Therefore, for the purpose of this decision it is considered that prime contracting for (i) military satellites, (ii) institutional satellites, and (iii) commercial satellites constitute different product markets.

7.1.2. Satellite Propulsion Subsystems

- (183) A satellite propulsion subsystem is made of several parts and is used to raise the satellite in orbit once it is separated from the launch vehicle (orbit-raising) as well as to ensure that the satellite keeps its assigned orbit (station keeping).
- (184) Satellites can use the following types of subsystems: (i) chemical: both orbit-raising and station keeping are provided by the same chemical liquid propellant thrusters; (ii) electric: both orbit-raising and station keeping are provided by the same electric thrusters; or (iii) hybrid: orbit-raising is done by chemical thrusters while station keeping is provided by different, electric thrusters.
- (185) Electric satellite propulsion subsystems include (i) ion gridded thrusters, and (ii) plasma thrusters (also called Hall-effect thrusters). In ion gridded thrusters, ions (commonly xenon gas) are accelerated by electrostatic forces. The Hall-effect technology generates thrust by ejecting ions at a very high speed.⁶⁸
- (186) The Commission has not previously analysed in detail the market for satellite propulsion subsystems. However, in past decisions the Commission has found that each satellite subsystems and equipment might constitute a distinct product market according to the functions performed by it, due to the lack of demand side substitutability. In addition, the level of supply side substitutability was also found to be limited due to the very high level of reliability and expertise required.⁶⁹
- (187) The Parties submit that satellite propulsion subsystems constitute a distinct product market to the extent that they serve a specific function, which is to provide thrust for the satellite to move in space, which cannot be achieved by any other satellite subsystem or equipment. Propulsion subsystems are the only equipment that can raise the satellite into orbit. As regards station keeping, although other equipment such as mechanical and magnetic wheels can also help maintain the satellite in orbit, satellite propulsion subsystems are based on very different technologies and know-how, are tendered separately and are usually not produced by the same manufacturers.⁷⁰

⁶⁷ Replies to question 4 of Questionnaire Q2 – Satellite primes.

⁶⁸ Hall-effect thrusters operate on a variety of gas, the most common being xenon. Other possible options include krypton, argon, bismuth, iodine, magnesium, and zinc.

⁶⁹ Commission's decision of 17 December 2008 in case COMP/M.5168 - EADS/SSTL, paragraph 25.

⁷⁰ Commission's decision of 21 March 2000 in case COMP/M.1636 - MMS/DASA/Astrium, paragraph 28.

- (188) In addition, the Parties submit that satellite propulsion subsystems should be further segmented according to the propulsion technology between (i) chemical, and (ii) electric.
- (189) Although chemical and electric propulsion can be used alternatively or in combination to perform both orbit-raising and station keeping, these technologies' characteristics vary significantly, notably in terms of weight, life span, and time to orbit. In particular, chemical propulsion works with liquid propellant, which allows reaching the orbit faster than electric propulsion (one week as opposed to several months) and which is much heavier than the latter as tanks and fuel need to be loaded on to the platform. Electric propulsion uses an electric reaction to provide thrust. It allows for a 40 % launch mass gain or a 30 % payload mass gain compared to chemical propulsion (supposing similar propulsion force and orbit destination) and has a longer life span.
- (190) In terms of procurement, the Parties submit that separate tenders are typically organised for chemical engines on the one hand, and electric thrusters on the other hand. This would also apply in the case of hybrid propulsion, where satellite prime contractors typically launch a competition for a chemical subsystem and one for an electric subsystem separately.
- (191) From the supply side, satellite propulsion subsystem manufacturers are usually specialised in one technology only (electric propulsion or chemical propulsion). Out of the main suppliers of chemical satellite propulsion subsystems, only Aerojet (US) is active in electric propulsion as well, and the main suppliers of electric thrusters, Fakel (Russia) and L3Com (US), do not manufacture chemical satellite propulsion subsystems at all.
- (192) The Parties further submit that satellite operators choose the satellite prime contractor depending, *inter alia*, on the type of propulsion offered by the latter's platforms, given that normally it is not possible to request a chemical or electrical satellite propulsion subsystem different from the one that has been qualified by the satellite prime contractor.
- (193) Within electric propulsion, the Parties submit that a further segmentation between (i) Hall-effect thrusters, and (ii) ion gridded thrusters should be considered.
- (194) According to the Parties, a distinction can be made between those two technologies from a demand-side perspective, in view of their different performances. Ion gridded thrusters allow for maximum weight gain but provide only limited thrust (time-to-orbit ranging from six months to a year). On the other hand, Hall-effect thrusters are slightly heavier but provide more thrust (three to six months to reach orbit). As a consequence, those technologies are typically used for different types of missions. Ion gridded thrusters are mostly used for institutional satellites. In particular deep space missions, for which the satellite needs to embark a heavy payload but does not require much thrust, whereas Hall-effect thrusters are increasingly used on hybrid commercial satellite platforms where orbit-raising time is usually of the essence. From a supply-side perspective, the Parties submit that suppliers of electric propulsion for satellites usually specialise in one technology in particular.
- (195) The Parties consider, however, that it is not necessary to define whether those two technologies belong to different product markets since the Transaction will not, in any event, give rise to any competition concerns.

- (196) Respondents to the Commission's market investigation indicated that (i) chemical satellite propulsion subsystems and (ii) electric satellite propulsion subsystems are not part of the same relevant market. All of the satellite prime contractors responding to the Commission's investigation considered that the two types of satellite propulsion subsystems are not substitutable from a demand point of view.⁷¹ In particular, a satellite prime contractor stated that in most instances, chemical and electric subsystems are not interchangeable: *"Chemical systems typically provide low cost and high thrust/fast orbit transfer. Electrical systems typically use less propellant and therefore enable more capable payloads given the same launch vehicle capability, but their low thrust results in longer orbit transfer times. They are also more expensive (approximately 3-5 times) than chemical systems"*.
- (197) Moreover, all of the respondents considered that it would not be possible for satellite prime contractors using chemical satellite propulsion subsystem to switch to electric satellite propulsion subsystem in a short time and without incurring significant costs.⁷²
- (198) The majority of satellite operators, satellite prime contractors and subsystems producers responding to the Commission's market investigation indicated that those two technologies are not comparable in terms of (i) technical characteristics, (ii) customers' needs, and (iii) price.⁷³ Satellite propulsion subsystems' providers explained that *"electric propulsion provides much better fuel-efficiency than chemical propulsion"* while *"chemical propulsion is more power-efficient than electrical propulsion"*. They also stated that *"electric propulsion offers significant competitive improvements for certain spacecraft (GEO comsats, navsats) if the customer is prepared to accept a longer manoeuvre time to operational orbit (...) Time to orbit is drastically lower for chemical propulsion (...) For constellation replacements, this is not seen as an issue, for one-off satellites it most certainly can be"*. In terms of price, *"electric propulsion systems are more expensive to implement"* however according to a satellite operator *"the launch services tend to be less expensive since the electric satellite is much lighter"*. The same satellite operator explained that *"the choice of the propulsion system is made based on a variety of factors, be they commercial, financial or technical. Each propulsion system has its advantages and drawbacks. Electric propulsion is more efficient than chemical propulsion. As a result, it allows to sharply reduce the mass of the satellite for a given mission, or to sharply increase the size of the mission for a given mass. In other words, it can help reduce the cost per MHz or per Mbps of the mission. On the other hand, orbit raising takes longer in electric propulsion because electric propulsion is less powerful than chemical propulsion. For satellites that are urgently needed, chemical propulsion is a better choice."*
- (199) As to the potential further segmentation between (i) electric Hall-effect thrusters and (ii) electric ion gridded thrusters, the majority of satellite operators, satellite prime contractors and subsystems producers responding to the Commission's market

⁷¹ Replies to question 8 of Questionnaire Q2 - Satellite primes.

⁷² Replies to question 8.2 of Questionnaire Q2 - Satellite primes.

⁷³ Replies to question 7 of Questionnaire Q1 - Satellite operators, question 9 of Questionnaire Q2 - Satellite primes and question 10 of Questionnaire Q3 - Satellite systems, subsystems and equipment producers.

investigation indicated that those two technologies are not comparable in terms of (i) technical characteristics, (ii) customers' needs, and (iii) price.⁷⁴

- (200) In terms of technical characteristics, satellite propulsion subsystem providers expressed that *"Hall-effect has higher power efficiency; ion gridded has higher fuel efficiency. For an all-electric satellite, Hall effect offers the best combined performance", "gridded Ion thruster systems weigh more (dry mass), are more fuel efficient (less wet mass), but produce lower thrust" and "Hall-effect thrusters have higher thrust, lower specific impulse or "Isp" (a relative measure of fuel economy), and lower cost."* A satellite prime contractor stated that *"for most GEO missions, Hall-effect thrusters' time to orbit is shorter. However, gridded ion thrusters can deliver a higher payload mass with a longer time-to-orbit"*. Satellite prime contractors also stated that *"ion gridded have a higher fuel efficiency" and "Hall-effect thrusters have a higher thrust-to-power ratio"*.
- (201) Regarding customer's needs, satellite propulsion subsystem providers explained that *"gridded ion is better suited to science missions with high demands on fuel efficiency. For commercial applications, Hall-effect better meets customers' needs (cost, ease of implementation, orbit raise duration)", "(...) ion thrusters will allow higher payload mass for same launch mass. Time to orbit will be higher for ion thrusters"*. A satellite prime contractor stated that *"for most GEO missions, Hall-effect thrusters' time to orbit is shorter. However, gridded ion thrusters can deliver a higher payload mass with a longer time-to-orbit"*.
- (202) On the basis of the above considerations, it is likely that there are separate product markets for (i) chemical and (ii) electric satellite propulsion subsystems. It is also likely that within electric satellite propulsion subsystems a further segmentation between (i) Hall-effect thrusters and (ii) ion gridded thrusters should be considered. However, the precise product market definition can be left open, since the commitments proposed by the Parties would eliminate any serious doubts as to the compatibility of the Transaction with the internal market under any plausible market definition.

7.1.3. Other Satellite Subsystems and Equipment

- (203) In past decisions the Commission defined relevant product markets according to the functions performed by satellite subsystems and equipment.⁷⁵

7.1.3.1. Valves for satellite propulsion subsystems

- (204) The Parties submit that satellite valves should be distinguished from launcher valves for the following reasons. First, the valves differ in terms of design: valves for satellites have a much lower mass flow rate and use different media than launcher valves. Second, unlike the technology used for launchers' engine valves, satellite

⁷⁴ Replies to question 11 of Questionnaire Q1 - Satellite operators, question 14 of Questionnaire Q2 - Satellite primes and question 13 of Questionnaire Q3 - Satellite systems, subsystems and equipment producers.

⁷⁵ Commission's decision of 17 December 2008 in case COMP/M.5168 - EADS/SSTL, paragraph 25; Commission's decision of 4 April 2007 in case COMP/M.4403 - Thales/Finmeccanica/Alcatel Alenia Space & Telespazio, paragraph 45; Commission's decision of 4 April 2007 in case COMP/M.3680 - Alcatel/Finmeccanica/Alcatel Alenia Space & Telespazio, paragraphs 26-27; and Commission's decision of 22 December 2004 in case COMP/M.3621 - SAGEM/SNECMA, paragraph 8.

valves technology is relatively old and well-established. Third, from the supply side, the Parties consider that a valve supplier for launchers cannot enter the valve market for satellites within a short time period because the technology has to satisfy different requirements, for example in terms of number of actuations, life cycle and environment. Therefore, the Parties submit that a segmentation of the market of valves equipment according to their application (satellite, launchers) may be relevant.

- (205) The Parties further submit that a sub-segmentation according to the valves' location on the satellite (satellite propulsion subsystems and elsewhere) may also be relevant due to the technology constraints linked to the satellite propulsion subsystems.
- (206) Within the segment of valves for satellite propulsion subsystems, the Parties submit that further segmentation according to the propulsion media (electric or chemical) may be envisaged. First, electric satellite propulsion subsystems require a smaller number of valves than chemical satellite propulsion subsystems. Second, valves characteristics have to be adjusted to the propellant state. As mentioned above, chemical propulsion uses liquid monopropellant or bipropellant while electric propulsion uses an electric reaction. Third, valves for chemical propulsion and valves for electric propulsion significantly differ in terms of technology.
- (207) The Parties submit that the exact product market definition may be left open since the Transaction will not have any significant impact on competition in relation to valves for satellites propulsion subsystems.
- (208) During the Commission's market investigation, a supplier of satellite equipment stated that many different types of valves exist for satellites and *"all can be different for the different fluids and temperature of the fluids"*.⁷⁶ Moreover *"the valves are generally uniquely designed to the application"*.⁷⁷ As to the possibility of substitution between different types of valves from a demand point of view, the supplier explains that *"although one can possibly use a particular valve type for the different function, it would not generally be recommended, nor would they all be qualify-able for the new application"*.⁷⁸
- (209) Given that the Transaction does not raise serious doubts as to its compatibility with the internal market in relation to satellite valves irrespective of the market definition applied, the exact scope of the market can be left open for the purposes of the competitive assessment of the Transaction.

7.1.3.2. Pyrotechnic subsystems for satellites and pyrotechnic equipment

- (210) Pyrotechnic equipment consists of products performing various functions and using the energy provided by exothermic chemical reactions. In a previous decision⁷⁹, the Commission considered that the market for pyrotechnic equipment can be segmented according to the field of application (defence; space; aeronautical and other industrial

⁷⁶ Reply to question 19 of Questionnaire Q3 - Satellite systems, subsystems and equipment producers.

⁷⁷ Reply to question 19.1 of Questionnaire Q3 - Satellite systems, subsystems and equipment producers.

⁷⁸ Reply to question 19.2 of Questionnaire Q3 - Satellite systems, subsystems and equipment producers.

⁷⁹ Commission's decision of 30 March 2011 in case COMP/M.6104 - Safarn/SNPE Matériaux énergétiques/Regulus, paragraph 57.

applications) leaving open whether those segments need to be further segmented according to the type of pyrotechnic equipment.

- (211) The Parties consider that a distinction between pyrotechnic equipment for (i) space launchers, (ii) satellites and (iii) missiles appears relevant, since pyrotechnic equipment used in those sectors have different customers and different ultimate objectives. Moreover, each field of application requires specific expertise and qualification processes, and equipment for one application cannot generally technically be used for the other applications. Pyrotechnic equipment for satellites allows for example the in-orbit deployment of solar screens, antenna masts and reflectors.
- (212) The Parties also submit that the market should be segmented between (i) pyrotechnic systems and (ii) pyrotechnic subsystems and equipment. Subsystems and equipment include complete pyrotechnic chains, pyrotechnic nuts or separation devices. Subsystems are composed of various types of equipment, such as hold-and-release mechanisms (“HRM”).
- (213) The Parties submit that the exact product market definition may be left open since the Transaction will not have any significant impact on competition in relation to pyrotechnic subsystems and equipment.
- (214) Given that the Transaction does not raise serious doubts as to its compatibility with the internal market in relation to pyrotechnic subsystems and pyrotechnic equipment for satellites, the exact scope of the market can be left open for the purposes of the competitive assessment of the Transaction.

7.1.3.3. Sensors for satellites

- (215) A sensor is a device that detects or measures a physical property and records, indicates, or otherwise responds to it. Satellite sensors are satellite equipment which is used to measure numerous data (heat, pressure, altitude, surface roughness).
- (216) The Commission has previously concluded that each engine control component comprises a separate market.⁸⁰ In addition, the Commission recognised that sensors (including pressure, temperature, fire and vibration sensors, as well as ignition systems) constitute a distinct product market.⁸¹ In another decision, the Commission considered the market for pressure transducers and potential further segmentations but ultimately left the market definition open.⁸² The Commission also considered a potential market definition for satellite attitude sensors, and a potential further segmentation into earth, star and sun sensors for satellites.⁸³ However, the precise market definition was ultimately left open.
- (217) Safran (Herakles) produces Standard Accuracy Pressure Transducers ('SAPT') which are pressure sensors equipped with a temperature bulb, whose function is to measure

⁸⁰ Commission's decision of 23 August 2002 in case COMP/M.2892 - Goodrich/TRW, paragraph 7.

⁸¹ Commission's decision of 3 July 2001 in case COMP/M.2220 - General Electric/Honeywell, paragraph 332.

⁸² Commission's decision of 26 July 2012 in case COMP/M.6410 - UTC/Goodrich, paragraphs 125-127.

⁸³ Commission's decision of 5 June 2001 in case COMP/M.2437 - NEC/Toshiba, paragraphs 13-14.

pressure of fluids in tanks (high pressure) as well as in other parts of the satellite propulsion subsystems before injection (low pressure). Pressure measure accuracy is of great importance as the propellant pressure allows predicting the expiry date of the satellite. A satellite prime contractor stated that SAPT cannot be replaced by any other technology.⁸⁴

(218) The Parties submit that the exact product market definition may be left open since the Transaction will not have any significant impact on competition in relation to sensors for satellites.

(219) On the basis of the above considerations, it is likely that there is a separate product market for satellite SAPT. However, the precise product market definition can be left open, since the commitments proposed by the Parties would eliminate any serious doubts as to the compatibility of the Transaction with the internal market in relation to sensors for satellites under any plausible market definition.

7.1.3.4. *Thermostructural composite materials*

(220) "Composite materials" is a generic term for materials resulting from the combination of two or more materials, a matrix and a reinforcement or fibre, which are combined because of the specific properties their combination produces.

(221) In a previous decision, the Commission considered that (i) cold composite materials, (ii) thermostructural composite materials and (iii) other composite materials constitute separate product markets leaving open whether those markets need to be further segmented.⁸⁵ The differentiation between those products is based on the temperature range that they can withstand: cold composite materials can withstand operating temperatures of up to about 230°C, thermostructural composite materials can withstand operating temperatures of up to 3000°C and other composite materials resist to temperatures from 200 to 400°C.

(222) The Parties submit that thermostructural composite materials have been adopted for numerous applications in aeronautics, space launchers, satellites, defence and other industries, and they are not specific to the various fields of application. According to the Parties, thermostructural composite materials are used in the satellite sector for their geometrical characteristics, mainly the controlled and low dilation. Thermostructural composite materials in the satellites sector may be used for instance in satellite propulsion subsystems but also on optical equipment.

(223) The Parties submit that the exact product market definition may be left open since the Transaction will not have any significant impact on competition in relation to thermostructural composite materials for satellites.

(224) There are indications in the Commission's market investigation that point towards a potential further segmentation of thermostructural composite materials into (i) carbon-carbon, which is made of carbon fibre and plastic and (ii) ceramics.⁸⁶ Safran

⁸⁴ Reply to question 53 of Questionnaire Q2 – Satellite primes.

⁸⁵ Commission's decision of 30 March 2011 in case COMP/M.6104 - Safran/SNPE Matériaux énergétiques/Regulus, paragraph 64.

⁸⁶ Minutes of a call with a satellite subsystem supplier on 4 November 2014.

manufactures cylinders⁸⁷ made of carbon-carbon materials that are used in optical EO satellites to mount space telescopes. The manufacture of those cylinders requires very specific design and know-how capabilities. According to one satellite prime contractor, there is no other technology that can substitute carbon-carbon materials given their specific physical properties.⁸⁸

- (225) On the basis of the above considerations, it is likely that there is a separate product market for carbon-carbon materials. However, the precise product market definition can be left open, since the commitments proposed by the Parties would eliminate any serious doubts as to the compatibility of the Transaction with the internal market in relation to thermostructural composite materials under any plausible market definition.

7.1.3.5. MMH Propellant

- (226) Chemical satellite propulsion subsystems can be based on either a monopropellant or bipropellant technology. Monopropellant engines use a single combustible propellant while bipropellant liquid fuel propulsion subsystems use a separate fuel and oxidizer. The fuel and the oxidizer are stored in separate tanks and brought together only in the combustion chamber. The fuel-oxidizer combination normally used is MMH (mono-methyl hydrazine) and MON-3 (mixed oxides of nitrogen).
- (227) In a previous decision, the Commission has considered the market for MMH, however left open the precise product market definition of inputs for propellant charges.⁸⁹
- (228) The Parties submit that propellant for satellite monopropellant engines and propellant for bi-propellant engines likely belong to different product markets since those products are different and not substitutable. However, the Parties submit that the precise definition of the relevant product markets may be left open.
- (229) Given that the Transaction does not raise serious doubts as to its compatibility with the internal market in relation to MMH propellant for satellites irrespective of the market definition applied, the exact scope of the market can be left open for the purposes of the competitive assessment of the Transaction.

7.2. Geographic market

7.2.1. Prime contracting for satellites

- (230) In previous decisions, the Commission found that the geographic dimension of the satellite prime contracting markets depends on the nature of the customers.⁹⁰
- (231) The market for military satellites prime contracting must be considered as either national or worldwide in scope depending on both the procurement policies of each

⁸⁷ Currently, the cylinder is the only shape of carbon-carbon structure produced for space missions.

⁸⁸ Reply to question 53.1 of Questionnaire Q2 – Satellite primes.

⁸⁹ Commission's decision of 30 March 2011 in case COMP/M.6104 - Safran/SNPE Matériaux énergétiques/Regulus, paragraphs 87-88.

⁹⁰ Commission's decision of 17 December 2008 in case COMP/M.5168, EADS/SSTL, paragraphs 18-23; Commission's decision of 4 April 2007 in case COMP/M.4403, Thales/Finmeccanica/Alcatel Alenia Space & Telespazio, paragraphs 93-100; and Commission's decision of 4 April 2007 in case COMP/M.3680, Alcatel/Finmeccanica/Alcatel Alenia Space & Telespazio, paragraphs 51-56.

national military authority involved and the existence of national satellite prime contracting capabilities.

- (232) The market for institutional satellites prime contracting based on European/ESA programmes has been considered EEA-wide in scope, inter alia due to the specific procurement policy of ESA, and the application of *juste retour* principle.
- (233) The market for commercial satellites prime contracting is considered to have a worldwide geographic dimension as sourcing takes place on a worldwide basis. It should however be noted that the U.S. Export Administration Regulations ("EAR") and U.S. International Traffic in Arms Regulations ("ITAR") exclude US satellite prime contractors from prime competitions to supply satellites to operators in black-listed countries. The EAR are intended to regulate dual-use technologies and make the export of certain U.S. subsystems and equipment subject to a licence. The ITAR make the export of certain US subsystems and equipment subject to a licence or forbid the export of certain subsystems and equipment depending on the end-use country.
- (234) The Parties submit that, given the absence of any significant impact on competition, the precise definition of the relevant geographic markets may be left open.
- (235) The results of the market investigation are in line with the Commission's past decisions. All satellite prime contractors responding to the Commission's market investigation have confirmed the relevance of those distinctions.⁹¹ A satellite prime contractor explained that *"when procuring satellites, commercial customers typically consider suppliers from around the world during the acquisition process. For institutional or military customers, however, the tendency is for the acquisition process to be limited to suppliers located within in the customer's country"*. Another satellite prime contractor explained that *"commercial customers tend to favour flight heritage and reliability of the supplier while institutional and military customers have strong geographical preferences for regional or national suppliers"*. In addition, commercial satellite operators tend to confirm that they operate in a worldwide market.⁹² For example, a satellite operator explained that it chooses its providers *"based on reliability, design compliance, credibility, and price criteria; country of origin does not play a role"* and another stated that *"the key aspects are cost, schedule assurance and reliability. If those are met, I have no preference"*.
- (236) The Commission's investigation showed that ITAR plays a role in the procurement and sale of satellites. A satellite prime contractor explained that *"one single ITAR component on a satellite prevents its sale to an ITAR banned country"* and another satellite prime contractor stated that *"ITAR places restrictions on the information that can be shared with foreign suppliers and customers"* According to another satellite prime contractor *"in general, ITAR regulations introduced administrative delays and uncertainties in the execution of the programs (civil as defense)"*.⁹³
- (237) On the demand side, all satellite operators responding to the Commission's market investigation stated that they are subject to ITAR restrictions in their procurement of satellites. However, this does not seem to affect their choice between suppliers.⁹⁴ In a

⁹¹ Replies to question 21 of Questionnaire Q2 – Satellite primes.

⁹² Replies to question 15 of Questionnaire Q1 – Satellite operators.

⁹³ Replies to question 25 of Questionnaire Q2 – Satellite primes.

⁹⁴ Replies to question 17 of Questionnaire Q1 – Satellite operators.

previous decision, the Commission found that the impact of the ITAR export restrictions should not be overestimated, as it appears possible to obtain an export licence, exceptions to and exemptions from the ITAR are possible, and the list of black-listed countries evolves over time.⁹⁵

- (238) Therefore, for the purpose of this decision, it is considered that the markets for prime contracting for (i) military satellites are national or worldwide in scope, (ii) European/EEA institutional satellites are European in scope, and (iii) commercial satellites are worldwide in scope.

7.2.2. Satellite Propulsion Subsystems

- (239) In past decisions, the Commission considered that the geographic markets for satellite subsystems and equipment follow the definition of geographic markets at the satellite prime contracting level, that is they are EEA-wide for European based institutional programmes, national for military programmes where national suppliers exist, and worldwide for commercial satellites.⁹⁶

- (240) The Parties submit that the geographic market definitions for satellite propulsion subsystems can be left open as the Transaction will not have any significant impact on competition irrespective of the geographic market definition applied.

- (241) The Commission's market investigation is in line with the Commission's past decisions⁹⁷ and respondents have also indicated that ITAR plays a role in the procurement of satellite propulsion subsystems. However, the precise geographic market definition can be left open, since the commitments proposed by the Parties would eliminate any serious doubts as to the compatibility of the Transaction in relation to satellite propulsion subsystems under any plausible geographic market definition.

7.2.3. Other Satellite Subsystems and Equipment

7.2.3.1. Valves for satellite propulsion subsystems

- (242) In previous decisions, the Commission has considered that the geographic markets for satellite subsystems and equipment follow the geographic market definition at the satellite prime contracting level, that is they are EEA-wide for European based institutional programmes, national for military programmes where national suppliers exist, and worldwide for commercial satellites.⁹⁸

⁹⁵ Commission's decision of 17 December 2008 in case COMP/M.5168 - EADS/SSTL, paragraph 21.

⁹⁶ Commission's decision of 17 December 2008 in case COMP/M.5168, EADS/SSTL, paragraph 27; Commission's decision of 4 April 2007 in case COMP/M.4403, Thales/Finmeccanica/Alcatel Alenia Space & Telespazio, paragraphs 104-105; and Commission's decision of 4 April 2007 in case COMP/M.3680 Alcatel/Finmeccanica/Alcatel Alenia Space & Telespazio, paragraphs 59-62;

⁹⁷ Replies to question 20 of Questionnaire Q3 - Satellite systems, subsystems and equipment producers.

⁹⁸ Commission's decision of 17 December 2008 in case COMP/M.5168, EADS/SSTL, paragraph 27; Commission's decision of 4 April 2007 in case COMP/M.4403, Thales/Finmeccanica/Alcatel Alenia Space & Telespazio, paragraphs 104-105; and Commission's decision of 4 April 2007 in case COMP/M.3680 Alcatel/Finmeccanica/Alcatel Alenia Space & Telespazio, paragraphs 59-62.

(243) According to the Parties, the supply of valves occurs on a worldwide basis, even for ESA programmes. The Parties add that ESA's Procurement Rules do not apply strictly to those small components. For small components, providers of systems and subsystems may select any supplier (including non-EU suppliers), regardless of ESA *juste retour* and ESA's Procurement Rules, subject to ESA's approval. In practice, ESA does not refuse the use of non-EU components when they are cheaper than the EU alternative. As a result, regardless of the type of satellite at stake, valves can be procured on a worldwide basis.

(244) Respondents to the Commission's market investigation⁹⁹ have indicated that ITAR plays a role in the procurement of valves for satellite propulsion subsystems. However, given that the Transaction does not raise serious doubts as to its compatibility with the internal market in relation to valves for satellites, the exact scope of the geographic market can be left open for the purposes of the competitive assessment of the Transaction.

7.2.3.2. *Pyrotechnic subsystems for satellites and pyrotechnic equipment*

(245) In a previous decision, the Commission found that the markets for pyrotechnic equipment are EEA-wide in scope.¹⁰⁰ This decision mainly concerned launchers, strategic missiles and tactical missiles and, therefore, the market of pyrotechnic equipment for satellites was not assessed.

(246) The Parties consider the competition on that market as worldwide but submit that in any event, the geographic market definition may be left open as the Transaction will not have a significant impact on competition in this sector.

(247) Respondents to the Commission's investigation have indicated that ITAR plays a role in the procurement of pyrotechnic subsystems and equipment. However, given that the current Transaction does not raise serious doubts as to its compatibility with the internal market in relation to pyrotechnic subsystems and pyrotechnic equipment for satellites, the exact scope of the geographic market can be left open for the purposes of the competitive assessment of the Transaction.

7.2.3.3. *Sensors for satellites*

(248) According to the Parties, the supply of sensors occurs on a worldwide basis, even for ESA programmes, for the same reasons as described in paragraph (243).

(249) Respondents to the Commission's investigation have indicated that ITAR plays a role in the procurement of sensors for satellites, in particular of SAPT. However, the precise geographic market definition can be left open, since the commitments proposed by the Parties would eliminate any serious doubts as to the compatibility of the Transaction with the internal market in relation to sensors for satellites under any plausible geographic market definition.

⁹⁹ Replies to questions 22 and 23 of Questionnaire Q3 - Satellite systems, subsystems and equipment producers

¹⁰⁰ Commission's decision of 30 March 2011 in case COMP/M.6104 - Safran/SNPE Matériaux énergétiques/Regulus, paragraph 59.

7.2.3.4. *Thermostructural composite materials*

(250) In a previous decision, the Commission left the exact geographic market definition for composite materials open.¹⁰¹

(251) The Parties consider the market for thermostructural composite materials as worldwide, but submit that the exact definition may be left open in the present case since the Transaction does not affect negatively that market.

(252) Respondents to the Commission's market investigation have indicated that ITAR plays a role in the procurement of thermostructural composite materials. However, the precise geographic market definition can be left open, since the commitments proposed by the Parties would eliminate any serious doubts as to the compatibility of the Transaction with the internal market in relation to thermostructural composite materials under any plausible geographic market definition.

7.2.3.5. *MMH*

(253) In a previous decision, the Commission left open the exact geographic market definition for Ammonium Perchlorate and other inputs for propellant charges.¹⁰²

(254) According to the Parties, the supply of MMH occurs on a worldwide basis, even for ESA programmes, for the same reasons as described in paragraph (243).

(255) Respondents to the Commission's market investigation have indicated that ITAR plays a role in the procurement of MMH. However, given that the Transaction does not raise serious doubts as to its compatibility with the internal market in relation to MMH irrespective of the geographic market definition applied, the exact scope of the geographic market can be left open for the purposes of the competitive assessment of the Transaction.

7.3. Competitive assessment

7.3.1. Assessment of potential horizontal effects

(256) The activities contributed to the Joint Venture would create a horizontal overlap in (i) electric satellite propulsion subsystems, (ii) valves for satellite propulsion subsystems, and (iii) pyrotechnic subsystems.

7.3.1.1. *Electric satellite propulsion subsystems*

(257) The Parties will contribute to the Joint Venture their activities related to electric satellite propulsion subsystems. In particular, Airbus will transfer its ion gridded satellite propulsion activities while Safran will transfer its Hall-effect satellite propulsion activities.

(258) Safran is currently supplying and/or developing Hall-effect thrusters for (i) TAS on the new version of its Spacebus platform¹⁰³, (ii) Airbus and TAS as co-prime

¹⁰¹ Commission's decision of 30 March 2011 in case COMP/M.6104 - Safran/SNPE Matériaux énergétiques/Regulus, paragraph 68.

¹⁰² Commission's decision of 30 March 2011 in case COMP/M.6104 - Safran/SNPE Matériaux énergétiques/Regulus, paragraph 90.

contractors of the Alphabus¹⁰⁴ and [...], and (iii) Airbus for the new version of its Eurostar 3000 platform¹⁰⁵. Airbus [...].

(259) The Parties submit that the Transaction will not lead to any anti-competitive horizontal effects in relation to electric satellite propulsion subsystems.

(260) First, the Parties argue that the market for electric satellite propulsion subsystem remains an emerging market. According to the Parties, satellites with electric satellite propulsion subsystems would account for less than [5-10]% of all satellites in both 2014 and 2020, and satellites with hybrid satellite propulsion subsystems would account for [5-10]% in 2014 and [20-30]% in 2020, the rest of satellites being based on chemical satellite propulsion subsystems.

(261) Second, the Parties argue that [...].

(262) Third, the Parties submit that the market for satellite thrusters (chemical and electric) is worldwide since the platforms currently available and developed by EU satellite prime contractors are not ITAR-free, and thus no restriction to the use of additional US components would exist. Therefore, the Parties consider that there are a significant number of strong competitors.

(263) As regards ion gridded thrusters, the Parties submit that the European player Qinetiq (UK) holds a 100 % market share in the European institutional segment, while L3COM (US) holds a 100 % market share in the worldwide commercial segment.

(264) As regards Hall-effect thrusters, the Parties submit that the thrusters developed by Fakel (Russian) and Aerojet (US) through its European subsidiary ESP (UK) will be fully interchangeable and, therefore, the cost for switching suppliers for the thrusters would be marginal.

(265) During the Commission's market investigation no concerns were raised as regards horizontal effects of the Transaction in relation to satellite propulsion subsystems. However, some concerns were raised as regards the vertical relationship between Airbus' activities as satellite prime contractor and Safran's activities as supplier of Hall-effect thrusters, which will be discussed in section 7.3.2.1.

(266) In the overall segment of satellite propulsion subsystems (chemical and electric), both Parties offer electric satellite propulsion subsystems and Airbus also supplies chemical satellite propulsion subsystems. However, currently there is no horizontal overlap since [...]. Airbus' market share was [10-20]% at worldwide level and [40-50]% at European level in 2013.

(267) The Commission's investigation showed, however, that chemical and electric thrusters are much differentiated since those technologies are different in terms of technical characteristics, prices and customers' need, and thus may not belong to the same relevant product market. Moreover, even if they were to belong to the same relevant market, several alternative suppliers would be available both at European level for

¹⁰³ Spacebus is a telecom platform.

¹⁰⁴ Alphabus is a platform designed for the largest mission that is commercialised by TAS and Airbus expiring on [...].

¹⁰⁵ Eurostar 3000 is a telecom platform.

example Qinetiq, and at non-European level, for example Aerojet (US), L3COM (US), Fakel (Russia) and MOOG (US).¹⁰⁶

(268) As regards electric satellite propulsion subsystems (ion gridded thrusters and Hall-effect thrusters), although both Parties are active in that field , [...] there was no horizontal overlap between their activities [...]. The Commission's market investigation indicated that there are alternative suppliers of electric satellite propulsion subsystems such as QinetQ (UK), Fakel (Russia), L3COM (US) and Aerojet (US). Additionally, the Commission's market investigation indicated that ion gridded thrusters and Hall-effect thrusters are differentiated technologies and may thus belong to two different relevant product markets.

(269) In the hypothetical market for Hall-effect thrusters, the Parties' activities do not overlap since only Safran is active in that field.

(270) In conclusion, in light of the above and the available evidence, the Transaction does not raise serious doubts as to its compatibility with the internal market in relation to horizontal effects concerning electric satellite propulsion subsystems.

7.3.1.2. Valves for satellite propulsion subsystems

(271) Airbus produces and supplies two types of valves for chemical satellite propulsion subsystems (fill-drain valves and pyro-valves) while Safran is only marginally active in flow control valves for chemical satellite propulsion subsystems.¹⁰⁷

(272) The Transaction will result only in an indirect horizontal overlap for valves for chemical satellite propulsion subsystems since only Airbus will contribute its satellite valves activities to the Joint Venture.

(273) The Parties submit that given their low combined market shares the Transaction will not lead to any anticompetitive horizontal effects in relation to valves for satellite propulsion subsystems regardless of the market definition applied.

(274) During the Commission's market investigation no concerns were raised regarding valves for satellite propulsion subsystems.

(275) First, the Parties' combined market shares in 2013 remained below [20-30]% under any possible market definition. For flow control valves, the only types of valves for satellite propulsion subsystems where the Parties' activities overlap, Airbus [...] and Safran only has a negligible market presence (less than [0-5]% market share).

(276) Second, as one market participant stated there are several other alternative suppliers of valves to the Parties,¹⁰⁸ namely MOOG (UK), ValveTech (US), Vacco (US) and Cobham (US).

¹⁰⁶ MOOG is a US-based company with activities in different countries in Europe.

¹⁰⁷ Airbus also is active in the production of flow control valves for chemical satellite propulsion subsystems and valve regulators for electric satellite propulsion subsystems [...].

¹⁰⁸ Reply to question 37 of Questionnaire Q3 - Satellite systems, subsystems and equipment producers.

(277) In conclusion, on the basis of the above and the available evidence, the Transaction does not raise serious doubts as to its compatibility with the internal market in relation to the supply of valves for satellite propulsion subsystems.

7.3.1.3. *Pyrotechnic subsystems for satellites*

(278) Both Parties are active in the supply of pyrotechnic subsystems for satellites, namely in HRM.

(279) The Transaction will only result in an indirect horizontal overlap of the Parties' activities since only Safran will contribute its pyrotechnic subsystems activities to the Joint Venture.

(280) The Parties submit that given their limited presence in this market the Transaction will not lead to any anti-competitive horizontal effects in relation to pyrotechnic subsystems for satellites.

(281) The Parties' combined market shares for HRM for satellites amounted to less than [10-20]% at worldwide level and [30-40]% at European level in 2013. Moreover, the Parties will continue to face a strong competition from both European suppliers (for example, Lacroix, RUAG and Dassault) and US suppliers (for example, Hi-Shear and Ensign Bickford).

(282) During the Commission's market investigation no concerns were raised regarding pyrotechnic subsystems.

(283) In conclusion, on the basis of the above and the available evidence, the Transaction does not raise serious doubts as to its compatibility with the internal market in relation to the supply of pyrotechnic subsystems for satellites.

7.3.2. *Assessment of potential non-horizontal effects*

(284) The creation of the Joint Venture will lead to a vertical relationship between some of the Parties' activities.

(285) The Commission's market investigation showed that satellites operators considered that the Transaction would have positive impact on their companies and the industry in general.¹⁰⁹ However, during the Commission's market investigation some concerns were raised in relation to specific products, which will be analysed below.

7.3.2.1. *Vertical relationship between satellite prime contracting and electric satellite propulsion subsystems*

(286) Airbus is currently active in (i) the worldwide market for commercial satellites prime contracting, (ii) the European market for institutional satellites prime contracting, and (iii) the national markets of EU Member States for military satellites prime contracting. Airbus will not contribute its activities as satellite prime contractor to the Joint Venture.

¹⁰⁹ Replies to questions 25, 26 and 27 of Questionnaire Q1 – Satellite operators.

(287) As regards the worldwide market for commercial satellites prime contracting, Airbus had a market share of [20-30]% in 2013, [...] Boeing which had a market share of [20-30]%.

Table 1: Market shares in the worldwide market for commercial satellites prime contracting

	Boeing	Airbus	SS/L	TAS	Orbital	Lockheed Martin	Others
2013	[20-30]%	[20-30]%	[20-30]%	[10-20]%	[0-5]%	[0-5]%	[5-10]%
2012	[30-40]%	[10-20]%	[20-30]%	[5-10]%	[5-10]%	[0-5]%	[10-20]%
2011	[0-5]%	[20-30]%	[30-40]%	[5-10]%	[5-10]%	[5-10]%	[20-30]%

Source: Form CO (market shares calculated based on the number of contracts awarded)

(288) As regards the European market for institutional satellites prime contracting, in 2013 Airbus had a market share of [40-50] %. TAS had a comparable market share and OHB was the third most important institutional satellite prime contractor with a market share of [10-20] % in 2013, although in the previous year it had clearly been the market leader with a market share of [40-50] %.

Table 2: Market shares in the European market for institutional satellites prime contracting

	Airbus	TAS	OHB	Others
2013	[40-50]%	[40-50]%	[10-20]%	[0-5]%
2012	[20-30]%	[10-20]%	[40-50]%	[5-10]%
2011	[40-50]%	[40-50]%	[5-10]%	[5-10]%

Source: Form CO (market shares calculated based on the number of contracts awarded)

(289) As regards the German market for military satellites prime contracting, Airbus had a market share of [30-40]% in 2013. OHB was the only other satellite prime contractor which was also awarded military contracts in Germany in 2013.

Table 3: Market shares in the German market for military satellites prime contracting

	Airbus	TAS	OHB
2013	[30-40]%	[0-5]%	[60-70]%

Source: Form CO (market shares calculated based on the number of contracts awarded)

(290) The Parties argue that the creation of the Joint Venture will not have an impact on competition at either worldwide or European level.

(291) First, the Parties argue that the market for electric satellite propulsion subsystems remains an emerging market and that[...]. Moreover, there are numerous competitors

both inside and outside Europe offering electric satellite propulsion subsystems (including Hall-effect thrusters).

- (292) Second, the Parties argue that development contracts for the future platforms of European satellite prime contractors are awarded and managed under ESA and/or CNES financing and contracts, which therefore imply at least a clear visibility and monitoring rights over their supply conditions.
- (293) Third, the Parties argue that the new Hall-effect thrusters currently developed by Fakel (Russia), ESP (UK) and Safran (Snecma) are designed to be fully interchangeable without any significant switching cost or delay. According to the Parties, ESA itself is funding the development of ESP's XR-5E thruster to ensure that it will be totally compatible with both Airbus' and TAS' new platforms.
- (294) Fourth, the Parties argue that Airbus is already vertically integrated and supplies chemical satellite propulsion subsystems to several of its competitors, including [...]. According to the Parties, Airbus has never discriminated against other satellite prime contractors in relation to the provision of chemical satellite propulsion subsystems and the Joint Venture will thus not create any new risk of foreclosure. On the contrary, the fact that Airbus will contribute its satellite propulsion subsystems activities to the Joint Venture while retaining its satellite prime contracting activities outside the Joint Venture will further reduce Airbus' ability and incentive to foreclose competitors.
- (295) Finally, the Parties argue that TAS is currently the only company in Europe manufacturing power processing units ("PPU") for electric satellite propulsion subsystems. According to the Parties, since the PPUs are the most expensive part of the electric satellite propulsion subsystems (two to four times as expensive as the thrusters), TAS would have the possibility to immediately retaliate against any attempt of foreclosure by the Joint Venture.

Input foreclosure

- (296) During the Commission's market investigation several respondents raised concerns as regards the possibility of the Joint Venture to adopt an input foreclosure strategy with a detrimental effect on Airbus' competitors in the downstream markets for satellite prime contracting.
- (297) According to the Commission's Non-Horizontal Merger Guidelines¹¹⁰, input foreclosure arises where, post-merger, the Joint Venture would be likely to restrict access to the products that it would have otherwise supplied absent the merger, thereby raising its downstream rivals' costs by making it harder for them to access the input under similar prices and conditions as absent the merger. For input foreclosure to lead to harm to competition, it is not necessary that rivals are forced to exit the market. The relevant benchmark is whether the less favourable supply conditions for the input would lead to higher prices for consumers of the downstream market.

¹¹⁰ Guidelines on the assessment of non-horizontal mergers under the Council Regulation on the control of concentrations between undertakings, OJ C 265, 18.10.2008 ("Non-Horizontal Merger Guidelines"), paragraph 31.

(298) In this particular case, an input foreclosure strategy regarding Hall-effect thrusters may not be limited to price discrimination but may mainly consist of non-price discrimination strategies like:¹¹¹

- (i) requirements for Airbus' rivals to pay for qualifications of Hall-effect thrusters: the baseline for the product developed by the Joint Venture could be the Airbus satellite platform, thus imposing costs for use in other platforms;
- (ii) discrimination in the delivery schedule of Hall-effect thrusters in favour of Airbus; and
- (iii) imposition of early orders on Airbus' rivals.

(299) In the context of those concerns, the Commission examined (i) whether the Joint Venture would have, post-merger, the ability to foreclose competing satellite prime contractors from access to Hall-effect thrusters, (ii) whether the Joint Venture would have the incentive to do so, and (iii) whether such a foreclosure strategy would have an overall likely negative effect on competition.

(300) For the reasons set out below, the Commission concluded that the Parties are likely to have the ability and incentive to adopt an input foreclosure strategy as regards Hall-effect thrusters, and that such a strategy would have an overall negative impact on effective competition in the markets for the prime contracting of satellites.

Ability to foreclose satellite prime contractors from access to Hall-effect thrusters

(301) For the reasons set out below, the Commission takes the view that the Joint Venture would have the ability to foreclose satellite prime contractors from access to Hall-effect thrusters.

(302) As regards the Joint Venture's ability to adopt an input foreclosure strategy, the Commission's investigation revealed that (i) a Hall-effect thruster is a critical component for a satellite prime contractor, (ii) there are no equivalent alternatives to Safran for the supply of Hall-effect thrusters to European satellite prime contractors, and (iii) switching costs and entry barriers are significant.

(303) The Commission's market investigation showed that a propulsion thruster is a critical input for the success of a satellite, although it represents less than [0-5]% of its total cost. If there is any failure of the propulsion thruster, the satellite operator loses both the value of the satellite and its launch (that is EUR 200 million). Moreover, a new satellite could only be launched 2-3 years later, which would impose additional costs for a satellite operator.

(304) In the specific case of Hall-effects thrusters, the Commission's market investigation indicated that, although they are currently an emerging market, there is an expectation by market participants that they will become the most relevant technology in the next five years.

(305) Satellite prime contractors stated that "*with the competitive pressure to reduce launch costs, there will likely be an increase in use of electric propulsion to reduce launch*

¹¹¹ According to paragraph 33 of the Non-Horizontal Merger Guidelines, input foreclosure can take several forms, including non-price forms, namely if it affects other conditions of supply.

mass. Although the use of both gridded ion and Hall-effect thrusters will likely increase, the Hall-effect technology will increase at a faster rate due to the number of satellite primes that have already adopted this technology".¹¹²

- (306) Satellite propulsion subsystem suppliers also mentioned that *"there has been a major shift in the satellite propulsion market from chemical to electric propulsion. Indeed, while only a few years ago, 100% of the engines were using chemical propulsion, the new electric technology has been gaining in importance. This shift has happened quite rapidly (...) the trend from chemical to electric propulsion should only accentuate in the next 5 years. The expectation is that in 5 years 50% of the propulsion systems will be electric".¹¹³* Other satellite propulsion subsystem suppliers mentioned that the future trend will be *"decreased chemical propulsion, no ion gridded and a significant increase in Hall Effect on commercial satellites"¹¹⁴* and that *"in the next 5 years, electric propulsion, and in particular Hall-effect technology, may overweight chemical propulsion. Ion-gridded propulsion will have its share of the market depending on the specificities of certain missions, but Hall- effect technology will have the greater impact".¹¹⁵*
- (307) According to ESA, electric satellite propulsion has been gaining prominence in telecommunication satellites, and this trend will probably increase so that electric satellite propulsion may outweigh chemical propulsion in the future.¹¹⁶ An ESA report also states that *"The use of EP [electric propulsion] in the telecommunication space market is today a key issue to improve the position of the European space sector"* and *"All the major Satcom manufacturers (i.e. Boeing, TAS, Space Systems Loral and EADS ASTRIUM) have already implemented EP [electric propulsion] systems"*. It is also mentioned that *"there is a long term need for electric propulsion systems: (i) For exploration (...) (ii) For Telecommunication (...), (iii) For LEO applications for Earth science and observation".¹¹⁷*
- (308) Airbus' internal documents also confirm this trend. One document mentions that [...].¹¹⁸ Additionally, it is stated that there is an [...]. Another internal document states that there is a [...]¹¹⁹
- (309) As regards potential alternative suppliers of Hall-effect thrusters, the Commission's investigation showed that there are no equivalent alternatives to Safran (Snecma)'s thrusters for European satellite prime contractors.
- (310) First, the Commission's investigation showed that although Safran still has a low market share in the market for the supply of Hall-effect thrusters, [...]¹²⁰, it is likely to

¹¹² Reply to question 13 of Questionnaire Q2 - Satellite primes.

¹¹³ Minutes of a call with a satellite subsystem supplier on 9 October 2014.

¹¹⁴ Reply to question 15 of Questionnaire Q3 - Satellite systems, subsystems and equipment producers.

¹¹⁵ Minutes of a call with a satellite subsystem supplier on 29 October 2014.

¹¹⁶ Minutes of a call with ESA on 20 October 2014.

¹¹⁷ ESA report "European Space Technology harmonisation technical dossier: electric propulsion technologies", 23 May 2014.

¹¹⁸ Airbus' internal document[...].

¹¹⁹ Airbus' internal document [...].

¹²⁰ [...].

assume a leader role in Europe, in particular with the PPS 5000, whose qualification is planned for 2016.

- (311) According to one satellite propulsion subsystem supplier *"Snecma has recently become a very aggressive competitor on the European market"*.¹²¹ ESA also states that most of the future European Geostationary Telecommunication Platforms using electric satellite propulsion subsystems (for example, Spacebus, Alphabus, Alphabus extension and the future Neosat) will have a Safran's thruster.¹²² An internal document from Safran estimates that Safran [...] on the worldwide market for the supply of Hall-effect thrusters, with a market share of [...]. Fakel (Russia) and Aerojet (US) are foreseen to obtain a market share of [...].¹²³
- (312) The main alternative to Safran's Hall-effect thrusters could be Fakel (Russia). This satellite propulsion subsystem provider has traditionally been the leading supplier of Hall-effect thrusters, accounting for the sale of [80-90]% of the worldwide supply of Hall-effect thrusters used in commercial satellites in the last three years and [90-100]% of the European supply of Hall-effect thrusters used in commercial satellites.
- (313) Fakel's most important Hall-effect thruster currently available on the market is the SPT 100,¹²⁴ which is already qualified and is similar in terms of thrust and power to Safran's PPS 1350. Fakel's SPT 140 is currently undergoing qualification [...], and is similar to Safran's PPS 5000.
- (314) However, the Commission's market investigation has revealed that currently Fakel (Russia) is not seen as a good option for European satellites given the recent embargo imposed on Russia. In fact, although Fakel (Russia) stated that it *"has not, in the past, been subject to restrictions on the supply of its thrusters to European customers, and does not expect the current geopolitical situation to impact its ability to supply in Europe"*¹²⁵, most market participants have the expectation that the significance of this supplier is likely to decrease substantially in the near future.
- (315) According to ESA *"Given the current political situation, this Russian supplier is not the preferred option. Fakel's role in electric propulsion will likely decrease in the future"* although for now *"ESA has not seen any impact of the current geopolitical conflict with Russia on the procurement of Fakel's technology (...) even at the worst of the Ukrainian crisis, the industry has managed the issue with Russian suppliers"*.¹²⁶
- (316) A satellite prime contractor also mentioned that *"Fakel technology, initially considered to be used on its version of the Neosat platform pending the availability of Safran's PPS 5000, is potentially subject to certain Russian restrictions"*.¹²⁷ A satellite

¹²¹ Minutes of a call with a satellite subsystem supplier on 29 October 2014.

¹²² ESA report "European Space Technology harmonisation technical dossier: electric propulsion technologies", 23 May 2014.

¹²³ Safran's internal document [...].

¹²⁴ This thruster although manufactured by Fakel, was commercialized in Europe by Safran until 2013, the same year where Safran obtained the flight heritage for its PPS 1350.

¹²⁵ Minutes of a call with a satellite subsystem supplier on 29 October 2014.

¹²⁶ Minutes of call with ESA on 20 and 28 October 2014.

¹²⁷ Minutes of a meeting with a satellite prime contractor on 7 October 2014.

propulsion subsystem supplier also mentioned that *"Fakel is a Russian company, and it might be complex to work with them due to the geopolitical situation"*.¹²⁸ Another satellite propulsion subsystem supplier stated that *"Fakel is fully eligible for all activities which are not subject to "juste retour" constraints, but (...) submits that given the recent geopolitical conflict with Russia, satellite customers may have increased concern regarding their selection"*.¹²⁹ Finally, a satellite operator also stated that *"Obviously the uncertain geopolitical context with Russia is a source of concern, and could go in any direction, including serious blockage of hardware and services"*.¹³⁰

(317) Market participants also mentioned some recent evidence of geopolitical risks associated with Russia. A satellite prime contractor stated that *"recently, as a consequence of the embargo imposed on Russia in relation to the Ukrainian/Crimea crisis, the Russian industrials had to suspend the delivery of thrusters used by the Americans Air Force and United Launch Alliance on the heavy launcher Atlas when they are used for military purposes"*.¹³¹ Another satellite prime contractor added that *"Russia threatened to stop supplying the International Space Station, which, although the threat was not carried out, shows that space industry is not entirely impervious to problems arising in the political sphere. In US there were already some problems in the supply of Russian thruster engines for US rockets, so US companies decided to develop an American solution. There is therefore the risk that Fakel may decide not to sell its thrusters anymore outside Russia or make the qualification very difficult. For this reason, it is not possible to rely solely on Fakel"*.¹³²

(318) The Commission's market investigation also showed that Fakel's thruster may suffer from some quality disadvantage. According to a satellite propulsion subsystem supplier *"some quality control issues have been reported regarding Fakel"*.¹³³ A satellite prime contractor also mentioned that *"Russian suppliers present a very uncertain level of quality. For instance, it is of common knowledge in the space industry that Russian satellites have a shorter life in orbit than their Western equivalent. Because of the lack of consistent investment to maintain and upgrade the production infrastructure, and manage obsolescence, we have a low level of confidence in the fact that Fakel will be able to supply Hall-effect thrusters without discontinuation in the coming 20 years"*.¹³⁴

(319) Additionally, market participants also stated that access to Fakel's thrusters is not easy as a result of an agreement between this company and Airbus. A satellite prime contractor stated that Airbus *"has made it very difficult for other satellite manufacturers to get access to Fakel's technology, and to the information regarding its qualification of Fakel's products. Indeed, when a prime wants to work with a*

¹²⁸ Minutes of a call with a satellite subsystem supplier on 6 October 2014.

¹²⁹ Minutes of a call with a satellite subsystem supplier on 23 October 2014.

¹³⁰ Satellite operator's reply to Commission's request for information, 4 November 2014.

¹³¹ Satellite prime contractor's reply to question 16b of the Commission's request for information, 16 October 2014.

¹³² Minutes of a call with a satellite prime contractor on 3 November 2014.

¹³³ Minutes of a call with a satellite subsystem supplier on 6 October 2014.

¹³⁴ Satellite prime contractor's reply to question 16b of the Commission's request for information, 16 October 2014

supplier, it needs either to qualify their product or to obtain the qualification data of another prime. This current situation, combined with the future consolidation of Airbus and Safran's activities, could give rise to concerns regarding access to electric propulsion equipment currently independently supplied by Safran".¹³⁵ According to another satellite prime contractor "There has not been an explicit refusal to supply from Fakel. However, in order to select a supplier for thrusters, [...] requires certain technical and qualification data about the relevant product, and Fakel has never been responsive to [...] requests on those topics. (...) Fakel who has suggested that [...] goes through Airbus for the qualification of the thruster".¹³⁶ An internal document from Airbus [...].¹³⁷

- (320) Finally, the fact that Fakel (Russia) is from a country which is not a member of ESA may also create some disadvantages for European institutional satellites. According to this supplier, it *"has met with both TAS and Airbus regarding the Neosat program regarding its potential involvement as a supplier for this platform, (...) it has not had any recent update. Thus, currently Fakel is not actively involved in the project (...). Fakel does not know to which extent the fact that this project is funded by ESA would prevent it from participating"*.¹³⁸
- (321) Another potential supplier of Hall-effect thrusters is Aerojet (US). In particular Aerojet (US) supplies the XR-5 Hall-effect thruster, which is, however, subject to several export restrictions, namely those related to ITAR restrictions.
- (322) During the Commission's market investigation, market participants mentioned that for institutional satellites they need to buy from European suppliers. According to one satellite prime contractor *"for institutional programs, with focus on European procurement, it will suffer from a de facto monopoly in Europe"*.¹³⁹ ESA also stated that *"where cost conditions allow for it, ESA prefers to use European technology"*.¹⁴⁰ On one report by ESA is stated that *"Europe needs to keep the independence on this technology which is strategic for the future commercial telecommunication market, especially considering the ITAR restrictions of American products"*.¹⁴¹
- (323) Moreover, the Commission's market investigation also showed that some commercial customers have a preference for European solutions, given that ITAR restrictions do not allow the export to some countries. A satellite prime contractor mentioned that *"US thrusters are subject to ITAR regulations. If ITAR products can be sold easily in Europe, this is not the case for other countries, for instance in the Arab world. An ITAR satellite cannot be launched from a Chinese rocket. Moreover, ITAR could also change in the future, leading to a component becoming unavailable"*.¹⁴² According to

¹³⁵ Minutes of a call with a satellite prime contractor on 14 October 2014.

¹³⁶ Minutes of a call with a satellite prime contractor on 6 November 2014.

¹³⁷ Airbus' internal document [...].

¹³⁸ Minutes of a call with a satellite subsystem supplier on 29 October 2014.

¹³⁹ Minutes of a call with a satellite prime contractor on 14 October 2014.

¹⁴⁰ Minutes of a call with ESA on 28 October 2014.

¹⁴¹ ESA report "European Space Technology harmonisation technical dossier: electric propulsion technologies", 23 May 2014.

¹⁴² Minutes of a call with a satellite prime contractor on 3 November 2014.

another satellite prime contractor countries subject to US export restrictions represent 25 % of the commercial tenders.¹⁴³

- (324) The Commission's market investigation also showed that US thrusters are not compatible with Safran's and Fakel's thrusters. As one satellite prime contractor mentioned, *"US electric thrusters use different technologies, which have different characteristics and performances. Even if [...] were to buy from US suppliers using Hall-effect thrusters, such as Aerojet, it would have to adapt the other components of its propulsion systems"*.¹⁴⁴
- (325) A third alternative to Safran's Hall-effect thrusters could be ESP (UK). This subsidiary of Aerojet (US) is currently developing a Hall-effect thruster based on the XR-5 Aerojet design with the objective of making it a European thruster.
- (326) The project would be 50% funded by ESA and 50% by Aerojet (US). However, so far no final agreement between ESA and ESP (UK) has been concluded, also because of the use of non-European components in the development of this thruster. There is thus still some uncertainty about when ESP (UK) will be able to make available an European Hall-effect thruster compatible with the thrusters from Safran and Fakel (Russia). According to ESA, *"The thruster could then be used for Neosat, although ESA has not yet seen such proposal"*.¹⁴⁵
- (327) The Commission's market investigation showed that ESP's thruster would still be subject to ITAR restrictions and export restrictions. Satellite prime contractors mentioned that *"ESP's thrusters would be subject to ITAR"*.¹⁴⁶ ESP (UK) mentioned that *"It is very difficult to build entirely ITAR-free thrusters. The XR-5E, for instance, will not be ITAR-free, although it will include as little ITAR technology as possible"*.¹⁴⁷
- (328) The Commission's investigation also showed that the use of this thruster would involve additional costs. According to one satellite prime contractor *"if [...] were to buy ESP's thrusters such requalification would be costly, and would negatively impact [...] price-competitiveness, in particular for the commercial market"*.¹⁴⁸ Another satellite prime contractor added that the Aerojet original thrusters are significantly more expensive *"both in terms of recurring and non-recurring costs"*.¹⁴⁹ One of the steps of the investment in Europe is thus *"to, little by little, replace elements that can be improved in order to reduce costs"*.¹⁵⁰

¹⁴³ Satellite prime contractor's reply to question 11 of the Commission's request for information, 30 October 2014

¹⁴⁴ Minutes of a call with a satellite prime contractor on 3 November 2014.

¹⁴⁵ Minutes of a call with ESA on 28 October 2014.

¹⁴⁶ Minutes of a call with a satellite prime contractor on 6 November 2014.

¹⁴⁷ Minutes of a call with a satellite subsystem supplier on 9 October 2014.

¹⁴⁸ Minutes of a call with a satellite prime contractor on 3 November 2014.

¹⁴⁹ Satellite prime contractor's reply to question 16 of the Commission's request for information, 16 October 2014.

¹⁵⁰ Minutes of a call with ESA on 28 October 2014.

- (329) As regards multi-sourcing, the Commission's investigation showed that it is relevant for both satellite primes contractors and satellite operators to have more than one alternative, in particular if there are some potential restrictions associated with one of the suppliers.
- (330) One satellite prime contractor mentioned *"that is important to have two suppliers of propulsion system, in particular if one of them is located in Russia, where the access could be limited by political factors, and the other one in the US, where ITAR regulations apply"*.¹⁵¹ Satellite operators also stated that (i) *"if there is uncertainty, [...] would require the satellite manufacturer to provide a viable backup plan"*, (ii) *"currently we would not decide against a particular manufacturer offer because of the presence of Fakel in the supply chain. It is however a plus for any company to have access to alternative electrical propulsion solutions in case these thrusters would become unavailable"* and (iii) *"as a general rule, satellite manufactures and satellite operators try to avoid single sourcing"*.¹⁵² An internal document from Airbus confirms that [...].¹⁵³
- (331) The Commission's investigation also showed that some suppliers of Hall-effect thrusters may be close to full capacity. An Airbus internal document mentions that [...].¹⁵⁴ A satellite prime contractor also stated that *"Airbus is such an important client that it uses Fakel's entire capacity, thus making access to Fakel's thrusters very difficult"*.¹⁵⁵
- (332) Those two factors imply that it is important for satellite prime contractors to have at least two alternative suppliers in order to avoid any risk of delivery failure resulting from the lack of capacity or export restrictions.
- (333) As regards switching costs, the large majority of market participants stated that they are significant.¹⁵⁶ As one satellite prime contractor mentioned *"switching from one supplier to another could lead to significant non-recurring costs and a significant schedule impact at both the supplier and prime contractor level"*.¹⁵⁷ Another satellite prime contractor stated that *"switching supplier for its propulsion system would entail a cost of around EUR 10 million. Switching only the thruster supplier would cost about EUR 4 million just to qualify the new supplier (such as Fakel). Moreover, if the propulsion system does not have a record it needs to offer a discount to the satellite operator that incorporates the need of validation"*.¹⁵⁸
- (334) However, the Commission's investigation also showed that in the context of the future Neosat platform funded by ESA there is an effort to make this platform compatible with different suppliers, thus significantly reducing switching costs. According to

¹⁵¹ Minutes of a call with a satellite prime contractor on 14 October 2014.

¹⁵² Satellite operators' replies to the Commission request for information, 4 November 2014.

¹⁵³ Airbus' internal document [...].

¹⁵⁴ Airbus' internal document [...].

¹⁵⁵ Minutes of a call with a satellite prime contractor on 3 November 2014.

¹⁵⁶ Replies to question 36 of Questionnaire Q2 – Satellite primes and question 28 of Q3 - Satellite systems, subsystems and equipment producers.

¹⁵⁷ Reply to question 36 of Questionnaire Q2 – Satellite primes.

¹⁵⁸ Minutes of a meeting with a satellite prime contractor on 7 October 2014.

ESA, the *"Neosat platform has been defined with interchangeable components precisely to allow for second sourcing. In theory, for the interchangeable items, the cost of switching from a manufacturer to a different one should be minimal"*.¹⁵⁹

(335) Although the Hall-effect thrusters by Safran, Fakel (Russia) and, possibly, ESP (UK) will be compatible in the context of the Neosat platform, there are non-recurring costs associated with switching suppliers. According to one satellite prime contractor *"the non-recurring costs of switching of supplier would in such case consist in: (i) the acquisition of the complete thruster qualification file, (ii) possibly, delta qualification (...), (iii) system tests (coupled tests with PPU, multi-firing tests) if not already completed, and (iv) system impacts of new thrusters implementation on the spacecraft (e.g. with regard to thruster module, ADCS, thermal aspects)"*.¹⁶⁰

(336) As regards the qualification costs, ESA mentioned that *"To propose on the market a new satellite solution embedding electric propulsion, a prime has to demonstrate that its overall system is correct, and in that respect the knowledge from the behaviour and performance of electrical thruster -through a complete thruster qualification file-, is a must. A European prime, which would not have itself performed these qualifications, would have to acquire the qualification files of the thrusters that it is going to use"*. As regards the fourth component mentioned by the satellite prime contractor, ESA explained that *"if the mechanical interfaces of the thrusters are different, starting from a certain "thruster module" design, based on a certain thruster, then to switch to another thruster, there is a need for a modification"*.¹⁶¹

(337) In addition, the interchangeability of Hall-effect thrusters is so far limited to the Neosat platform developed by TAS and Airbus. Therefore, other satellite prime contractors would not benefit from such interchangeability.

(338) The Commission's investigation also showed that barriers to entry pertaining to the supply of Hall-effect thruster are high.¹⁶² Thus, any counter-strategy by satellite prime contractors to promote a new supplier of Hall-effect thrusters would be unlikely.

(339) Finally, the Commission's investigation showed that despite the relatively low value of satellite propulsion thrusters as compared to the total value of a satellite, the Joint Venture could still have the ability to significantly affect the competitiveness of Airbus' rivals. As one satellite prime contractor explained, in addition to a price increase, discrimination by the Joint Venture against Airbus' rivals could take several forms that would affect significantly their competitiveness, namely:

(i) *"necessity to pay for qualifications: in case the baseline of electric propulsion engines becomes Airbus' platform (in terms of qualification, functioning points, etc), (...) would have to support*

a) the extra-cost represented by the adaptation/delta qualification of the product on (...) platform which would be fixed by Safran/the JV; (...)

¹⁵⁹ Minutes of a call with ESA on 20 October 2014.

¹⁶⁰ Satellite prime contractor's reply to question 22 of the Commission's request for information, 16 October 2014.

¹⁶¹ Minutes of a call with ESA on 28 October 2014.

¹⁶² Replies to question 37 of Questionnaire Q2 – Satellite primes and question 30 of Q3 - Satellite systems, subsystems and equipment producers.

anticipates it would represent approx. 4 millions euros. This qualification cost has to be supported whenever there is an evolution on the thruster (i.e. every 4 to 5 years). The qualification cost is therefore incurred on all the satellites manufactured by (...) in the meantime (3 to 4 satellites per year, i.e. a total of 12 to 20 satellites); and

b) the extra-cost represented by the loss of flight heritage: a limited flight heritage can be compensated by a discount applied on the price of the satellite (around 3-4% of the price of the satellite);

(ii) necessity to support the cost of early bookings and delays in delivery:

a) early bookings that could either be imposed by the JV or be the result of the necessity to obtain a qualification, generate a financing cost; and

c) delays in deliveries result in the payment of very high liquidated damages".¹⁶³

(340) The discrimination against Airbus' rivals could also assume more qualitative forms, namely "*(i) Not reacting in time to (...) requests for price quotations and technical information would allow the JV to seriously hinder (...) ability to compete efficiently in the context of the tenders organized by satellite operators*" and "*(ii) repetitive delay deliveries of the satellites. It would harm (...) reputation and disadvantage it for future tenders*".¹⁶⁴

(341) On the basis of the above and the available evidence, the Commission concludes that the Joint Venture would have the ability to foreclose satellite prime contractors from access to Hall-effect thrusters.

Incentives to foreclose satellite prime contractors from access to Hall-effect thrusters

(342) The Commission's investigation also showed that, for the reasons set out below, the Joint Venture may have the incentive to foreclose satellite prime contractors from access to Hall-effect thrusters.

(343) In Europe there are only two competitors in the downstream market of satellite prime contracting. One of those companies, TAS, has a similar size and product range as Airbus and seems to compete with Airbus for several contracts. The other company, OHB, is an aggressive competitor which has been expanding in the last years. In case of discrimination against those two satellite prime contractors, their competitiveness would be affected. Thus, for customers which only buy from European satellite prime contractors Airbus would appear as the only credible alternative.

(344) Airbus' internal documents show that TAS and OHB are its two main competitors. [...].¹⁶⁵

¹⁶³ Satellite prime contractor's reply to question 23 of the Commission's request for information, 16 October 2014.

¹⁶⁴ Satellite prime contractor's reply to question 23 of the Commission's request for information, 16 October 2014.

¹⁶⁵ Airbus' internal document [...].

- (345) The benefits of a potential input foreclosure strategy by the Parties would consist in an increase in the number of satellites sold by Airbus as well as in an eventual increase in Airbus' margins per satellite. This is particularly the case for European institutional programmes for which only Airbus, TAS and OHB are the potential suppliers, and for which Airbus has a market share above [40-50]%. It would also be the case for commercial satellites from countries subject to US restrictions, where the main competitors are Airbus and TAS. As regards other satellite operators, in particular for those that also have US suppliers as alternatives, the benefits for the Parties deriving from such an input foreclosure strategy would be lower given their possibility to switch to a US satellite prime contractor instead of to Airbus.
- (346) Given the higher absolute margins of the satellite prime contracting activity (around EUR [...]) compared with the margins of Hall-effect thrusters (whose total cost is less than EUR [...] per satellite), the gains for Airbus of adopting an input foreclosure strategy as regards Hall-effect thrusters could potentially be higher than the eventual cost of losing some sales in the upstream markets.¹⁶⁶
- (347) The incentives for the Parties to adopt an input foreclosure strategy are however reduced by the fact that Airbus' activities as a satellite prime contractor are not contributed to the Joint Venture. Consequently, the shareholder Safran might not have an incentive to allow the Joint Venture to favour Airbus' activities, thereby risking losing sales. However, it is also possible that Safran would accept discrimination in favour of Airbus in exchange of some sort of compensation within the Joint Venture. Additionally, it is possible that the Joint Venture would not suffer any losses in case Airbus were to capture all the sales lost by its rivals. This is more likely to happen for European institutional customers and commercial customers with European preferences.
- (348) The Commission also considers that the Joint Venture would have the incentive to discriminate against Airbus' downstream rivals, because it would not be able to extract all the available profits in the downstream markets by simply raising the price of the Hall-effect thrusters as this component only accounts for less than [0-5]% of downstream profits.¹⁶⁷ In fact, for that to be a credible strategy, the price of the Hall-effect thrusters would need to be increased very significantly, which would be an easily detectable strategy. This is also why non-price discrimination strategies would be the more effective in order to shift downstream rents to Airbus.
- (349) The possibility of retaliation by one of Airbus' satellite prime contracting competitors could also discourage the Joint Venture from discriminating against those companies. However, the Commission's investigation has shown that the Joint Venture does not seem to be highly dependent on its two main European competitors.
- (350) According to the Parties, for equipment purchased by Airbus and Safran, there is no alternative to TAS for either the PPU or electronic tubes, while for all the other subsystems there are alternative suppliers. In the case of PPU, [...]. In the case of electronic tubes, TAS is subject to the remedies committed in the context of two

¹⁶⁶ Satellite prime contractor's presentation submitted to the Commission on 7 October 2014.

¹⁶⁷ According to the paragraph 44 of the Non-Horizontal Merger Guidelines an upstream monopolist that is already able to fully extract all available profits in vertically related markets may not have any incentive to foreclose rivals following a vertical merger.

Commission decisions that aimed reducing the likelihood of discriminatory behaviour.¹⁶⁸

(351) As regards OHB, [...].

(352) On the basis of the above and the available evidence, the Commission concludes that the Joint Venture would have the incentive to foreclose satellite prime contractors from access to Hall-effect thrusters.

Overall likely impact on effective competition

(353) For the reasons set out below, the Commission takes the view that an input foreclosure strategy by the Joint Venture in relation to Hall-effect thrusters would have an overall negative impact on effective competition.

(354) The Airbus rivals that would be most affected by being foreclosed from access to Hall-effect thrusters, that is TAS and OHB, are significant satellite prime contractors, in particular in the European institutional and national military market segments. TAS has a position similar to Airbus in Europe (around [40-50]% of the European market segment for institutional satellites) and OHB has been growing and plans to expand to commercial satellites in the near future.

(355) The negative effects of an input foreclosure strategy by the Joint Venture on effective competition would probably be most pronounced on the European market for institutional satellites prime contracting and the national markets of EU Member States military satellites prime contracting and could extend to the market for prime contracting for commercial satellites in so far as commercial customers are subject to US regulatory restrictions. That latter group represents around 25 % of the worldwide demand for commercial satellites. Although the majority of those satellites still use other propulsion technologies (for example, chemical satellite propulsion subsystems), the growing importance of the Hall-effect thruster implies that the proportion of satellites affected by an input foreclosure strategy in relation to Hall-effect thrusters would become increasingly relevant. According to ESA "*electric propulsion has been identified by European actors as a Strategic Technology for improving the European competitiveness in different space areas*".¹⁶⁹

Conclusion

(356) On the basis of the above and the available evidence, the Commission concludes that the Parties are likely to have the ability and incentive to adopt an input foreclosure strategy as regards Hall-effect thrusters, and that such a strategy would be likely to have an overall negative impact on effective competition in the markets for the prime contracting of satellites.

¹⁶⁸ In the context of the Commission's decision of 4 June 1998 in case COMP/M.1185- Alcatel / Thomson / CSF-SCS and Commission's decision of 4 April 2007 in case COMP/M.4403 - Thales / Finmeccanica / Alcatel Alenia Space & Telespazio, TAS committed to supply without any restriction travelling wave tubes to SCS (the new satellite company) and to third parties at similar conditions, with respect to prices, quality, specifications, delivery period and other terms and conditions.

¹⁶⁹ ESA report "European Space Technology harmonisation technical dossier: electric propulsion technologies", 23 May 2014.

Customer foreclosure

- (357) During the Commission's investigation market participants also expressed concerns about the possibility of customer foreclosure by Airbus, as a satellite prime contractor, against Safran's rivals in the supply of Hall-effect thrusters.
- (358) According to the Commission's Non-Horizontal Merger Guidelines¹⁷⁰, customer foreclosure may occur when a supplier integrates with an important customer in the downstream market. In the present case, because of Airbus' presence in the downstream markets (that is in the markets for the prime contracting of satellites), Airbus may foreclose competing suppliers of Hall-effect thrusters from access to a sufficient customer base and reduce those suppliers' ability or incentive to compete with the Joint Venture.
- (359) In assessing the likelihood of a customer foreclosure strategy, the Commission examined, first, whether Airbus would have the ability to foreclose access to the markets for the prime contracting of satellites by reducing purchases from competing suppliers of Hall-effect thrusters; second, whether Airbus would have the incentive to do so; and third, whether such a customer foreclosure strategy would have an overall negative impact on effective competition in the markets for the prime contracting of satellites.
- (360) For the reasons set out below, the Commission concluded that Airbus may have the ability and incentive to adopt a customer foreclosure strategy as regards Hall-effect thrusters, and that such a strategy would have an overall negative impact on effective competition in the markets for the prime contracting of satellites.

Ability to foreclose suppliers of Hall-effect thrusters from access to the markets for prime contracting of satellites

- (361) As regards the Airbus' ability to foreclose competing suppliers of Hall-effect thrusters from access to the markets for prime contracting of satellites, one supplier of satellite propulsion subsystems mentioned in the course of the Commission's market investigation that "*Airbus has approximately 60 % of the market for satellites in Europe (commercial, institutional and military all together), and is as such a much more important player than TAS or OHB*".¹⁷¹ Although this percentage may overstate the position of Airbus as a European satellite prime contractor, Airbus still represents around 40-50 % of the market. This significant market position may allow Airbus to engage in customer foreclosure, thereby impacting competing satellite prime contractors' profitability.
- (362) Moreover, for European suppliers of Hall-effect thrusters having Airbus as a customer is particularly relevant since lost sales cannot easily be recouped from US satellite prime contractors: "*US strongly promotes "Buy American" therefore this market is difficult to access for a non-US company*".¹⁷²

¹⁷⁰ Non-Horizontal Merger Guidelines, paragraph 58.

¹⁷¹ Minutes of a call with a satellite subsystem supplier on 9 October 2014.

¹⁷² Reply to question 21.1 of Questionnaire Q3 - Satellite systems, subsystems and equipment producers.

(363) Consequently, the Commission takes the view that Airbus would have the ability to foreclose competing suppliers of Hall-effect thrusters from access to the markets for prime contracting of satellites.

Incentives to foreclose suppliers of Hall-effect thrusters from access to the markets for prime contracting of satellites

(364) As regards the incentive to adopt a customer foreclosure strategy, one of Safran's competitors for the supply of Hall-effect thrusters mentioned that *"it is concerned that Airbus will tend to purchase Safran's thrusters"*.¹⁷³ Another competitor mentioned that it *"is concerned that, for political reasons within the company, Airbus might start procuring solely from the JV"*.¹⁷⁴ Another supplier of satellite propulsion subsystems also stated *"it is likely that Airbus will source from itself in the future"*.¹⁷⁵

(365) The Commission's investigation also showed that if Airbus were to buy all of its Hall-effect thrusters needs from the Joint Venture, this would create difficulties for competing suppliers of Hall-effect thrusters, which would have problems in achieving economies of scale. As ESA explains *"the loss of sales would prevent [a supplier] from benefiting from important economies of scale"*.¹⁷⁶

(366) Moreover, the Commission's investigation showed that a customer foreclosure strategy would have a significant impact on a supplier of Hall-effect thrusters that it is about to enter the European market, and which has not yet an established customer base. According to one Safran's competitor, *"the #1 target opportunity for (...) is the high-power plasmic propulsion on the European GEO Comsat platforms, of which Airbus is the market leader in Europe. (...) is therefore concerned about the potential impact of the JV on (...), since this JV could eliminate the #1 target opportunity and greatly reduce the business case for continuing forward with (...). The integration of Airbus and Safran will lead Airbus/the JV to procure exclusively in-house. (...) If the access to Airbus' platform were to be foreclosed, (...) would lose access to the largest manufacturer of GEO satellites in Europe, which could have a very important impact on (...) business plan"*.¹⁷⁷

(367) As a result of these two factors, Safran's main competitors in the supply of Hall-effect thrusters would have higher costs or, eventually, would leave the European market for the supply of Hall-effect thrusters. In turn, this may raise the Hall-effect thrusters' procurement costs of Airbus's competitors in satellite prime contracting. This would allow Airbus to profitably establish higher prices for its satellite prime contracting activities.

(368) Consequently, the Commission takes the view that Airbus would have the incentive to foreclose competing suppliers of Hall-effect thrusters from access to the markets for prime contracting of satellites.

¹⁷³ Minutes of a call with a satellite subsystem supplier on 9 October 2014.

¹⁷⁴ Minutes of a call with a satellite subsystem supplier on 29 October 2014.

¹⁷⁵ Minutes of a call with a satellite subsystem supplier on 6 October 2014.

¹⁷⁶ Minutes of a call with ESA on 20 October 2014.

¹⁷⁷ Minutes of a call with a satellite subsystem supplier on 23 October 2014.

Overall likely impact on competition

- (369) For the reasons set out below, the Commission takes the view that a customer foreclosure strategy by Airbus in relation to the access to the markets for prime contracting of satellites by suppliers of Hall-effect thrusters would have an overall negative impact on effective competition.
- (370) The adoption of a customer foreclosure strategy by Airbus would likely result in an alternative supplier of Hall-effect thrusters in Europe leaving the market or at least preventing it from entering that market successfully, thereby reducing innovation. One satellite propulsion subsystem supplier also mentions that the *"transaction will lead to less innovation on the market"* since it *"will lead other potential suppliers to either exit market or curtail development programmes or new product creation. This will impact overall competitiveness and innovation in Europe"*.¹⁷⁸
- (371) Moreover, Safran's main competitors in the supply of Hall-effect thrusters would have higher costs. Therefore, the prices of Hall-effect thrusters would increase with a consequent negative impact on the price of the downstream market for satellite prime contracting.

Conclusion

- (372) On the basis of the above and the available evidence, the Commission concludes that the Transaction raises serious doubts as to its compatibility with the internal market as regards the access to the market of satellite prime contracting for suppliers of Hall-effect thrusters.

Conclusion

- (373) The Commission considers that there may be a relationship between input and customer foreclosure. For instance, the adoption of an input foreclosure strategy by the Joint Venture may render customer foreclosure less problematic, by inducing Airbus' rivals on the markets for the prime contracting of satellites to procure Hall-effect thrusters from other European suppliers. On the other hand, a customer foreclosure strategy by Airbus may render an input foreclosure strategy more effective, by inducing a supplier not to enter the market for the supply of Hall-effect thrusters in Europe. However, the Commission at this stage has serious doubts about either type of foreclosure taking place (possibly only one or the other, in isolation) post-Transaction.
- (374) On the basis of the above and the available evidence, the Commission concludes that the Transaction raises serious doubts as to its compatibility with the internal market as regards to the vertical relationship between the Parties' activities in relation to satellite prime contracting and the supply of Hall-effect thrusters.

7.3.2.2. Vertical relationship between satellite prime contracting and thermostructural composite materials

- (375) The Parties argue that the creation of the Joint Venture will not have any competition impact as regards the vertical relationship between the Parties' activities in relation to satellite prime contracting and the supply of thermostructural composite materials.

¹⁷⁸ Minutes of a call with a satellite subsystem supplier on 9 October 2014.

(376) First, the Parties argue that Safran (Herakles) does not supply thermostructural composite materials directly to Airbus as a satellite prime contractor but to [...] as the supplier of optic equipment. According to the Parties there is therefore no direct vertical relationship between Airbus and Safran.

(377) Second, the Parties argue that there are several suppliers of thermostructural composite materials for satellites, including General Electric, Goodrich, ATK and COI-C in the US, and Boostec (France) in Europe. Moreover, new technologies are under development by competitors.

Input foreclosure

(378) During the Commission's investigation, concerns were raised by a satellite prime contractor as regards the supply of carbon-carbon materials (in the shape of a cylinder) to be used in observation satellites, namely about the possibility of the Joint Venture adopting an input foreclosure strategy against Airbus' satellite prime contractor rivals.¹⁷⁹

(379) According to this satellite prime contractor, the Joint Venture would be likely to restrict access to carbon-carbon materials by (i) price discriminating in favour of Airbus and/or (ii) delaying the delivery schedule in favour of Airbus.

(380) In the context of those concerns, the Commission examined (i) whether the Joint Venture would have, post-merger, the ability to foreclose competing satellite prime contractors from access to carbon-carbon materials, (ii) whether the Joint Venture would have the incentive to do so, and (iii) whether such a foreclosure strategy would have an overall negative impact on effective competition.

(381) For the reasons set out below, the Commission concluded that the Parties are likely to have the ability and incentive to adopt an input foreclosure strategy as regards carbon-carbon materials, and that such a strategy would have an overall negative impact on effective competition in the markets for the prime contracting of satellites.

Ability to foreclose satellite prime contractors from access to carbon-carbon materials

(382) For the reasons set out below, the Commission takes the view that the Joint Venture would have the ability to foreclose satellite prime contractors from access to carbon-carbon materials.

(383) First, a satellite prime contractor argued in the course of the Commission's market investigation that the ability of the Joint Venture to adopt such input foreclosure strategies would result from the monopoly position of Safran (Herakles) in the supply carbon-carbon materials to observation satellite projects in Europe.

(384) According to the Commission's investigation, carbon-carbon materials have specific characteristics suited for its specific needs. As a consequence, there may not be any credible alternative supplier to Safran for carbon-carbon materials for space optical observation satellites.

¹⁷⁹ Reply to question 53.1 of Questionnaire Q2 – Satellite primes.

- (385) The two potential alternatives in Europe do not seem to be credible alternatives. Mersen's (France) materials are designed to be stable at temperatures higher than the carbon-carbon cylinders' specifications. As regards MTA (Germany), it has no heritage on ultra-stable carbon-carbon materials (that is, its product has not yet been tested in satellites).
- (386) The Commission's investigation also confirmed that, although ITAR restrictions are not a significant restriction in the procurement of carbon-carbon materials in the context of institutional programmes, ESA's approach is to favour European sources, and to only source from outside Europe if there is no European source available.¹⁸⁰ The use of carbon-carbon materials in the context of military programmes is also subject to European preferences. Thus US companies are not viable alternatives for the supply of carbon-carbon materials.
- (387) Second, the satellite prime contractor also stated that the involvement of ESA in the projects where carbon-carbon materials are required, does not guarantee access to those materials. The Commission's investigation confirmed that ESA is not responsible for the procurement of carbon-carbon materials used in those projects.¹⁸¹
- (388) Third, the satellite prime contractor argued that the development by a new supplier of carbon-carbon materials, and in particular a carbon-carbon cylinder, would take three to five years and cost around EUR 10 million. This would make it prohibitively costly for a satellite prime contractor to promote a new supplier.
- (389) The Commission's investigation confirmed that although there are several producers of carbon-carbon materials, in particular for the car industry, satellite products require specific knowledge and have to undergo a strict qualification process since customers require traceability of the products, and a high level of quality.¹⁸²
- (390) Fourth, the satellite prime contractor argued that carbon-carbon materials are very important for observation satellites since they have the specific function of stabilising a telescope in order to get a clear image. It requires specific design and know-how capabilities. The cost of carbon-carbon materials per satellite corresponds to EUR [...] out of a total cost of EUR [...].
- (391) On the basis of the above and the available evidence, the Commission concludes that the Joint Venture would have the ability to foreclose satellite prime contractors from access to carbon-carbon materials.

Incentive to foreclose access to carbon-carbon materials

- (392) For the reasons set out below, the Commission takes the view that the Joint Venture would have the incentive to foreclose satellite prime contractors from access to carbon-carbon materials.
- (393) As regards the incentive for the Joint Venture to adopt an input foreclosure strategy, the arguments presented by the satellite prime contractor are similar to the ones

¹⁸⁰ Minutes of a call with ESA on 28 October 2014.

¹⁸¹ Minutes of a call with ESA on 28 October 2014.

¹⁸² Minutes of a call with a satellite subsystem supplier on 4 November 2014.

discussed in paragraphs (342) to (353) regarding the incentives of the Joint Venture to foreclose competing satellite prime contractors' access to Hall-effect thrusters.

(394) The Commission's investigation confirmed that Airbus has a strong incentive to challenge TAS' position in the area of prime contracting for Earth observation satellites where carbon-carbon materials are used. According to one internal document from Airbus, this company has as an objective to "[...]"¹⁸³

(395) Moreover, given the higher absolute margins of the satellite prime contracting activity (EUR [...]) compared with the margins of carbon-carbon materials (whose price is around EUR [...]), the gains for Airbus from adopting an input foreclosure strategy as regards carbon-carbon materials could potentially be higher than the eventual cost of losing some sales in the upstream markets.

(396) On the basis of the above and the available evidence, the Commission concludes that the Joint Venture would have the incentive to foreclose satellite prime contractors from access to carbon-carbon materials.

Overall likely impact on competition

(397) The overall likely impact on effective competition of an input foreclosure strategy on carbon-carbon materials would be negative. It would mostly affect TAS, the most important player in prime contracting for Earth observation satellites in Europe, although it could also affect future players in this field. Consequently, given that it would weaken Airbus' competitors, the input foreclosure strategy would potentially lead to an increase in the price for satellite prime contracting.

Conclusion

(398) On the basis of the above and the available evidence, the Commission concludes that the Transaction raises serious doubts as to its compatibility with the internal market as regards the access to carbon-carbon materials by satellite prime contractors.

Customer foreclosure

(399) As regards customer foreclosure, no concerns were raised. In the particular case of carbon-carbon materials, the only supplier would be the Joint Venture. In the case of the broader market for the supply of thermostructural composite materials it is unlikely that Airbus would have the ability and incentive to adopt such a strategy given the specificity of the different thermostructural composite materials sold by each company, with no direct substitute produced by the Joint Venture.

Conclusion

(400) On the basis of the above and the available evidence, the Commission concludes that the Transaction raises serious doubts as to its compatibility with the internal market as regards the vertical relationship between the Parties' activities in relation to satellite prime contracting and the supply of carbon-carbon materials, in particular in the shape of cylinders.

¹⁸³ Airbus' internal document [...].

7.3.2.3. Vertical relationship between satellite prime contracting and/or the supply of chemical satellite propulsion subsystems and sensors for satellites

- (401) According to the Parties, the Transaction would bring about a vertical relationship between the activities of the Joint Venture and Airbus (as a satellite prime contractor and/or a chemical satellite propulsion subsystem supplier), since Safran (Herakles) supplies sensors for Airbus' activities in chemical satellite propulsion subsystems.
- (402) The Parties argue that the creation of the Joint Venture will not have any competition impact as regards this vertical relationship.
- (403) First, the Parties argue that Safran supplies sensors on platforms originally designed for commercial satellites, where Airbus worldwide market share is below [30-40]% both at the satellite prime contractor level ([20-30]% in 2013) and at the chemical satellite propulsion subsystem level ([20-30]% in 2013).
- (404) Second, the Parties argue that Safran's market share is under [10-20]% in the worldwide market for satellite sensors, and that there are numerous competitors that manufacture sensors, both in Europe and worldwide, including MOOG-Bradford (the Netherlands), Meggitt (UK), Trafag (Switzerland), Ametek (US), Taber (US), Kulite (US), Druck (US), Rosemount (US) and Kistler (US). In particular, the Parties mention that Safran faces strong competition from MOOG-Bradford (the Netherlands) and Ametek (US).
- (405) Third, the Parties argue that suppliers of sensors will still have access to other prime satellite contractors, including TAS and OHB in Europe and to other suppliers of chemical satellite propulsion subsystems, including MOOG (US) and Aerojet (US).

Input foreclosure

- (406) During the Commission's investigation concerns were raised by a satellite prime contractor as regards the supply of SAPT to satellite prime contractors, namely concerning the possibility of the Joint Venture to adopt an input foreclosure strategy against satellite prime contractors competing with Airbus.¹⁸⁴
- (407) According to the Commission's investigation, the Joint Venture would likely restrict access to SAPT by (i) price discriminating in favour of Airbus and/or (ii) delaying the delivery schedule in favour of Airbus.
- (408) In the context of those concerns, the Commission examined (i) whether the Joint Venture would have, post-merger, the ability to foreclose competing satellite prime contractors from access to SAPT, (ii) whether the Joint Venture would have the incentive to do so, and (iii) whether such a foreclosure strategy would have an overall negative impact on effective competition.
- (409) For the reasons set out below, the Commission concluded that the Parties are likely to have the ability and incentive to adopt an input foreclosure strategy as regards SAPT, and that such a strategy would be likely to have an overall negative impact on effective competition in the markets for the prime contracting of satellites.

¹⁸⁴ Reply to question 53.1 of Questionnaire Q2 – Satellite primes.

Ability to foreclose satellite prime contractors from access to SAPT

- (410) For the reasons set out below, the Commission takes the view that the Joint Venture would have the ability to foreclose satellite prime contractors from access to SAPT.
- (411) First, a satellite prime contractor argued in the course of the Commission's market investigation that the Joint Venture's ability to adopt such strategies would result from (i) the lack of alternatives to Safran's SAPT and (ii) the existing regulatory constraints.
- (412) According to the Commission's investigation the only potential alternatives for the supply of SAPT would be MOOG-Bradford (the Netherlands) and Paine (US). In the worldwide market for the supply of SAPT, Safran has a market share of [40-50]%. The European market is evenly split between Safran and MOOG-Bradford (the Netherlands).
- (413) Moreover, the Commission's investigation showed that European satellite prime contractors are encouraged to select European suppliers over suppliers from the US. This would restrict the use of SAPT from Paine (US) and, possibly, from MOOG-Bradford (the Netherlands), since that company was acquired by an American company (MOOG) in 2011. In fact, the equipment from Paine is subject to ITAR restrictions, which prevent their use in satellites to be sold to several countries. According to the Commission's investigation, after being acquired by MOOG (US), also MOOG-Bradford (the Netherlands) started to be subject to Restricted Commerce limitations with some countries.
- (414) According to ESA, MOOG-Bradford's SAPT are an equal alternative to Safran's.¹⁸⁵ However, the satellite prime contractor argued that they are less accurate than Safran's SAPT, and although they can be an acceptable alternative for monopropellant satellite propulsion subsystems, their use in bi-propellant satellite propulsion subsystems and electric satellite propulsion subsystems would require an upgrade and requalification.¹⁸⁶
- (415) Second, the satellite prime contractor also argued that the cost of switching suppliers of SAPT is significant since there is a need to qualify the equipment of the new supplier. Moreover, despite their low costs (EUR [...] per satellite), SAPT are a very important product for satellite prime contractors that cannot be substituted by any other technology.
- (416) On the basis of the above and the available evidence, the Commission concludes that the Joint Venture would have the ability to foreclose satellite prime contractors from access to SAPT.

Incentive to foreclose satellite prime contractors from access to SAPT

- (417) For the reasons set out below, the Commission takes the view that the Joint Venture would have the incentive to foreclose satellite prime contractors from access to SAPT.

¹⁸⁵ Minutes of a call with ESA on 28 October 2014.

¹⁸⁶ Satellite prime contractor's reply to question 36 of the Commission's request for information, 16 October 2014.

(418) As regards the incentive for the Joint Venture to adopt an input foreclosure strategy vis-à-vis satellite prime contractors, the arguments presented by the satellite prime contractor to the Commission are similar to the ones presented as regards the incentive of the Joint Venture to foreclose the satellite prime contractors from access to Hall-effect thrusters. The Commission's investigation showed that the Joint Venture would have similar incentives to the ones discussed in (342) to (353).

(419) Airbus competes closely with the other two European competitors in the downstream market of satellite prime contracting, that is TAS and OHB. Moreover, given the higher absolute margins of the satellite prime contracting activity (EUR [...]) compared with the margins of SAPT (whose price is around EUR [...] per satellite), the gains for Airbus of adopting an input foreclosure strategy as regards SAPT could potentially be higher than the eventual cost of losing some sales in the upstream markets for SAPT.

(420) On the basis of the above and the available evidence, the Commission concludes that the Joint Venture would have the incentive to foreclose satellite prime contractors from access to SAPT.

Overall likely impact on competition

(421) The overall impact on effective competition of an input foreclosure strategy on SAPT would be negative. Airbus' rivals in the markets for satellite prime contracting that would be most affected, TAS and OHB, are important players in those markets. Consequently, given that it would weaken Airbus' competitors, the input foreclosure strategy would potentially lead to an increase in the price for satellite prime contracting. The effects would be most pronounced on the European market for institutional satellites prime contracting and the national markets of EU Member States for military satellites prime contracting and could extend to the market for prime contracting for commercial satellites in so far as commercial customers are subject to US regulatory restrictions. However, contrary to Hall-effect thrusters, this impact would reflect on all satellites, independently of the satellite propulsion subsystem used.

Conclusion

(422) On the basis of the above and the available evidence, the Commission concludes that the Transaction raises serious doubts as to its compatibility with the internal market as regards the access to SAPT by satellite prime contractors.

Customer foreclosure

(423) No concerns were raised by market participants as regards customer foreclosure. In the particular as regards SAPT, MOOG-Bradford (the Netherlands) would be the only possible alternative supplier affected. However, that company has a strong position in the worldwide market (market share of [30-40]%) and could still find sufficient economic alternatives in the downstream market to which it could sell its output. In the case of the broader market for the supply of sensors for satellites it is unlikely that Airbus would have the ability and/or the incentive to adopt a customer foreclosure strategy given (i) the existence of sufficient economic alternatives in the downstream market to which competing suppliers of sensors for satellites could sell their output and (ii) the specificity of some of the sensors produced by some suppliers, which would make them not substitutable with Safran's product.

(424) Consequently, it is unlikely that the Transaction would give Airbus the ability and incentive to adopt a customer foreclosure strategy with regard to sensors for satellites, in particular SAPT.

Conclusion

(425) On the basis of the above and the available evidence, the Commission concludes that the Transaction raises serious doubts as to its compatibility with the internal market as regards the vertical relationship between the Parties' activities in relation to satellite prime contracting and the supply of SAPT.

7.3.2.4. Vertical relationship between pyrotechnic systems and subsystems for satellite and pyrotechnic equipment

(426) According to the Parties, the Transaction will create a vertical relationship between the activities of Airbus CASA (whose activities are not contributed to the Joint Venture), as a provider of pyrotechnic systems and subsystems, and Safran (through its subsidiary Pyroalliance), as a supplier of pyrotechnic equipment.

(427) The Parties argue that the creation of the Joint Venture will not have any competitive impact as regards this vertical relationship.

(428) First, the Parties argue that Safran is already vertically integrated, as it provides both pyrotechnic subsystems and equipment, and nevertheless supplies pyrotechnic equipment to competing providers of pyrotechnic subsystems. According to the Parties, the Transaction will therefore not increase the Parties' incentive to foreclose competing suppliers of pyrotechnic systems and subsystems, in particular because Airbus CASA's activities will not be integrated in the Joint Venture by Airbus.

(429) Second, the Parties argue that competing suppliers of pyrotechnic equipment will not be foreclosed, since there are several other buyers of pyrotechnic equipment for satellite in Europe, including TAS and OHB.

(430) Finally, the Parties argue that there are several other providers of pyrotechnic equipment both in Europe (RUAG, Lacroix and Dassault) and in the US (for example, Hi-Shear).

(431) During the Commission's investigation no concerns were raised as regards this vertical relationship.

(432) As regards the eventual adoption of an input foreclosure strategy by Safran it is unlikely that it could negatively affect the overall availability of pyrotechnic equipment for suppliers of pyrotechnic systems and subsystems given the existence of credible alternative suppliers and the low market shares of Safran (below [10-20]% in the worldwide market for the supply of pyrotechnic equipment in 2013) As one market participant stated, there are several alternative suppliers of pyrotechnic equipment to Safran.¹⁸⁷

(433) As regards customer foreclosure, given that Safran and Airbus CASA together represent around [10-20]% of the worldwide pyrotechnic subsystems sales in 2013, it is unlikely that a rival supplier of pyrotechnic equipment would not find sufficient

¹⁸⁷ Reply to question 34 of Questionnaire Q3 - Satellite systems, subsystems and equipment producers.

economic alternatives in the downstream market to sell its output, even if Airbus CASA bought all its needs from the Joint Venture.

- (434) On the basis of the above and the available evidence, the Commission concludes that the Transaction does not raise serious doubts as to its compatibility with the internal market as regards the vertical relationship between the Parties' activities in relation to the markets for pyrotechnic systems and subsystems for satellites and for the supply of pyrotechnic equipment for satellites.

7.3.2.5. Vertical relationship between chemical satellite propulsion subsystem and MMH propellant

- (435) According to the Parties, the Transaction will create a vertical relationship between Airbus as a provider of chemical satellite propulsion subsystems for satellites and Safran (Herakles) as a supplier of MMH propellant.
- (436) The Parties argue that the creation of the Joint Venture will not have any competition impact as regards this vertical relationship.
- (437) First, the Parties argue that in the worldwide market for satellite chemical satellite propulsion subsystems for satellites, (i) Airbus held only a [10-20]% market share in 2013 and (ii) there are several competitors, including Aerojet (US), MOOG (US), and Rafael (Israel). In particular, the Parties estimate that in the accessible worldwide market for satellite chemical satellite propulsion subsystems for satellites (that is excluding China or India and satellite prime contractors that procure all their needs internally such as TAS), Aerojet (US) holds a market share of [70-80]% and MOOG (US) a market share of [10-20]%.
- (438) Second, the Parties argue that in a worldwide market for MMH for chemical satellite propulsion subsystems, the market share of Safran was around [30-40]% in 2013. According to the Parties, Safran faces competition mainly from the Finechem (Japan) - directly or through Sumitomo (Germany) - and Arch Chemicals (US), both of which have market shares of [30-40]% each.
- (439) As a consequence, the Parties claim that (i) competing suppliers of MMH propellant can still sell their product to numerous providers of chemical satellite propulsion subsystems for satellites, making a customer foreclosure strategy not viable, and (ii) competitors of Airbus in the market for chemical satellite propulsion subsystems can still buy MMH propellant from Safran's competitors such as Sumitomo (Germany), Finechem (Japan) or Arch Chemicals (US).
- (440) Moreover, the Parties argue that since no MMH propellant supplier faces capacity constraints, even if Airbus decided to procure all its MMH propellant from Safran, other manufacturers of chemical satellite propulsion subsystems for satellites would still be able to procure MMH propellant from Safran's competitors.
- (441) During the Commission's investigation concerns were raised as regards the possibility of Airbus adopting a customer foreclosure strategy by buying all its needs of MMH propellant from Safran.¹⁸⁸ Currently Airbus buys [90-100]% of its MMH propellant needs from [...] and only [10-20]% from [...]. If Airbus stopped buying MMH propellant from [...] this could create a disadvantage for this company.

¹⁸⁸ Reply to question 55 of Questionnaire Q3 - Satellite systems, subsystems and equipment producers.

- (442) The Commission's investigation revealed however that Airbus represents only around 5-10 % of the total procurement of MMH propellant, which includes not only suppliers of chemical satellite propulsion subsystems for satellites but also other companies active in launcher propulsion systems. Consequently, since there are sufficient economic alternatives in the downstream market to which competing suppliers of MMH propellant can sell their output, Airbus would not have the ability to adopt a customer foreclosure strategy.
- (443) As regards the eventual adoption of an input foreclosure strategy by Safran it is unlikely that such a strategy could negatively affect the overall availability of MMH propellant for suppliers of chemical satellite propulsion subsystems since there are still two strong suppliers of MMH propellant, in addition to several other small suppliers from China and Japan.¹⁸⁹
- (444) On the basis of the above and the available evidence, the Commission concludes that the Transaction does not raise serious doubts as to its compatibility with the internal market as regards the vertical relationship between the Parties' activities in relation to chemical satellite propulsion subsystems and the supply of MMH propellant for satellites.

7.3.2.6. Vertical relationship between satellite propulsion subsystems and valves for satellite propulsion subsystems

- (445) According to the Parties, Techspace Aero, a Safran subsidiary which will not be contributed to the Joint Venture, is marginally active in valves for satellite propulsion subsystems. Therefore, the Transaction will create a vertical relationship between Airbus as a provider of satellite propulsion subsystems and Safran as a supplier of valves for satellite propulsion subsystems.¹⁹⁰
- (446) The Parties argue that the creation of the Joint Venture will not have any competitive impact as regards this vertical relationship.
- (447) First, the Parties argue that Safran has only a marginal market share for satellite valves (less than [0-5]% in the worldwide market) compared to the two market leaders MOOG (UK) and ValveTech (US).
- (448) Second, the Parties argue that regarding chemical satellite propulsion subsystems, (i) Airbus has a market share of only [10-20]% on the overall worldwide market and (ii) Safran only manufactures flow control valves, which Airbus already procures [...] today.
- (449) During the Commission's investigation no concerns were raised regarding this vertical relationship.
- (450) As regards the potential adoption of an input foreclosure strategy by Safran it is unlikely that such a strategy could negatively affect the overall availability of valves to suppliers of chemical satellite propulsion subsystem. The Joint Venture and Safran

¹⁸⁹ Minutes of a call with ESA on 28 October 2014.

¹⁹⁰ Airbus only manufactures valves for chemical satellite propulsion subsystems, while Safran is only active in the electric thruster segment. As a result, there is no vertical relationship regarding Airbus' satellite valves business and Safran's activities in electric propulsion.

only sold less than [10-20]% of the valves used worldwide in chemical satellite propulsion subsystems in 2013. There are several other alternative suppliers of valves for satellite propulsion subsystems than the Parties.¹⁹¹

(451) As regards customer foreclosure, given that Airbus only represents [10-20]% of the potential procurement of valves for chemical satellite propulsion subsystem for satellites, it is unlikely that a rival supplier of valves would not find sufficient economic alternatives in the downstream market to which it could sell its output, even if the Joint Venture bought all its needs internally.

(452) On the basis of the above and the available evidence, the Commission concludes that the Transaction does not raise serious doubts as to its compatibility with the internal market as regards the vertical relationship between the Parties' activities in relation to chemical satellite propulsion subsystems and valves for chemical satellite propulsion subsystems.

7.3.3. Transmission of confidential information

(453) During the Commission's investigation, some concerns were raised as regards the risk of the transmission of confidential information received by Safran and/or the Joint Venture to Airbus' satellite prime contracting activities and vice-versa.

(454) The Parties submit that no such risk exists since Airbus' satellite prime contracting activities will remain with Airbus whereas the Joint Venture will be jointly controlled by Safran and Airbus. As a result, the Joint Venture and Airbus as satellite prime contractor will remain distinct legal entities, which will reduce the risk of transmission of information. In particular, as regards satellite propulsion subsystems, the Parties submit that contracts signed by Safran (Snecma) contain provisions to protect the confidentiality of the information exchanged between Safran and its existing or potential clients in the context of these agreements.¹⁹²

(455) However, a satelliteprime contractor expressed concerns about access by Airbus to confidential information regarding satellites components, especially in relation with technologies developed by Safran in the Neosat platform, which could be used by Airbus strategically.¹⁹³ Another satellite prime contractor also mentioned that "*Airbus will benefit from technologies developed and protected under our procurement agreement with the joint venture*" and expressed the need for firewalls and their enforcement to prevent the transmission of information/intellectual property from the Joint Venture to unauthorised uses/applications within the Airbus satellite business.¹⁹⁴

(456) A supplier of electric satellite propulsion subsystems stated similar concerns, in particular that Airbus might obtain information about its main satellite prime contracting competitors through Safran acting as a supplier to them.¹⁹⁵

¹⁹¹ Reply to question 37 of Questionnaire Q3 - Satellite systems, subsystems and equipment producers.

¹⁹² Parties' reply to question 1 of the Commission's request for information, 9 October 2014.

¹⁹³ Minutes of a call with a satellite prime contractor on 7 October 2014.

¹⁹⁴ Reply to questions 46 and 47 of Questionnaire Q2 – Satellite primes.

¹⁹⁵ Minutes of a call with a satellite subsystem supplier on 6 October 2014.

- (457) In addition, some suppliers of electric satellite propulsion subsystems were also concerned that Airbus might transfer information to the Joint Venture about those suppliers' activities. One supplier of electric satellite propulsion subsystems stated that it *"is more concerned about exchange of information between Airbus and Safran through the JV. Indeed, (...) has provided Airbus with technical and financial data about its products, and is concerned this data may be shared with Safran. This would create problems to (...) since one competitor would have access to its data"*.¹⁹⁶ Another supplier mentioned that *"(...) has exchanged some information with Airbus regarding the supply of (...), and is concerned that this information will be made available to Safran after the creation of the joint venture. Information provided is of a nature to support technical specification and performance of the thruster, while in principle this is covered by NDA's between both parties the barriers that would have existed in two separate companies will be eroded and opportunity for information to transition increased"*.¹⁹⁷
- (458) The Commission considers that although Airbus will retain its prime satellite activities outside the Joint Venture, this may not mitigate the risk of transmission of confidential information to Airbus brought about by the Transaction.
- (459) First, Safran activities through which Airbus could obtain information about competitors' satellite prime contracting activities will be contributed to the Joint Venture. This is in contrast with a previous Commission decision in case M.4403 - *Thales/Finmeccanica/Alcatel Alenia Space & Telespazio* where the subsidiary receiving the relevant information was outside the Joint Venture.
- (460) Second, the Joint Venture and Airbus will have activities in markets that are vertically related. Therefore, there is the possibility of Airbus, as a parent company of the Joint Venture, to gain a competitive advantage by having access to information collected by the Joint Venture about Airbus' competitors.
- (461) Third, the information that Airbus could access via the Joint Venture could be relevant for Airbus in determining its pricing and commercial strategy, especially regarding the information on electric satellite propulsion subsystems which is closely related with satellite prime contracting activities.
- (462) Finally, Airbus' satellite prime contracting competitors will need to maintain commercial relationships with the Joint Venture since there are not many credible options for the supply of certain components, namely Hall-effect thrusters. Consequently, the effective possibility of switching to suppliers other than the Joint Venture is remote.
- (463) On the basis of the above and the available evidence, the Commission concludes that the Transaction raises serious doubts as to its compatibility with the internal market as regards the transmission of confidential information between Airbus and the Joint Venture, in particular in the context of the supply of Hall-effect thrusters.

¹⁹⁶ Minutes of a call with a satellite subsystem supplier on 29 October 2014.

¹⁹⁷ Minutes of a call with a satellite subsystem supplier on 9 October 2014.

8. SPACE TRANSPORTATION PRIME CONTRACTING AND SPACE TRANSPORTATION COMPONENTS

8.1. Relevant product markets

8.1.1. Space transportation prime contracting

- (464) The Commission has in previous decisions analysed the segment for space transportation and infrastructure¹⁹⁸ to which space vehicles belong. Following a similar reasoning as for satellites and launchers, the markets for space transportation prime contracting should be distinct from the markets for the supply of components for space transportation.
- (465) In Europe, atmospheric re-entry programmes only exist in the civil institutional domain. None of the Parties is currently active as prime contractors for space transportation requiring re-entry heat shields.
- (466) The main reference programme for space vehicles in Europe is the Intermediate eXperimental Vehicle ("IXV") programme, developed within the Future Launchers Preparatory Programme ("FLPP") and funded by ESA. The IXV is an experimental re-entry vehicle intended to validate European reusable launchers which could be evaluated in the frame of the FLPP programme, aiming at developing a demonstration vehicle to increase know-how in the field of advanced atmospheric re-entry technologies.¹⁹⁹

8.1.2. Thermostructural composite heat shields for space transportation

- (467) A heat shield is a thermal protection consisting of a protective layer of special materials to dissipate the heat generated when a space vehicle re-enters the atmosphere.
- (468) According to the Parties, heat shields for space transportation can be made either of (i) ablative materials²⁰⁰ or (ii) thermostructural composites²⁰¹. Ablative materials are a different and older technology. Both products offer protection from heat, however ablative materials can only bear limited mechanical loads as opposed to thermostructural materials. Moreover, thermostructural composites materials allow for a number of re-entries, unlike ablative materials which deteriorate more quickly when confronted to the thermal flows endured during atmospheric re-entry. Within thermostructural composites materials, Safran (Herakles) produces thermal protection system made of silicon carbide for ESA's IXV programme.

¹⁹⁸ Commission's decision of 4 April 2007 in case COMP/M.4403 - Thales/Finmeccanica/Alcatel Alenia Space & Telespazio.

¹⁹⁹ Satellite prime contractor's reply to question 42 of the Commission's request for information, 24 October 2014.

²⁰⁰ Ablative materials are much simpler materials than thermostructural composites made of layers of foam, silicon or cork with hydra alumina. The outer surface of the ablative material is heated to a gas which carries away the heat by convection.

²⁰¹ Thermostructural composite materials are made of carbon or ceramic fibres and matrix from carbon or ceramic materials, which are then processed in various ways.

(469) The Commission's investigation showed that although these two technologies are aimed at the same applications, they offer different characteristics and performances and are thus not substitutable. In particular, *"for re-entry vehicles such as IXV, the required technology for the Nose and Windwards Assembly is Herakles' ceramics heat shields, to which Avio's and Airbus' products cannot be seen as alternatives"*.²⁰²

(470) For the purpose of this decision, it is therefore considered that thermostructural composite heat shields constitute a relevant market. A narrower relevant market could be potentially defined for thermostructural composite heat shields made of silicon carbide but, for the purpose of this decision, such a market definition would not change the competitive assessment of the Transaction since Safran (Herakles) is currently the only European supplier of thermostructural composite heat shields. Therefore, the commitments proposed by the Parties would eliminate any serious doubts as to the compatibility of the Transaction with the internal market in relation to thermostructural composite heat shields under any plausible product market definition.

8.2. Relevant geographic markets

(471) Currently only the ESA programme IXV requires thermostructural heat shields for atmospheric re-entry. Therefore, the geographic scope of the market can be considered EEA-wide inter alia due to the specific procurement policy of ESA, and the application of the *juste retour* principle.

(472) However, the precise geographic market definition can be left open, since the commitments proposed by the Parties would eliminate any serious doubts as to the compatibility of the Transaction with the internal market in relation to thermostructural composite heat shields for space transportation under any plausible geographic market definition.

8.3. Competitive assessment

8.3.1. Parties' activities

(473) Airbus is currently not active as prime contractor for space transportation requiring re-entry heat shields. According to the Parties, currently there are only two European space programmes requiring heat shields for space transportation (i) the EXOMARS programme and (ii) the IXV programme. The EXOMARS programme only uses ablative heat shields, which are supplied by Airbus. The IXV programme uses both types of heat shields, thermostructural composite heat shields and ablative heat shields. However, Airbus is active as prime contractor for other types of space transportation, such as Automated Transfer Vehicle, and is involved in another programme for an orbital transfer vehicle for removal of space debris.

(474) The Parties' activities do not horizontally overlap in relation to heat shields since their technologies are different. Airbus is only active in ablative heat shields and Safran is active in thermostructural composite heat shields. Thermostructural composite heat shields constitute a distinct product market from other types of heat shields as referred to in paragraph (470).

²⁰² Satellite prime contractor's replies to questions 15 and 16 of the Commission's request for information, 30 October 2014.

8.3.2. Assessment of potential non-horizontal effects

- (475) As regards non-horizontal effects, the Transaction creates one potential vertical relationship between Airbus as a potential prime contractor for space transportation requiring re-entry heat shields and Safran as a supplier of thermostructural composite heat shields for space transportation. Although Airbus is currently not active as prime contractor for space transportation requiring re-entry heat shields, it is active in other types of space transportation.
- (476) The Parties argue that the creation of the Joint Venture will not have any competitive impact as regards this vertical relationship since there are alternative suppliers of thermostructural composite heat shields in Europe, in particular MTA (Germany) which developed thermostructural composite heat shields for previous ESA's programmes.
- (477) Moreover, according to the Parties, [...]. The Parties added that ESA is developing a new project for a space vehicle system, the successor of IXV, but currently with no contribution of France, which could imply that there would be no French *just retour* for Safran.

Input foreclosure

- (478) During the Commission's investigation concerns were raised by a space transportation prime contractor as regards the supply of thermostructural composite heat shields for space transportation, and in particular thermal protection system made of silicon carbide. These concerns regard the possibility of the Joint Venture adopting an input foreclosure strategy against Airbus' rivals.
- (479) According to the Commission's investigation, the Joint Venture would be likely to restrict access to thermostructural composite heat shields for space transportation via a refusal to supply or more subtle forms of foreclosure like delivery delays or price discrimination.²⁰³
- (480) In the context of those concerns, the Commission examined (i) whether the Joint Venture would have, post-merger, the ability to foreclose competing space transportation prime contractors from access to thermostructural composite heat shields, (ii) whether the Joint Venture would have the incentive to do so, and (iii) whether such a foreclosure strategy would have an overall negative impact on effective competition.
- (481) For the reasons set out below, the Commission concluded that the Parties are likely to have the ability and incentive to adopt an input foreclosure strategy as regards thermostructural composite heat shields, and that such a strategy would be likely to have a negative impact on effective competition in the markets for the prime contracting of space transportation.

Ability to foreclose space transportation prime contractors from access to thermostructural composite heat shields

²⁰³ Reply to question 54 of Questionnaire Q2 – Satellite primes.

- (482) For the reasons set out below, the Commission takes the view that the Joint Venture would have the ability to foreclose space transportation prime contractors from access to thermostructural composite heat shields.
- (483) First, a space transportation prime contractor argued in the context of the Commission's market investigation that the Joint Venture's ability to adopt such input foreclosure strategies would result from the monopoly position of Safran in the supply of thermostructural composite heat shields in Europe. Moreover, and given the absence of alternatives to Safran, ESA's Procurement Rules and ESA's Best Practices would not restrict such strategies.
- (484) Second, that space transportation prime contractor argued that thermostructural composite heat shields are critical for its activity as a space transportation prime contractor, and represent around 10 % of the overall cost of a space vehicle.²⁰⁴
- (485) Third, the space transportation prime contractor stated that the IXV programme will continue in the coming five years with ESA support, which will surely require the procurement of these types of materials. The IXV flight experience will thus be a strong heritage, and therefore a considerable head-start for Safran (Herakles).²⁰⁵
- (486) The Commission's investigation confirmed that only Safran produces thermostructural composite heat shields in Europe. Avio and Airbus also produce heat shields but made of ablative materials.²⁰⁶ Moreover, the Commission's investigation showed that although the *juste retour* principle is a target which ESA tries to satisfy to the largest possible extent, it remains subject to the number of operators which are actually able to manufacture the relevant technology.
- (487) On the basis of the above and the available evidence, the Commission concludes that the Joint Venture would have the ability to foreclose space transportation prime contractors from access to thermostructural composite heat shields.

Incentive to foreclose space transportation prime contractors from access to thermostructural composite heat shields

- (488) For the reasons set out below, the Commission takes the view that the Joint Venture would have the incentive to foreclose space transportation prime contractors from access to thermostructural composite heat shields.
- (489) As regards the incentives for the Joint Venture to adopt an input foreclosure strategy, the space transportation prime contractor raising concerns with the Commission presented similar arguments to the ones described in paragraphs (342) to (353) regarding the incentive of the Joint Venture to foreclose satellite prime contractors from access to Hall-effect thrusters.
- (490) Although Airbus is currently not active as prime contractor for space transportation requiring re-entry heat shields, the Commission's investigation indicated that TAS and

²⁰⁴ Satellite prime contractor's reply to question 42 of the Commission's request for information, 16 October 2014.

²⁰⁵ Satellite prime contractor's reply to question 47 of the Commission's request for information, 16 October 2014.

²⁰⁶ Parties' reply to question 6 of the Commission's request for information, 31 October 2014.

Airbus are close substitutes for space transportation prime contracting.²⁰⁷ Therefore, by obtaining a preferable access to the thermostructural composite heat shields produced by the Joint Venture, Airbus would increase its chances of being nominated the prime contractor in future IXV or similar programmes.

(491) Moreover, given the higher value of the space transportation prime contracting activity (EUR [...]) compared with the value of thermostructural composite heat shields (EUR [...]), the gains for Airbus of adopting an input foreclosure strategy as regards thermostructural composite heat shields could potentially be higher than the eventual cost of losing some sales in the upstream markets for thermostructural composite heat shields.

(492) On the basis of the above and the available evidence, the Commission concludes that the Joint Venture would have the incentive to foreclose space transportation prime contractors from access to thermostructural composite heat shields.

Overall likely impact on effective competition

(493) A strategy by the Joint Venture to foreclose competing space transportation prime contractors from access to thermostructural composite heat shields would result in an overall negative impact on the market for space transportation prime contracting. Given the limited number of market participants, an input foreclosure strategy by the Joint Venture in favour of Airbus would significantly reduce competition in that market as it would impede the possibility of competitors to expand in that market and/or raise barriers for new entrants.

Conclusion

(494) On the basis of the above and the available evidence,, the Commission considers that the Transaction raises serious doubts as to its compatibility with the internal market as regards potential vertical relationship between the Parties' activities in relation to space transportation prime contracting and the supply of thermostructural composite heat shields for space transportation, and in particular thermal protection systems made of silicon carbide for civil re-entry bodies.

9. MISSILES

(495) Missiles are guided weapons carrying either a high explosive (tactical missiles) or a nuclear (strategic missiles) warhead, which are dedicated to State defence applications. They are composed of a number of subsystems and equipment.

9.1. Tactical missiles

9.1.1. Relevant product markets

(496) In previous decisions, the Commission considered that competition for guided weapons ("GW") and guided weapon systems ("GWS") takes place both at prime contracting level and for subsystems and equipment at subcontracting level.²⁰⁸

²⁰⁷ Satellite prime contractor's presentation submitted to the Commission on 7 October 2014.

²⁰⁸ Commission's decision of 11 May 2000 in case COMP/M.1745 - EADS, paragraph 121.

Accordingly, the relevant product markets should be defined by differentiating between prime contracting markets and equipment markets.

9.1.1.1. Prime contracting for tactical missiles

(497) A prime contractor is responsible for delivering an entire system in accordance with specified performance and reliability standards.

(498) In previous decisions, the Commission considered that GW and GWS can be classified according to product characteristics such as their point of origin and destination, their range, their use, and the type of warhead carried.²⁰⁹ As to the exact product market definition, various considerations of supply-side substitutability and procurement policies of customers, namely the ministry of defence, should be taken into account.²¹⁰

(499) However, in the view of the fact that the current Transaction does not raise serious doubts as to its compatibility with the internal market in relation to prime contracting for tactical missiles, the exact scope of the product market can be left open.

9.1.1.2. Subsystems and equipment for tactical missiles

(500) GW and GW are composed of subsystems and equipment including propulsion systems, insulation, pyrotechnic devices and valves.

(501) As regards tactical missile propulsion, the Commission previously determined that is divided into three types of technologies: SRMs²¹¹, ramjets (liquid and solid), and turbojets engines.²¹² In particular, SRMs and ramjets are not substitutable from a technical or economic point of view, as ramjets are more expensive than SRMs and provide a longer range and higher velocity.²¹³ The Parties confirm that this analysis is still valid today.

(502) SRMs are made with various components, which the Commission considered that each could constitute a separate market,²¹⁴ with the exception of three components: (i) pyrotechnic equipment, (ii) thermostructural composites; and (iii) inputs for propellant charges.

(503) In the present case, the Transaction will not raise serious doubts as to its compatibility with the internal market even if the narrowest of the potential market definitions were applied. For this reason, the exact product market definition for subsystems and equipment for tactical missiles can be left open.

²⁰⁹ Commission's decision of 27 January 1998 in case COMP/M.945 - Matra BAe Dynamics SAS / DASA / LFK, paragraphs 19-20.

²¹⁰ Commission's decision of 3 July 1998 in case COMP/M.1198 - BAE / SAAB, paragraph 18.

²¹¹ See paragraph (75).

²¹² Commission's decision of 21 April 2008 in case COMP/M.5032 - Roxel / Protac; paragraph 15; and Commission's decision of 30 March 2011 in case COMP/M.6104 - Safran / SNPE Materiaux Energetiques / Regulus, paragraph 32.

²¹³ Commission's decision of 30 March 2011 in case COMP/M.6104 - Safran / SNPE Materiaux Energetiques / Regulus, paragraph 35.

²¹⁴ Commission's decision of 30 March 2011 in case COMP/M.6104 - Safran / SNPE Materiaux Energetiques / Regulus, paragraph 37.

9.1.2. Relevant Geographic markets

9.1.2.1. *Prime contracting for tactical missiles*

- (504) In previous decisions, the Commission considered that the markets for prime contracting for tactical missiles are national when a national supplier exists, due to national preferences of the monopsonistic buyers (that is, the ministries of defence) and other administrative barriers. On the other hand, where there is no domestic supplier, competition takes place worldwide amongst suppliers of different countries, subject to barriers such as export restrictions or barriers connected with national security.²¹⁵
- (505) The Parties submit that the 2009 Directive on Defence and Security Procurement²¹⁶ constitutes a clear impulse towards an opening up of national defence procurement contracts to European based competition. Moreover, the Parties argue that tenders allowing the participation of worldwide competitors also develop in Europe.
- (506) For the purposes of this decision, however, the exact geographic market definition can be left open, since the Transaction will not raise serious doubts as to its compatibility with the internal market in relation to prime contracting for tactical missiles irrespective of the geographic market definition applied.

9.1.2.2. *Subsystems and equipment for tactical missiles*

- (507) As regards the geographic market for SRMs, the Commission previously found that markets are national where a domestic supplier exists,²¹⁷ and at least EEA-wide where no domestic supplier exists.²¹⁸
- (508) The Parties submit that, within the EEA, the evolution of SRM markets towards a European or even wider dimension has intensified, even where a domestic supplier exists. The reasons submitted by the Parties are the following: (i) the development of multinational programmes may have led to increased competition between EU subcontractors; (ii) the 2009 Directive on Defence and Security Procurement reinforces the Member States' obligations to open SRM procurement to competition within Europe; and (iii) ITAR export restrictions, which may in practice prevent European missile manufacturers from selecting American suppliers, should not be overestimated, as they contain many exceptions.
- (509) For the purposes of this decision, however, the exact geographic market definition can be left open, since the Transaction will not raise serious doubts as to its compatibility with the internal market in relation to subsystems and equipment for tactical missiles irrespective of the geographic market definition applied.

²¹⁵ Commission's decision of 3 July 1998 in case COMP/M.1198, BAE / SAAB, paragraph 22.

²¹⁶ OJ L 216, 20.8.2009, p. 76–136.

²¹⁷ Commission's decision of 31 July 2007 in case COMP/M.4653 - MBDA/Bayern-Chemie, paragraphs 21 and 23.

²¹⁸ Commission's decision of 30 March 2011 in case COMP/M.6104 - Safran / SNPE Materiaux Energetiques / Regulus, paragraph 42.

9.1.3. Competitive assessment

9.1.3.1. Parties' activities

- (510) Only Airbus is active as a prime contractor for tactical missiles, through its joint-controlling stake in MBDA, a joint venture between Airbus (37.5 %), BAE (37.5 %) and Finmeccanica (25 %). Airbus' participation in MBDA will not be contributed to the Joint Venture.
- (511) As regards subsystems and equipment for tactical missiles, Safran will contribute to the Joint Venture all its activities relating to tactical propulsion systems and other equipment.²¹⁹ Airbus is active in tactical propulsion systems through MBDA, which will not be contributed to the Joint Venture.²²⁰

9.1.3.2. Parties' arguments

- (512) The Parties submit that the Transaction will not create any horizontal overlaps between their activities on the markets for subsystems and equipment for tactical missiles. In fact, although Safran will contribute its 50 % shareholding in Roxel to the Joint Venture, Roxel is already jointly controlled by MBDA (which owns the remaining 50 %), and hence ultimately by Airbus together with BAE and Finmeccanica.²²¹
- (513) The Parties also argue that the Transaction will not result in the creation of additional vertical links between the Parties' activities in prime contracting of tactical missiles and SRMs, since [...].
- (514) Additional vertical relationships will however arise from the Transaction with regard to (i) SRMs, and pyrotechnic equipment and (ii) SRMs and thermostructural composites. MBDA and Bayern-Chemie (MBDA's wholly-owned subsidiary)²²² will gain indirect access to Safran's pyrotechnic equipment and thermostructural composites. The Parties submit that there is no risk of vertical foreclosure in the tactical missile sector as they have neither the ability nor incentive to foreclose customers or competitors of SRM.

9.1.3.3. Commission's assessment

- (515) During its investigation the Commission could confirm the Parties' arguments and no concerns were expressed about the potential effects of the Transaction in the markets for tactical missiles.²²³
- (516) On the basis of the above and the available evidence, the Commission considers that the Transaction will not raise serious doubts as to its compatibility with the internal market in relation to the markets for tactical missiles.

²¹⁹ Safran will contribute its 50 % shareholding in Roxel, Herakles's activities in solid propulsion, and PyroAlliance's activities in the tactical missile sector.

²²⁰ Airbus also holds a 26.8 % non-controlling minority interest in the Finnish provider of defence Patria, which holds 50 % of Nammo-Raufoss, a company active in SRMs for tactical missiles.

²²¹ Commission's decision of 21 April 2008 in case COMP/M.5032- ROXEL / PROTAC.

²²² Commission's decision of 31 July 2007 in case COMP/M.4653 - MBDA/ BAYERN-CHEMIE.

²²³ Ministries of defence's replies to the Commission's request for information, 4 November 2014.

9.2. Strategic missiles

9.2.1. Relevant product markets

- (517) Strategic missiles are dedicated to critical State defence applications. They have a long range and great destruction capabilities relying on nuclear warheads. In a previous decision the Commission considered that strategic missiles differ from tactical missiles since the decision to make use of strategic missiles is made at the highest levels of commandments as opposed to the use of tactical missiles, which is decided by field commandments.²²⁴ Among strategic missiles, ballistic missiles raise above the atmosphere before going down again on their target.
- (518) In previous decisions the Commission also determined that there is a relevant product market for propulsion systems for strategic missiles that is distinct from the propulsion systems for tactical weapons.²²⁵
- (519) In any case, the exact product market definitions can be left open since the outcome of competitive assessment of the Transaction would not change irrespective of the product market definitions applied.

9.2.2. Relevant geographic markets

- (520) The Commission has previously considered that each State controls the manufacturing of deterrence strategic missiles and no international market exists.²²⁶ [...].
- (521) In any case, the exact geographic market definitions can be left open since the outcome of competitive assessment of the Transaction would not change irrespective of the geographic market definitions applied.

9.2.3. Competitive assessment

9.2.3.1. Parties' activities

- (522) Both Parties have activities regarding the [...], and will transfer to the Joint Venture all their activities in that sector. Airbus is the prime contractor [...]. Airbus is also responsible for [...]. Airbus' [...].²²⁷
- (523) Safran is the prime contractor for the [...]. Herakles designs and produces [...]. PyroAlliance and Roxel [...].

9.2.3.2. Parties' arguments

- (524) The Parties submit that the Transaction will not negatively affect the structure of the French strategic ballistic missile sector since there is no horizontal overlap between

²²⁴ Commission's decision of 21 April 2008 in case COMP/M.5032- ROXEL / PROTAC, footnote 5.

²²⁵ Commission's decision of 21 April 2008 in case COMP/M.5032- ROXEL / PROTAC, paragraph 14 and Commission's decision of 30 October 2002 in case COMP/M.2938 - SNPE/MBDA/JV, paragraph 10.

²²⁶ Commission's decision of 30 March 2011 in case COMP/M.6104 - Safran / SNPE *Materiaux Energetiques / Regulus*, paragraph 28.

²²⁷ [...].

the Parties' activities contributed to the Joint Venture. [...]. In addition, the Transaction will not create any new vertical links between the Parties' activities [...].

9.2.3.3. Commission's assessment

(525) During the Commission's investigation no concerns were expressed regarding the markets for strategic missiles.²²⁸ Moreover, [...].

(526) On the basis of the above and the available evidence, the Commission considers that the Transaction will not raise serious doubts as to its compatibility with the internal market in relation to the markets for strategic missiles.

10. COMMITMENTS SUBMITTED BY THE NOTIFYING PARTIES

(527) In order to render the Transaction compatible with the internal market, the Parties have modified the Transaction by entering into commitments in relation to: (i) electric satellite propulsion subsystems, (ii) carbon-carbon cylinders, for optical instruments for space applications, (iii) thermal protection systems made of silicon carbide for civil re-entry bodies, (iv) SAPT and (v) the transmission of confidential information.

(528) The Parties submitted three successive sets of commitments on 5 November, 18 November and 21 November 2014 in order to address the competition concerns raised by the Commission. The Final Commitments (that is, the commitments submitted on 21 November 2014) are annexed to this decision and form an integral part thereof.

10.1. Framework for the Commission's assessment of commitments

(529) Where a concentration raises serious doubts as to its compatibility with the internal market, the Parties may undertake to modify the concentration so as to remove the grounds for the serious doubts identified by the Commission with a view to having the Transaction approved in phase I of the merger review procedure. In this respect, the Commission has the power to accept commitments provided that they are deemed capable of rendering the concentration compatible with the internal market.

(530) As set out in the Commission Notice on Remedies,²²⁹ the commitments have to eliminate the competition concerns entirely and have to be comprehensive and effective from all points of view and must be capable of being implemented effectively within a short period of time as the conditions of competition on the market will not be maintained until the commitments have been fulfilled.²³⁰

(531) In assessing whether or not commitments will restore effective competition, the Commission considers the type, scale and scope of the commitments by reference to the structure and the particular characteristics of the market in which the competition concerns arise.²³¹ In the present case, and in particular taking into account the specificities of the space industry, commitments other than divestiture commitments also appear suited to address some of the concerns raised.

²²⁸ Ministries of defences' replies to the Commission's request for information, 4 November 2014.

²²⁹ Commission Notice on remedies acceptable under Council Regulation (EEC) No 139/2004 and under Commission Regulation (EC) No 802/2004 (OJ C 267, 22.10.2008, p. 1-27).

²³⁰ Commission Notice on remedies, paragraph 9.

²³¹ Commission Notice on remedies, paragraph 12.

10.2. Initial Commitments

10.2.1. Description of the Initial Commitments proposal

(532) The Parties submitted on 5 November 2014 a first set of commitments. After some small modifications to that version, the Parties submitted on 10 November 2014 amended commitments ("Initial Commitments proposal") which were market tested.

(533) In the Initial Commitments proposal, the Parties proposed:

- A "Non-Contribution Commitment", that is:

- not to contribute to the Joint Venture the electric satellite propulsion activities of Safran (Snecma) as regards the development, testing, manufacturing and sale of Hall-effect thrusters for satellites, as well as the design and production of electric propulsion modules and assembly (altogether "the Excluded Business"). The Excluded Business includes all the assets and staff necessary to ensure the viability and competitiveness of the Excluded Business, in particular: (i) all tangible and intangible assets (including intellectual property rights), with the exception of the production means concerned by the Utilisation Agreement²³², (ii) all licences, permits and authorisations issued by any governmental organisation for the benefit of the Excluded Business; (iii) all contracts, leases, commitments and customer orders of the Excluded Business; and (iv) the personnel;
- for a period of five years after the Commission's clearance decision in the present merger control proceeding (i) not to transfer to the Joint Venture the possibility of exercising influence on the Excluded Business and (ii) to include in the Excluded Business an Utilisation Agreement to be signed between the Excluded Business and the Joint Venture allowing the Excluded Business to use some production means to be contributed to the Joint Venture by Safran.
- to ensure that this Utilisation Agreement would not allow for the transfer of any competitively sensitive information from the Excluded Business to the Joint Venture.
- to appoint a trustee to monitor the implementation of the previously described measures.

- A "Supply Assurance Commitment", that is:

- to guarantee, for a period of five years after the Commission's clearance decision in the present merger control proceeding, that the Joint Venture would bid for, whenever invited, and supply, if selected, (i) carbon-carbon cylinders for optical instruments for space applications, (ii) thermal protection systems made of silicon carbide for civil re-entry bodies, (iii) SAPT (the "Commitments Equipment"), for civil use to any third party prime contractor.

²³² The Utilisation Agreements will be concluded between the Excluded Business and the Joint Venture allowing the Excluded Business to use some production means ([...]) to guarantee the production of Hall-effect thrusters. Those production means shall be operated [...] without involvement on the Joint Venture.

To this end, the Joint Venture would propose supply agreements on contractual terms which are non-discriminatory, on a standard commercial basis.

- ii. to include confidentiality clauses in any agreement entered into between the Joint Ventures and a third party prime contractor.
- iii. to create a fast-track dispute resolution mechanism that would be overseen and arbitrated by ESA.

10.2.2. Assessment of the Initial Commitments proposal

(534) The Commission assessed the appropriateness of the Initial Commitments proposal in the light of the principles underlying its commitments policy and carried out a first market test.

(535) In light of the results of the market test, the Initial Commitments proposal was considered a potential starting point to remove the competitive concerns identified by the Commission with regard to (i) electric satellite propulsion subsystems, (ii) the Commitments Equipment and (iii) the transmission of confidential information between Airbus and the Joint Venture. However, as indicated by some respondents to the market test the Initial Commitments proposal could not fully remove the concerns for the following reasons.

(536) As mentioned by a number of respondents to the Commission's market test the five year time period limitation foreseen both in the Non-Contribution Commitment and the Supply Assurance Commitment does not appear to be sufficient to ensure the lasting effectiveness of the Initial Commitments, in view of the manufacturing and life cycle of the products concerned and the considerable time needed for alternative suppliers to enter the market with the required track record and certifications.

(537) As regards the Non-Contribution Commitment, one respondent mentioned that "*a period of 10 years would ensure true competition would have time to develop and broaden the advancement of this technology for the benefit of all stakeholders*".²³³ Another respondent stated that "*the commitments remain unclear as to the timeframe in which the Excluded Business will provide technical support (...) the last thrusters sold by Snecma just prior to the JV transfer, support which could continue to be needed 15 to 17 years after the last thruster system is delivered*".²³⁴

(538) As regards the Supply Assurance Commitment, one respondent mentioned that "*the limitation of the Supply Assurance to a period of five years is insufficient. Such obligation should at least be undertaken for ten years (...) based on a ten-year rotation period for each technology*".²³⁵

(539) A number of respondents to the Commission's market test considered that the role of the trustees for both commitments should be strengthened in terms of compliance monitoring and reporting to ensure the effectiveness of the Initial Commitments.

²³³ Replies to question 2 of Questionnaire Q1 - Remedies market test.

²³⁴ Replies to questions 2 and 6 of Questionnaire Q1 - Remedies market test.

²³⁵ Replies to question 14 of Questionnaire Q2 - Remedies market test.

- (540) As regards the Non-Contribution Commitment, some respondents to the Commission's market test indicated the need for the trustee to annually monitor the effective separation of the Excluded Business. One respondent mentioned that *"the effectiveness of this Commitment, i.e not only the separation between the Excluded Business and the JV, but maintaining the Excluded business as a standalone activity needs to be closely monitored."*²³⁶
- (541) As regards the Supply Assurance Commitment, respondents stated that *"the Supply trustee should be maintained for ten years and Arbitration procedure should be maintained indefinitely"* and *"the length of the monitoring period should be determined based on the duration of the remedy, i.e. at least 10 years"*.²³⁷
- (542) Moreover, some respondents to the market test stated that the Initial Commitments proposal was not sufficient to remove all concerns regarding the transmission of confidential information.
- (543) Some particular concerns were also raised by respondents to the Commission's market test. In particular, one respondent was concerned that the Joint Venture would develop its own electric propulsion activity, notably using as a starting point the production assets contributed to the Joint Venture and for which the Joint Venture would allow the Excluded Business to operate these assets. If the Joint Venture were to succeed in developing its own electric propulsion activity the commitments would effectively be circumvented.²³⁸
- (544) As regards the Supply Assurance Commitment, one respondent mentioned that more details about the conditions under which it would be applicable were needed. In particular, the respondent indicated that the text should include (i) detailed information as regards conditions in terms of price and deliveries, (ii) a provision that the Joint Venture would be restricted from applying more favourable conditions to Airbus, and (iii) a provision that the Joint Venture would supply the Commitments Equipment to any third party.²³⁹ Moreover, a respondent mentioned the need of a bilateral contract between the Joint Venture and potential customers.²⁴⁰
- (545) The Commission concluded that the Initial Commitments proposal could not fully remove the serious doubts identified by it and informed the Parties accordingly.

10.3. Second Commitments proposal

10.3.1. Description of the Second Commitments proposal

- (546) The Parties submitted a Second Commitments proposal on 18 November 2014 aimed at addressing the shortcomings identified with regard to the Initial Commitments proposal.
- (547) The Second Commitments Proposal introduced the following improvements:

²³⁶ Replies to question 4 of Questionnaire Q1 - Remedies market test.

²³⁷ Replies to question 14 of Questionnaire Q2 - Remedies market test.

²³⁸ Replies to question 7 of Questionnaire Q 2- Remedies market test.

²³⁹ Replies to question 11 of Questionnaire Q2 - Remedies market test.

²⁴⁰ Replies to question 10 of Questionnaire Q2 - Remedies market test.

- i. an extension of the time period limitation from five to 10 years for both the Non-Contribution Commitment and the Supply Assurance Commitment;
- ii. strengthening of monitoring powers of the trustees;
- iii. a commitment not to transfer the key assets of the Excluded Business to the Joint Venture within 10 years of the Commission's clearance decision in the present merger control proceeding;
- iv. a commitment to use best efforts to conclude a framework agreement with Safran's current main customer for the Commitments Equipment for civil use;
- v. establishing of a benchmark based on previous contracts for the conditions of the Supply Assurance Commitment; and
- vi. the inclusion of confidentiality clauses also in existing agreements between Safran and any third party prime contractor.

10.3.2. Assessment of the Second Commitments proposal

(548) The Commission carried out a limited second market test, on the basis of which it could confirm the significant progress achieved in comparison with the Initial Commitments proposal.

(549) However, as indicated by one respondent to the market investigation, some concerns still remained, namely regarding (i) the risk that Safran would stop developing the Excluded Business; (ii) the risk of the transmission of confidential information to Airbus in the context of the supply of the Commitments Equipment; (iii) the restricted scope of the use of the Commitments Equipment (that is only for civil missions); and (iv) the definition of the evolution of the next generation of the Commitments Equipment.²⁴¹

(550) The Commission concluded that the Second Commitments proposal could not fully remove the serious doubts identified by it and informed the Parties accordingly.

10.4. Final Commitments

10.4.1. Description of the Final Commitments

(551) The Parties submitted the Final Commitments on 21 November 2014.

(552) In the Final Commitments, the Parties commit as follows:

- Non-Contribution Commitment, pursuant to which the Parties will:
 - (i) not contribute to the Joint Venture the Excluded Business for a period of 10 years following the date of the Commission's clearance decision in the present merger control proceeding;
 - (ii) not transfer to the Joint Venture the possibility of exercising influence over the Excluded Business and the key assets of the Excluded Business for a

²⁴¹ Replies to Questionnaire 2nd Remedies market test.

period of 10 years following the date of the Commission's clearance decision in the present merger control proceeding;

- (iii) sign an Utilisation Agreement between the Excluded Business and the Joint Venture which allows the Excluded Business and its personnel to use some production means transferred to the Joint Venture by Safran, for a transitional period of up to 10 years after the date of the Commission's clearance decision in the present merger control proceeding, and on a standard commercial basis;
- (iv) implement all necessary measures to ensure that the Joint Venture does not obtain any confidential information relating to the Excluded Business and that any such confidential information obtained by activities/personnel to be transferred to the Joint Venture will be eliminated and not be used by the Joint Venture;²⁴² and
- (v) appoint a Trustee, to be approved by the Commission, to supervise the implementation of the Non-Contribution Commitment and provide an annual report to the Commission about the Utilisation Agreement and the transmission of confidential information.

• Supply Assurance Commitment, pursuant to which the Parties will:

- (i) use their best efforts to conclude a framework supply agreement with Safran's current main customer, [...], regarding the Commitments Equipment²⁴³ within [...] months following the date of the Commission's clearance decision in the present merger control proceeding renewable once for another period of [...] months. The framework supply agreement should be in line with the principles agreed between the Parties and [...] in a Memorandum of Agreement, monitored by ESA and approved by the Commission;
- (ii) bid for, and supply, if selected, the Commitments Equipment at the demand of any third party prime contractor, using the conditions of the framework supply agreement with [...] as a benchmark, for a period of 10 years following the date of the Commission's clearance decision in the present merger control proceeding. Should the Parties not reach a framework supply agreement with [...], they commit to give ESA all the information contained in past agreements to serve as a benchmark for the supply of the Commitments Equipment to any third party prime contractor;

²⁴² This does not cover information that Airbus has and will have access to through its normal commercial relationship with the Excluded Business.

²⁴³ The Supply Assurance Commitments will also apply to new generation of products to be developed by the Joint Venture derived from or replacing the Commitments Equipment already supplied by Safran based on the need to replace obsolete components or derived from the introduction of new technologies and/or presenting equivalent or better specifications to the existing products, namely: (i) evolutions of SAPT for satellites; (ii) development of carbon/carbon stable structures of any shape for optical or scientific space missions; and (iii) development of thermal protection system made from silicon carbide material for civil re-entry bodies (heat shield) deriving from the IXV programme.

- (iii) include in, any such agreement (or already existing agreements for the supply of the Commitments Equipment) a confidentiality clause to protect information disclosed by the prime contractor to the Joint Venture; and
- (iv) appoint ESA to monitor the implementation of this commitment, and arbitrate any dispute between the Joint Venture and a third party prime contractor arising from the claim that the Joint Venture is failing to comply with the Supply Assurance Commitment, and in the failure of the complainant and the Joint Venture to first reach an amicable settlement.

10.4.2. Assessment of the Final Commitments

Non-Contribution Commitment

- (553) The Non-Contribution Commitment will remove the ability of the Joint Venture to adopt an input foreclosure strategy and the incentives of Airbus to adopt a customer foreclosure strategy regarding electric satellite propulsion subsystems as well as the risk of the transmission of confidential information between the Joint Venture and Airbus for the following reasons.
- (554) First, the Non-Contribution Commitment, by eliminating any influence of Airbus on Safran's Hall-effect thruster activities, will remove the Joint Venture's potential incentive to adopt an input foreclosure strategy as regards this product.
- (555) The vertical relationship between Airbus, as a satellite prime contractor, and Safran, as a supplier of electric satellite propulsion subsystems, will be entirely outside the Joint Venture given that both activities will not be contributed to the Joint Venture. Thus, Safran as the sole owner of the Excluded Business will not have an interest in selling its Hall-effect thrusters under more favourable conditions to Airbus.
- (556) As regards the consideration that Airbus could eventually try to compensate Safran within the Joint Venture to obtain a preferential treatment, as explained above in paragraph (347), such risk is also not significant post-implementation of the Final Commitments. Indeed Airbus will not be in a position to monitor any potential deviation by the Excluded Business regarding a preferential treatment since Airbus will not have access to any information about the Excluded Business' sales. Moreover, and contrary to the case where Safran's electric satellite propulsion subsystem activities would be contributed to the Joint Venture (and in which case Safran would retain an interest of 50 % in those activities), Safran would be sacrificing not only half but the totality of any losses associated with an input foreclosure strategy. Thus any such hypothetical compensation would imply too high sacrifices to be borne by Airbus.
- (557) Second, the Non-Contribution Commitment will remove any incentives for the adoption of a customer foreclosure strategy by Airbus. Since Airbus will not have any financial interest in the sale of Safran's electric satellite propulsion subsystems, it will not have an incentive to give preference to buying such subsystems from the Excluded Business in case there are equivalent, or better, options available in the market.
- (558) The Commission notes that the customer foreclosure concern would not have been removed if only a Supply Assurance Commitment had been proposed by the Parties. In that case, Airbus would still keep its financial interest in the sales of Safran's Hall-effect thrusters, and would therefore have reduced incentives to procure this product from other suppliers.

- (559) Third, the Non-Contribution Commitment will remove any risk of transmission of confidential information between Airbus and the Joint Venture since neither the satellite prime contracting activities nor the electric satellite propulsion subsystems activities will be contributed to the Joint Venture. In fact, Airbus will not have access to any information received by Safran in the context of the supply of electric satellite propulsion subsystems to other satellite prime contractors. Likewise, Safran will not be able to obtain any information received by Airbus in the context of its procurement of satellite propulsion subsystems from other suppliers.
- (560) The presence of a trustee monitoring the independence between Safran's activities in electric satellite propulsion systems and the Joint Venture will also guarantee the absence of any influence by Airbus on the Excluded Business and the transmission of confidential information regarding third parties.
- (561) Finally, the Commission considers that the application of the Non-Contribution Commitment extension of the commitment for a period of 10 years is sufficient to guarantee that the Excluded Business will be viable on a long-lasting basis.
- (562) The large majority of market participants also stated that the Non-Contribution Commitment removes the competition concerns raised by the Transaction.²⁴⁴
- (563) Only one satellite prime contractor mentioned that there was a risk that Safran would stop developing its Hall-effect satellite propulsion subsystems in case the Joint Venture were to develop its own electric satellite propulsion activity. However, such strategy does not seem likely since the Final Commitments include anti-circumvention measures, pursuant to which:
- i. Safran will not be able to transfer the key assets of its electric satellite propulsion activities, including the necessary intellectual property rights and licences to the Joint Venture for a period of 10 years, which implies that the Joint Venture would have to make significant and time intensive investments to become active in Hall-effect propulsion; and
 - ii. even if the Joint Venture were to start its own electric satellite propulsion activities, Safran would be sacrificing the totality of its profits for Hall-effect propulsion activities in order to obtain only 50 % of the potential Joint Venture's profits with electric satellite propulsion subsystems.
- (564) Overall, the Commission considers that those elements will allow for an effective enforcement of and ensure an effective implementation of the Non-Contribution Commitment.

Supply Assurance Commitment

- (565) The Supply Assurance Commitment will remove the ability of the Joint Venture to adopt an input foreclosure strategy as regards (i) carbon-carbon cylinders for optical instruments for space applications, (ii) thermal protection system made of silicon carbide for civil re-entry bodies and (iii) SAPT. This is because the Supply Assurance Commitment guarantees to Safran's current main customer and to any third party prime contractor access to those products on a non-discriminatory basis.

²⁴⁴ Replies to question 1 of Questionnaire Q1 – Remedies market test.

- (566) First, the Parties enter into a commitment to conclude a framework supply agreement with [...] within [...] months. That period can be prolonged once by [...] months at the request of both [...] and the Parties.
- (567) Second, the Parties enter into a commitment to benchmark the conditions in that future framework supply agreement on the basis of the conditions agreed in past agreements between [...] and the Parties. The Parties need to objectively justify deviations from those benchmark conditions on the basis of substantiated changes of proven costs, technologies and customer requirements.
- (568) Third, the Parties enter into a commitment to supply the Commitments Equipment to third party prime contractors. The basis of the applicable supply conditions is equally to be determined on the basis of the conditions agreed in past agreements, whereby the Parties need to objectively justify deviations from those benchmark conditions.
- (569) Fourth, a strong role is given to ESA for the monitoring of the negotiation of the framework supply agreement with [...] and in the monitoring and arbitration of disputes regarding the supply of the Commitments Equipment to third party prime contractors.
- (570) [...], the Commission considers that the Supply Assurance Commitment is sufficient to ensure access to those products at competitive conditions and may thus eliminate the competition concerns.²⁴⁵ Moreover, and since it cannot be excluded that in future other customers may also require access to these products, the commitments also foresee that the Commitments Equipment will also be available to them.
- (571) A divestiture of the Commitments Equipment's activities is not feasible since those activities are incorporated in business units that produce several other products and whose production resources are not segmented (for example, there is no personnel dedicated solely to the production of the Commitments Equipment).²⁴⁶
- (572) The Commission considers that a benchmark based on past contracts, with any eventual deviations being subject to objective justifications, is objective and sufficient to ensure the effectiveness of the Supply Assurance Commitment. This is because a supply assurance, and not necessarily price, is the most important variable for customers of the Commitments Equipment.
- (573) The Commission notes that the Supply Assurance Commitment will need to be implemented, through agreements, the terms and conditions of which do not form an integral part of the Final Commitments but which are the means by which they will be implemented in practice. Those agreements and their terms and conditions will need to be consistent with the Final Commitments to ensure their effectiveness and cannot include terms and conditions endangering their effective implementation.
- (574) The Supply Assurance Commitment will also remove the risk of transmission of confidential information between Airbus and the Joint Venture given the obligation for the Parties to include a confidentiality clause in each agreement that aims to protect information disclosed by the prime contractors to the Joint Venture. The

²⁴⁵ Commission's decision of 2 September 2003 in case COMP/M.3083 - GE/Instrumentarium, and Commission's decision of 30 April 2003 in case COMP/M.2861 - Siemens/Draegerwerk.

²⁴⁶ Parties' reply to question 4 of the Commission's request for information, 16 October 2014.

confidentiality clauses are also to be included in existing contracts in order to ensure that current exchange of information will be protected by the Final Commitments.

- (575) Overall, the Commission considers that those elements will allow for an effective enforcement and ensure an effective implementation of the Supply Assurance Commitment.

10.4.3. Conclusion on the Final Commitments

- (576) For the reasons outlined above, the Final Commitments submitted by the Parties are sufficient to eliminate the serious doubts as to the compatibility of the Transaction with the internal market and with the functioning of the EEA Agreement.

11. CONDITIONS AND OBLIGATIONS

- (577) Under the first sentence of the second subparagraph of Article 6(2) of the Merger Regulation, the Commission may attach to its decision conditions and obligations intended to ensure that the undertakings concerned comply with the Commitments they have entered into vis-à-vis the Commission with a view to rendering the concentration compatible with the internal market.

- (578) The achievement of the measure that gives rise to the change of the market is a condition, whereas the implementing steps which are necessary to achieve this result are generally obligations on the parties. Where a condition is not fulfilled, the Commission's decision declaring the concentration compatible with the internal market no longer stands. Where the undertakings concerned commit a breach of an obligation, the Commission may revoke the clearance decision in accordance with Article 8(6)(b) of the Merger Regulation. The undertakings concerned may also be subject to fines and periodic penalty payments under Articles 14(2) and 15(1) of the Merger Regulation.

- (579) In accordance with the basic distinction between conditions and obligations, the decision in this case is conditional on full compliance with the requirements set out in section B and D of the Final Commitments (conditions), whereas the remaining sections of the Final Commitments constitute obligations on the Parties.

12. CONCLUSION

- (580) For the above reasons, the Commission has decided not to oppose the Transaction as modified by the Final Commitments and to declare it compatible with the internal market and with the functioning of the EEA Agreement, subject to full compliance with the conditions in sections B and D of the Final Commitments annexed to the present decision and with the obligations contained in the other sections of the Final Commitments. This decision is adopted in application of Article 6(1)(b) in conjunction with Article 6(2) of the Merger Regulation and Article 57 of the EEA Agreement.

For the Commission
(Signed)
Margrethe VESTAGER
Member of the Commission

Case M.7353 – Airbus/Safran/JV
COMMITMENTS TO THE EUROPEAN COMMISSION

In accordance with Article 6(2) of Council Regulation (EC) No 139/2004 (the “**Merger Regulation**”), Airbus Group and Safran (“**the Notifying Parties**”), acting for themselves and on behalf of the new joint-controlled entity to be created pursuant to the present merger case (the “**Joint Venture**”, altogether “**the Parties**”), hereby enter into the following commitments (“**Commitments**”) with a view to enable the European Commission (the “**Commission**”) to declare the creation of the Joint Venture between the Parties notified in Case M.7353 (the “**Concentration**”) compatible with the internal market and the functioning of the EEA Agreement by dispelling the Commission's concerns as set out in the Commission's preliminary assessment provided during the State of Play Meeting dated 29 October 2014 in the context of its investigation in the present case.

This text shall be interpreted in light of the Commission's decision pursuant to Article 6(1)(b) of the Merger Regulation to declare the Concentration compatible with the internal market and the functioning of the EEA Agreement (the “**Decision**”), in the general framework of European Union law, in particular in light of the Merger Regulation, and by reference to the Commission Notice on remedies acceptable under Council Regulation (EC) No 139/2004 and under Commission Regulation (EC) No 802/2004 (the “**Remedies Notice**”).

Section A. Definitions

For the purpose of the Commitments, the following terms shall have the following meaning:

Affiliated Undertakings: undertakings controlled by the Parties and/or by the ultimate parents of the Parties, including the joint venture, whereby the notion of control shall be interpreted pursuant to Article 3 of the Merger Regulation and in light of the Commission Consolidated Jurisdictional Notice under Council Regulation (EC) No 139/2004 on the control of concentrations between undertakings (the “**Consolidated Jurisdictional Notice**”).

Assets: the assets that contribute to the current operation or are necessary to ensure the viability and competitiveness of the Excluded Business as indicated in Section B, paragraphs 5 and 6 and described in more detail in Confidential Schedule 1.

Commitments Equipment: Carbon/Carbon cylinder for optical instruments for space applications, Thermal Protection System made of Silicon carbide (SiC) for civil re-entry bodies, and Standard Accuracy Pressure Transducer for satellites currently manufactured by Safran (Herakles).

Commitments Equipment Activity: the activity of the Joint Venture relating to the Commitments Equipment.

Confidential Information: any business secrets, know-how, commercial information, or any other information of a proprietary nature that is not in the public domain.

Conflict of Interest: any conflict of interest that impairs the Non Contribution Trustee's objectivity and independence in discharging its duties under the Commitments.

Deputy Supply Trustee and Arbitrator: a natural person designated as provided in paragraph 36 hereunder who is approved by the Commission and who is in charge of replacing the Arbitrator in the event of absence or incapacity of the Arbitrator.

Dispute: any dispute between the Joint Venture and a Third Party Prime Contractor relating to the Commitment set out in Section D.

Effective Date: the date of adoption of the Decision.

Excluded Business: the business or businesses as defined in Section B and in Confidential Schedule 1 which the Notifying Parties commit not to contribute to the Joint Venture. [...].

Key Personnel: all personnel necessary to maintain the viability and competitiveness of the Excluded Business, as listed in Confidential Schedule 1.

Non Contribution Trustee: a person appointed in accordance with Section C.

Personnel: all staff currently employed by the Excluded Business, including staff seconded to the Excluded Business, shared personnel as well as the additional personnel listed in Confidential Schedule 1, which cover all the functions involved in the Excluded Business ([...]).

Phase 1 Closing: [...].

Phase 2 Closing: [...].

Supply Trustee and Arbitrator: a natural person designated as provided in paragraph 35 hereunder who is in charge of the enforcement of the Supply Monitoring and Arbitration Commitment.

Third Party Prime Contractors: prime contractors for satellites and for civil re-entry space vehicle systems, other than Airbus.

Third Party Prime Contractor Information: competitively sensitive information relating to Third Party Prime Contractors including, but not limited to, information relating to any and all proposals and offers, technology, costs, suppliers, designs, sketches, preliminary drawings, plans, test results, specifications, pricing, technical interface information or data.

Section B. The Commitment not to contribute the Excluded Business

Commitment not to contribute

1. The Notifying Parties commit not to contribute the Excluded Business to the Joint Venture either at Phase 1 or Phase 2 Closing.
2. The Notifying Parties commit in particular that Phase 2 Closing shall not take place until the Excluded Business has been separated from other activities to be contributed to the Joint Venture.
3. The Notifying Parties shall be deemed to have complied with this Commitment if:
 - (a) the Assets and Personnel attached to the Excluded Business – as described in **Confidential Schedule 1** – are kept within the Safran Group and not transferred to the Joint Venture at Phase 1 Closing, [...]; and
 - (b) at Phase 2 Closing, the Excluded Business has been maintained as a standalone business within a legal entity of the Safran Group distinct from the Joint Venture.

4. In order to maintain the structural effect of the Commitments, the Notifying Parties shall, for a period of ten (10) years after Effective Date, not transfer to the Joint Venture, whether directly or indirectly, the possibility of exercising influence (as defined in paragraph 43 of the Remedies Notice, footnote 3) over the whole or part of the Excluded Business, nor shall the Notifying Parties transfer directly or indirectly the key assets of the Excluded Business to the Joint Venture unless, following the submission of a reasoned request from the Notifying Parties showing good cause and accompanied by a report from the Non Contribution Trustee, the Commission finds that the structure of the market has changed to such an extent that the absence of influence over the Excluded Business is no longer necessary to render the proposed concentration compatible with the internal market.

Structure and definition of the Excluded Business

5. The Excluded Business consists of the electric satellite propulsion activities carried out by Snecma, a fully-owned subsidiary of Safran [...]. The structure of the Excluded Business as operated to date is described in **Confidential Schedule 1**. The Excluded Business, described in more detail in **Confidential Schedule 1**, includes all assets and staff that contribute to the current operation or are necessary to ensure the viability and competitiveness of the Excluded Business, in particular:
 - (a) all tangible and intangible assets (including intellectual property rights), to the exception of the production means concerned by the utilisation agreement mentioned in paragraph 6 hereunder;
 - (b) all licences, permits and authorisations issued by any governmental organisation for the benefit of the Excluded Business;
 - (c) all contracts, leases, commitments and customer orders of the Excluded Business; and
 - (d) the Personnel.
6. In addition, the Excluded Business will include a utilisation agreement to be signed between the Excluded Business and the Joint Venture allowing the Excluded Business and its Personnel to use some production means transferred to the Joint Venture by Safran, as detailed in **Confidential Schedule 1**, for a transitional period of up to ten (10) years after Effective Date and on a standard commercial basis. The Parties commit to ensure that this utilisation agreement will not allow for the transfer of any competitively sensitive information related to, or arising from the Excluded Business to be shared with personnel of the Joint Venture.

Ring-fencing

7. Safran shall implement, or procure to implement, all necessary measures to ensure that the Joint Venture does not, after the Effective Date, obtain any Confidential Information relating to the Excluded Business and that any such Confidential Information obtained by activities/personnel to be transferred to the Joint Venture before Effective Date will be eliminated and not be used by the Joint Venture. This Commitment does not cover, however, information that Airbus has and will have access to through its normal commercial relationship with the Excluded Business.

Section C. Non Contribution Trustee

Appointment Procedure

8. The Notifying Parties shall appoint one Non Contribution Trustee to carry out the functions specified in paragraph 16 hereunder.
9. The Non Contribution Trustee shall:
 - (i) at the time of appointment, be independent of the Parties and their Affiliated Undertakings;
 - (ii) possess the necessary qualifications to carry out its mandate, for example have sufficient relevant experience as an investment banker or consultant or auditor; and
 - (iii) neither have nor become exposed to a Conflict of Interest.
10. The Non Contribution Trustee shall be remunerated by the Notifying Parties in a way that does not impede the independent and effective fulfillment of its mandate.

Proposal by the Parties

11. No later than two weeks after the Effective Date, the Notifying Parties shall submit the name or names of one or more natural or legal persons whom the Notifying Parties propose to appoint as the Non Contribution Trustee to the Commission for approval. The proposal shall contain sufficient information for the Commission to verify that the proposed Trustee fulfills the requirements set out in paragraph 9 above and shall include the full terms of the proposed mandate, including all provisions necessary to enable the Trustee to fulfill its duties under these Commitments and the outline of a work plan which describes how the Non Contribution Trustee intends to carry out its assigned tasks.

Approval or rejection by the Commission

12. The Commission shall have the discretion to approve or reject the proposed Non Contribution Trustee and to approve the proposed mandate subject to any modifications it deems necessary for the Non Contribution Trustee to fulfil its obligations. If only one name is approved, the Notifying Parties shall appoint or cause to be appointed the person or persons concerned as Non Contribution Trustee, in accordance with the mandate approved by the Commission. If more than one name is approved, the Notifying Parties shall be free to choose the Non Contribution Trustee to be appointed from among the names approved. The Non Contribution Trustee shall be appointed within one week of the Commission's approval, in accordance with the mandate approved by the Commission.

New proposal by the Parties

13. If all the proposed Trustees are rejected, the Notifying Parties shall submit the names of at least two more natural or legal persons within one week of being informed of the rejection, in accordance with paragraphs 11 and 12 of these Commitments.

Non Contribution Trustee nominated by the Commission

14. If all further proposed Non Contribution Trustees are rejected by the Commission, the Commission shall nominate a Trustee, whom the Notifying Parties shall appoint,

or cause to be appointed, in accordance with a trustee mandate approved by the Commission.

Mission of the Non Contribution Trustee

15. The Non Contribution Trustee shall assume its specified duties and obligations in order to ensure compliance with the Commitment described in Section B above. The Commission may, on its own initiative or at the request of the Non Contribution Trustee or the Notifying Parties, give any orders or instructions to the Trustee in order to ensure compliance with the Commitment described in Section B above.

Duties and obligations of the Non Contribution Trustee

16. The Non Contribution Trustee shall supervise the implementation of the Commitment described in Section B above and in particular shall :
- (i) monitor the keeping separate of the Excluded Business retained by Safran from the business to be contributed by Safran to the Joint Venture at Phase 1 and Phase 2 Closings, in particular monitor the splitting of assets and the allocation of personnel between the Excluded Business and the Joint Venture or its Affiliated Undertakings;
 - (ii) with respect to Confidential Information:
 - determine all necessary measures to ensure that the Joint Venture does not after the Effective Date obtain any Confidential Information relating to the Excluded Business,
 - make sure that any Confidential Information relating to the Excluded Business obtained before the Effective Date by activities/personnel to be transferred to the Joint Venture is eliminated and will not be used by the Joint Venture; and
 - decide whether such information may be disclosed to or kept by the Joint Venture as the disclosure is required by law;
 - (iii) propose to the Notifying Parties such measures as the Non Contribution Trustee considers necessary to ensure the Notifying Parties' compliance with the Commitment described in Section B above;
 - (iv) promptly report in writing to the Commission, sending the Notifying Parties non-confidential copies at the same time, if it concludes on reasonable grounds that the Notifying Parties are failing to comply with the Commitment described in Section B above;
 - (v) provide to the Commission, sending the Notifying Parties non-confidential copies at the same time, a written report at least one month before Phase 2 Closing that shall cover the splitting of assets and the allocation of personnel between the Excluded Business and the Joint Venture or its Affiliated Undertakings, as well as the measures taken to ensure the ring-fencing of the Confidential Information, so that the Commission can assess whether the Excluded Business is separated in a manner consistent with the Commitment described in Section B above;

- (vi) following Phase 2 Closing, provide to the Commission, sending the Notifying Parties non-confidential copies at the same time, an annual report regarding the implementation of paragraphs 4 and 7 of these Commitments.
- 17. The Non Contribution Trustee shall provide a detailed work plan to the Commission within one (1) month of its appointment, sending a copy to the Notifying Parties at the same time, describing how it intends to carry out its mandate.

Duties and obligations of the Notifying Parties

- 18. The Notifying Parties shall provide and shall cause its advisors to provide the Non Contribution Trustee with all such co-operation, assistance and information as the Non Contribution Trustee may reasonably require to perform its tasks. Safran and the Excluded Business shall provide the Non Contribution Trustee upon request with copies of any document, and shall be available for meetings in order to provide the Non Contribution Trustee with all information, reasonably necessary for the performance of its tasks.
- 19. The Notifying Parties shall indemnify the Non Contribution Trustee and its employees and agents (each an “**Indemnified Party**”) and hold each Indemnified Party harmless against, and hereby agrees that an Indemnified Party shall have no liability to the Notifying Parties for, any liabilities arising out of the performance of the Non Contribution Trustee’s duties under the Commitments, except to the extent that such liabilities result from the wilful default, recklessness, gross negligence or bad faith of the Trustee, its employees or agents.
- 20. Safran agrees that the Commission may share Confidential Information proprietary to Safran with the Non Contribution Trustee. The Non Contribution Trustee shall not disclose such information and the principles contained in Article 17 (1) and (2) of the Merger Regulation apply *mutatis mutandis*.
- 21. For a period of ten (10) years from the Effective Date, the Commission may request all information from the Parties that is reasonably necessary to monitor the effective implementation of the Commitment described in Section B.

Replacement, discharge and reappointment of the Non Contribution Trustee

- 22. If the Non Contribution Trustee ceases to perform its functions under the Commitments or for any other good cause, including the exposure of the Non Contribution Trustee to a Conflict of Interest:
 - (a) the Commission may, after hearing the Non Contribution Trustee and the Notifying Parties, require the Notifying Parties to replace the Non Contribution Trustee; or
 - (b) the Notifying Parties may, with the prior approval of the Commission, replace the Non Contribution Trustee.
- 23. If the Non Contribution Trustee is removed according to paragraph 22 of these Commitments, the Trustee may be required to continue in its function until a new Non Contribution Trustee is in place to whom the Non Contribution Trustee has effected a full hand over of all relevant information. The new Non Contribution Trustee shall be appointed in accordance with the procedure referred to in paragraphs 11-14 of these Commitments.

24. Unless removed according to paragraph 22 of these Commitments, the Non Contribution Trustee shall cease to act as Trustee only after the Commission has discharged it from its duties after the Commitment described in Section B above has been implemented. However, the Commission may at any time require the reappointment of the Non Contribution Trustee if it subsequently appears that the relevant remedies might not have been fully and properly implemented.

Section D. Supply Assurances

25. The Notifying Parties undertake that for a period of ten (10) years after Effective Date, the Joint Venture will bid for, whenever invited, and supply, if selected, the Commitments Equipment to any Third Party Prime Contractor who so requests. For the avoidance of any doubts, the present Section also applies to new generation products to be developed by the Joint Venture derived from or replacing the Commitments Equipment, based on the need to replace obsolete components or derived from the introduction of new technologies and/or presenting equivalent or better specifications to the Existing Products, namely: (i) evolutions of Standard Accuracy Pressure Transducers (SAPT) for Satellites; (ii) development of carbon/carbon stable structures of any shape for optical or scientific space missions; and (iii) development of Thermal Protection System made from Silicon carbide (SiC) material for civil re-entry bodies (heat shield) deriving from the Intermediate eXperimental Vehicle (IXV) programme.
26. To this end, the Notifying Parties commit to use their best efforts to conclude a framework supply agreement with Safran's current main customer for the Commitments Equipment, [...], within a [...] period of the Effective Date which can be renewed once for another [...] period upon formal agreement of both the Notifying Parties and [...] (the "**Framework Supply Agreement**"). The Framework Supply Agreement shall be in line with the principles agreed between the Notifying Parties and [...] in the Memorandum of Agreement attached as **Confidential Schedule 2**.
27. The negotiations of the Framework Supply Agreement will be conducted under the monitoring of the European Space Agency ("**ESA**") and the supervision of the Commission. The final Framework Supply Agreement will be approved by the Commission based on the recommendation of ESA. A copy of the signed Framework Supply Agreement shall be forwarded by the Notifying Parties to the Commission without delay.
28. The Notifying Parties shall be relieved from their obligations under paragraphs 26 and 27 above if, following the submission of a reasoned request from the Notifying Parties showing good cause and accompanied by a report from ESA, the Commission finds that the Notifying Parties are facing unreasonable demands from [...] that would make the conclusion of the Framework Supply Agreement unfair to the Notifying Parties. The reasoned request from the Notifying Parties shall be submitted to the Commission prior to the expiration of the [...] or, as the case may be, [...] period referred to in paragraph 26.
29. In addition, the Notifying Parties undertake that the Joint Venture will supply the Commitments Equipment to any Third Party Prime Contractor on a transparent and non-discriminatory basis, based on the conditions of the Framework Supply Agreement serving as a benchmark and under the monitoring of ESA's Industrial Ombudsman. Should the Notifying Parties have been relieved of their obligation to enter into the Framework Supply Agreement pursuant to paragraph 28 above, the

Notifying Parties commit to give ESA's Industrial Ombudsman access to all relevant price, discounts, delivery schedules and conditions, quality standards and ordinary shipping conditions contained in all past agreements entered into by Safran for the supply of Commitments Equipment, to serve as benchmark for the supply of Commitments Equipment to any Third Party Prime Contractor. Deviations from the conditions of the benchmark contracts shall be acceptable only to the extent that they can be objectively justified on the basis of substantiated evolutions of proven costs, technologies and customer requirements, it being understood that the Joint Venture should be able to reach a reasonable profit in line with industry standards above proven costs.

30. The Notifying Parties commit that any agreement entered into between the Joint Venture and a Third Party Prime Contractor with regards to Commitments Equipment shall include the following confidentiality clauses, and that, where requested by a Third Party Prime Contractor, the existing agreements between Safran and any Third Party Prime Contractor regarding the Commitments Equipment will also be amended to include the following clauses:

Confidentiality

X. For the duration of this Agreement and for a period of ten (10) years from the end or termination of this Agreement, in respect of any [Third Party Prime Contractor Information] received by the [Joint Venture] from the [Third Party Prime Contractor], the [Joint Venture] undertakes that such information shall:

- (a) be protected and kept in strict confidence by the Joint Venture, which must use at least the same degree of precaution and safeguards as it uses to protect its own proprietary information of like importance, but in no case less than reasonable care;*
- (b) be only disclosed to and used by those persons within the [Joint Venture's] organisation who have a need to know and solely for the performance of this Agreement;*
- (c) not be used in whole or part for any purpose other than the performance of this Agreement;*
- (d) neither be disclosed or caused to be disclosed whether directly or indirectly to any third party, including the parent companies of the [Joint Venture], or persons other than those mentioned in sub-paragraph (b) above or as otherwise permitted herein;*
- (e) neither be copied, nor otherwise reproduced nor duplicated in whole or in part where such copying, reproduction or duplication has not been specifically authorised in writing by the [Third Party Prime Contractor].*

Any [Third Party Prime Contractor Information] shall remain the property of the [Third Party Prime Contractor] and shall be returned by [the Joint Venture] forthwith upon request.

[The Joint Venture] shall have no obligation or restriction under this Agreement with respect to any [Third Party Prime Contractor Information] which the [Joint Venture] can prove:

- (a) has come into the public domain prior to, or after the disclosure thereof and in such case through no wrongful act of [the Joint Venture]; or*
- (b) has been lawfully received from a third party without restrictions or breach of this Agreement; or*

- (c) *has been or is published without violation of this Agreement; or*
- (d) *is independently developed in good faith by employees of the [Joint Venture] who did not have access to the Third Party Prime Contractor Information; or*
- (e) *is approved for the release or use in question by written authorisation of the [Third Party Prime Contractor]; or*
- (f) *is not designated or confirmed as [Third Party Prime Contractor Information] within the meaning of this Agreement.*

Y. In case of any breach by [the Joint Venture] of Article X. above, the [Joint Venture] shall pay to the [Third Party Prime Contractor] a penalty of [•%] of the Price defined by the present Agreement.

Notwithstanding the above, the [Joint Venture] agrees to indemnify and hold the [Third Party Prime Contractor] harmless from any damage, loss, cost or liability (including legal fees and costs of enforcing or seeking remedies for the breach of Article X.) arising out of or resulting from any unauthorised use or disclosure by it of any [Third Party Prime Contractor Information].

31. All agreements entered into by the Joint Venture for the supply of Commitments Equipment to Third Party Prime Contractors will be forwarded by the Notifying Parties to the Commission and to the Supply Trustee and Arbitrator in writing and without delay. The Supply Trustee and Arbitrator shall be entitled in its sole initiative or upon request of a Third Party Prime Contractor to review offers made by the Joint Venture to Third Party Prime Contractors regarding the Commitments Equipment to ensure the absence of discrimination between several offers.
32. The monitoring of the application of the present Section and any Dispute arising in relation therewith shall be subject to the supply monitoring and fast-track dispute resolution mechanism described in Section E below.

Section E. Supply Monitoring and Fast-Track Dispute Resolution Mechanism

33. In the event that a Third Party Prime Contractor, showing a sufficient legitimate interest, claims that the Joint Venture is failing to comply with the Commitment described in Section D above, such Third Party Prime Contractor may refer its claim to the Supply Trustee and Arbitrator according to the mechanisms described in this Section.

Appointment of the Supply Trustee and Arbitrator

34. The Notifying Parties propose that the monitoring of the Supply Assurance and any Dispute arising thereof be submitted to a sole Supply Trustee and Arbitrator, with the required experience, competence and independence.
35. The Notifying Parties propose that ESA, through its Industrial Ombudsman, be designated as Supply Trustee and Arbitrator.
36. In addition, the Notifying Parties shall propose that ESA appoint as Deputy Supply Trustee and Arbitrator the second ESA Ombudsman, who fulfills the same conditions of impartiality as the incumbent and who will be able to act in the event of the absence or incapacity of the incumbent Supply Trustee and Arbitrator.

Amicable Settlement of Dispute

37. Should a Third Party Prime Contractor consider that the Joint Venture is in breach of the Commitment set out in Section D above, it may activate the present Amicable Settlement Mechanism by notifying to the Joint Venture the subject matter of the Dispute by letter sent with acknowledgment of receipt either by fax, e-mail or registered post (the “**Notice**”). The Joint Venture shall inform without delay the Supply Trustee and Arbitrator by forwarding to it a copy of the above Notice.
38. The Joint Venture and the Third Party Prime Contractor have a duty to cooperate and use every reasonable effort to settle the Dispute and reach an agreement satisfactory for both of them, within a reasonable period of time not exceeding fifteen (15) calendar days from the receipt of the Notice. The Supply Trustee and Arbitrator shall be informed of this agreement in writing and without delay. The Supply Trustee and Arbitrator may also suggest to the Joint Venture and the Third Party Prime Contractor measures that could help solving the Dispute.
39. The Supply Trustee and Arbitrator will keep the Commission informed of the Dispute and of its resolution in writing and without delay.

Arbitration Procedure

40. Should the Joint Venture and the Third Party Prime Contractor not reach an agreement according to the procedure of Amicable Settlement described above, the Parties commit to refer the Dispute to the Supply Trustee and Arbitrator.
41. To initiate the Arbitration Procedure, the Third Party Prime Contractor shall, by registered letter with acknowledgement of receipt, give written notice to the Supply Trustee and Arbitrator and state the specific nature of the claim, the factual basis of its position and the relief requested (the “**Referral**”). The Supply Trustee and Arbitrator will forward any such letter to the Joint Venture and to the Commission without delay.
42. The Supply Trustee and Arbitrator will act in accordance with French law, as provided for in Articles 1442 and following of the Civil Procedure Code and may take any interim measures. The Arbitration Procedure shall be conducted in Paris, France.
43. The Supply Trustee and Arbitrator shall, as soon as practical, hold an organisational conference to discuss any procedural issues with the Joint Venture and the Third Party Prime Contractor in relation to the Arbitration Procedure.
44. The Supply Trustee and Arbitrator shall have access to any Confidential Information, be able to conduct inquiries and appoint experts, and order any other measures, including interim measures, to the extent necessary for the performance of its duties. The Supply Trustee and Arbitrator shall agree in writing to keep any Confidential Information and business secrets disclosed to it in confidence.
45. Upon request of the Third Party Prime Contractor, the Supply Trustee and Arbitrator may make a preliminary ruling on the dispute. The preliminary ruling shall be rendered within fifteen (15) calendar days following receipt of the Referral, be applicable immediately, and, as a rule, remain in force until a final decision is rendered.

46. The Supply Trustee and Arbitrator shall render its final award within a maximum of two (2) months following receipt of the Referral. A copy of the final decision shall be forwarded to the Commission in writing and without delay.
47. The final arbitration award shall, in addition to deciding the merits of the claims, determine the Supply Trustee and Arbitrator's fees and the arbitration costs. Such fees and costs shall in principle be borne by the Parties, except in cases of unsubstantiated demands.
48. The Parties undertake to take the relevant compliance measures by the deadline set by the Arbitrator and to report their implementation to the Arbitrator within the shortest timeframe possible.
49. The French Ministry of Defense shall be informed of any Dispute by the Joint Venture and, where the Dispute involves matters or products that are related to matters of national security interests, shall have a right to raise the issue with the Commission and take any measure necessary to the protection of French State national security interests, in line with the Treaties.
50. The possibility of such arbitration proceedings shall be mentioned in any agreement entered into between the Joint Venture and a Third Party Prime Contractor with regards to Commitments Equipment.
51. This Supply Monitoring and Fast-Track Dispute Resolution Mechanism shall remain in force for a period of ten (10) years from the Effective Date, provided that the Joint Venture continues to carry out its Commitments Equipment Activity and to manufacture the Commitments Equipment.

Annual Report and Contacts with Commission

52. During this ten (10) year period, the Supply Trustee and Arbitrator will present in an annual report all questions raised relating to the implementation of the Commitment set out in Section D above and the compliance measures taken by the Joint Venture either on its own motion through cooperation and consultation with Third Party Prime Contractors or upon its own proposal. The Supply Trustee and Arbitrator will submit the annual report to the Commission.
53. Should any further questions arise for the Commission with regards to the implementation of this Commitment during the ten (10) year period, the Commission may address a request for clarification in writing to the Supply Trustee and Arbitrator. The Supply Trustee and Arbitrator will answer to the request within thirty (30) calendar days.

Section F. Entry into force – Effective Period

54. The Commitments shall take effect as of Effective Date.
55. The Commitment set out in Section B above shall apply for a period of ten (10) years from Effective Date. The Commitment set out in Section D above shall also apply for a period of ten (10) years from Effective Date, as long as the Joint Venture continues to carry on its Commitments Equipment Activity and to manufacture the Commitments Equipment.

Section G. The review clause

56. The Commission may, in response to a reasoned request from the Notifying Parties showing good cause and accompanied by a report from either the Non Contribution Trustee for the Commitment set out in Section B above or the Supply Trustee and Arbitrator for the Commitment set out in Section D above, waive, modify or substitute, in exceptional circumstances, one or more of the undertakings in these Commitments. The request shall not have the effect of suspending the application of the undertaking and, in particular, of suspending the expiry of any time period in which the undertaking has to be complied with.

20 November 2014

Name: [...]

Function: [...]

duly authorised for and on behalf of Airbus Group N.V.

Name: [...]

Function: [...]

duly authorised for and on behalf of Safran

SCHEDULE 1
Description of the Excluded Business

[...]

SCHEDULE 2

[...]