

II

(Non-legislative acts)

REGULATIONS

COUNCIL REGULATION (EU) 2022/328

of 25 February 2022

**amending Regulation (EU) No 833/2014 concerning restrictive measures in view of Russia's actions
destabilising the situation in Ukraine**

THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty on the Functioning of the European Union, and in particular Article 215 thereof,

Having regard to Decision (CFSP) 2022/327¹ of 25 February 2022 amending Decision 2014/512/CFSP concerning restrictive measures in view of Russia's actions destabilising the situation in Ukraine,

Having regard to the joint proposal from the High Representative of the Union for Foreign Affairs and Security Policy and the European Commission,

¹ OJ L 48, 25.2.2022, p. 1.

Whereas:

- (1) On 31 July 2014, the Council adopted Regulation (EU) No 833/2014¹.
- (2) Regulation (EU) No 833/2014 gives effect to certain measures provided for in Council Decision 2014/512/CFSP² and prohibits the sale, supply, transfer or export of dual-use goods and technology to any person, entity or body in Russia or for use in Russia, if those items are for military use or for military end-users. It also bans the sale of such goods and technology to specified legal persons in Russia and prohibits the provision of technical assistance and other related services as well as financing and financial assistance related to such goods and technology. In addition, it requires operators to obtain a prior authorisation for the sale, supply, transfer or export of certain technologies for the oil industry in Russia and prohibits the provision of associated services necessary for deep-water oil exploration and production, arctic oil exploration and production or shale oil projects in Russia, including its Exclusive Economic Zone and Continental Shelf. It also prohibits the provision of technical assistance related to the goods and technology listed in the Common Military List of the European Union or related to the provision, manufacture, maintenance and use of such goods. It also imposes restrictions on access to the Union capital market for certain Russian financial institutions, entities as well as Russia, its Government and its Central Bank.

¹ Council Regulation (EU) No 833/2014 of 31 July 2014 concerning restrictive measures in view of Russia's actions destabilising the situation in Ukraine (OJ L 229, 31.7.2014, p. 1).

² Council Decision 2014/512/CFSP of 31 July 2014 concerning restrictive measures in view of Russia's actions destabilising the situation in Ukraine (OJ L 229, 31.7.2014, p. 13).

- (3) On 24 January 2022, recalling the December 2021 European Council conclusions, the Council reiterated that any further military aggression by Russia against Ukraine would have massive consequences and severe costs.
- (4) In view of the gravity of the situation, on 25 February 2022 the Council adopted Decision (CFSP)2022/327, amending Decision 2014/512/CFSP and imposing further restrictive measures in various sectors, particularly defence, energy, aviation and finance.
- (5) Decision (CFSP) 2022/327 imposes further restrictions on exports of dual-use goods and technology and on the provision of related services, as well as restrictions on exports of certain goods and technology which might contribute to Russia's technological enhancement of its defence and security sector. It also introduces restrictions on the provision of related services. Limited exemptions to such restrictions are envisioned for legitimate and pre-determined purposes. Furthermore, that Decision prohibits the provision of public financing or financial assistance for trade with, or investment in, Russia, subject to certain exceptions.
- (6) Decision (CFSP) 2022/327 also prohibits the sale, supply, transfer or export to Russia of specific goods and technologies for use in oil refining, together with restrictions on the provision of related services.

- (7) Furthermore, Decision (CFSP) 2022/327 introduces an export ban covering goods and technology suited for use in aviation and the space industry and prohibits the provision of insurance and reinsurance and maintenance services in relation to those goods and technology. It also prohibits the provision of technical assistance and other related services as well as financing and financial assistance in relation to the goods and technology subject to this prohibition.
- (8) Decision (CFSP) 2022/327 further expands the existing financial restrictions, in particular those on access by certain Russian entities to the capital markets. It also prohibits the listing and provision of services in relation to shares of Russian state-owned entities on Union trading venues. In addition, it introduces new measures which significantly limit the financial inflows from Russia to the Union by prohibiting the acceptance of deposits exceeding certain values from Russian nationals or residents, the holding of accounts of Russian clients by the Union central securities depositories as well as the selling of euro-denominated securities to Russian clients.
- (9) These measures fall within the scope of the Treaty and, therefore, in particular with a view to ensuring their uniform application in all Member States, regulatory action at the level of the Union is necessary.
- (10) In order to ensure uniform conditions for the implementation of this Regulation, implementing powers should be conferred on the Commission.

- (11) The Commission will monitor the application of these measures. To ensure the effectiveness of export controls on Union goods and technology which might contribute to Russia's technological enhancement of its defence and security sector, the Commission will act in coordination with Member States, and as the case may be with partner countries, with a view, in justified and documented cases, to adapting the list of those goods and technology as appropriate.
- (12) Regulation (EU) No 833/2014 should therefore be amended accordingly,

HAS ADOPTED THIS REGULATION:

Article 1

Regulation (EU) 833/2014 is amended as follows:

- (1) Article 1 is replaced by the following:

‘Article 1

For the purposes of this Regulation, the following definitions apply:

- (a) “dual-use goods and technology” means the items listed in Annex I to Regulation (EU) 2021/821 of the European Parliament and of the Council*;
- (b) “competent authorities” means the competent authorities of the Member States as identified on the websites listed in Annex I;
- (c) “technical assistance” means any technical support related to repairs, development, manufacture, assembly, testing, maintenance, or any other technical service, and may take forms such as instruction, advice, training, transmission of working knowledge or skills or consulting services, including verbal forms of assistance;
- (d) “brokering services” means:
 - (i) the negotiation or arrangement of transactions for the purchase, sale or supply of goods and technology or of financial and technical services, including from a third country to any other third country, or

- (ii) the selling or buying of goods and technology or of financial and technical services, including where they are located in third countries for their transfer to another third country;
- (e) “investment services” means the following services and activities:
 - (i) reception and transmission of orders in relation to one or more financial instruments;
 - (ii) execution of orders on behalf of clients;
 - (iii) dealing on own account;
 - (iv) portfolio management;
 - (v) investment advice;
 - (vi) underwriting of financial instruments and/or placing of financial instruments on a firm commitment basis;
 - (vii) placing of financial instruments without a firm commitment basis;
 - (viii) any service in relation to the admission to trading on a regulated market or trading on a multilateral trading facility;

- (f) “transferable securities” means the following classes of securities which are negotiable on the capital market, with the exception of instruments of payment:
 - (i) shares in companies and other securities equivalent to shares in companies, partnerships or other entities, and depositary receipts in respect of shares,
 - (ii) bonds or other forms of securitised debt, including depositary receipts in respect of such securities,
 - (iii) any other securities giving the right to acquire or sell any such transferable securities or giving rise to a cash settlement determined by reference to transferable securities;
- (g) “money-market instruments” means those classes of instruments which are normally dealt in on the money market, such as treasury bills, certificates of deposit and commercial papers and excluding instruments of payment;
- (h) “credit institution” means an undertaking, the business of which is to take deposits or other repayable funds from the public and to grant credit for its own account;
- (i) “territory of the Union” means the territories of the Member States to which the Treaty is applicable, under the conditions laid down in the Treaty, including their airspace;

- (j) “central securities depository” means a legal person as defined in point 1 of Article 2(1) of Regulation (EU) No 909/2014 of the European Parliament and of the Council**;
- (k) “deposit” means a credit balance which results from funds left in an account or from temporary situations deriving from normal banking transactions and which a credit institution is required to repay under the legal and contractual conditions applicable, including a fixed-term deposit and a savings deposit, but excluding a credit balance where:
- (i) its existence can only be proven by a financial instrument as defined in Article 4(1)(15) of Directive 2014/65/EU of the European Parliament and of the Council***, unless it is a savings product which is evidenced by a certificate of deposit made out to a named person and which exists in a Member State on 2 July 2014;
 - (ii) its principal is not repayable at par;
 - (iii) its principal is only repayable at par under a particular guarantee or agreement provided by the credit institution or a third party;
- (l) “investor citizenship schemes” (or “golden passports”) means the procedures put in place by a Member State, which allow third-country nationals to acquire its nationality in exchange for pre-determined payments and investments;

- (m) “investor residence schemes” (or “golden visas”) means the procedures put in place by a Member State, which allow third-country nationals to obtain a residence permit in a Member State in exchange for pre-determined payments and investments;
- (n) “trading venue”, as defined in Article 4(1)(24) of Directive 2014/65/EU, means a regulated market, a multilateral trading facility (MTF) or an organised trading facility (OTF);
- (o) “financing or financial assistance” means any action, irrespective of the particular means chosen, whereby the person, entity or body concerned, conditionally or unconditionally, disburses or commits to disburse its own funds or economic resources, including but not limited to grants, loans, guarantees, suretyships, bonds, letters of credit, supplier credits, buyer credits, import or export advances and all types of insurance and reinsurance, including export credit insurance; payment as well as terms and conditions of payment of the agreed price for a good or a service, made in line with normal business practice, do not constitute financing or financial assistance;
- (p) “partner country” means a country applying a set of export control measures substantially equivalent to those set out in this Regulation, as identified in Annex VIII;

- (q) “consumer communication devices’ means devices used by private individuals such as personal computers and peripherals (including hard drives and printers), mobile telephones, smart televisions, memory devices (USB drives), and consumer software for all of these items.

* Regulation (EU) 2021/821 of the European Parliament and of the Council of 20 May 2021 setting up a Union regime for the control of exports, brokering, technical assistance, transit and transfer of dual-use items (recast) (OJ L 206, 11.6.2021, p. 1).

** Regulation (EU) No 909/2014 of the European Parliament and of the Council of 23 July 2014 on improving securities settlement in the European Union and on central securities depositories and amending Directives 98/26/EC and 2014/65/EU and Regulation (EU) No 236/2012 (OJ L 257, 28.8.2014, p. 1).

*** Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU (OJ L 173, 12.6.2014, p. 349).’;

- (2) Article 2 is replaced by the following:

‘Article 2

1. It shall be prohibited to sell, supply, transfer or export, directly or indirectly, dual-use goods and technology, whether or not originating in the Union, to any natural or legal person, entity or body in Russia or for use in Russia.

2. It shall be prohibited to:
 - (a) provide technical assistance, brokering services or other services related to the goods and technology referred to in paragraph 1 and to the provision, manufacture, maintenance and use of those goods and technology, directly or indirectly to any natural or legal person, entity or body in Russia or for use in Russia;
 - (b) provide financing or financial assistance related to the goods and technology referred to in paragraph 1 for any sale, supply, transfer or export of those goods and technology, or for the provision of related technical assistance, brokering services or other services, directly or indirectly to any natural or legal person, entity or body in Russia, or for use in Russia.
3. Without prejudice to the authorisation requirements pursuant to Regulation (EU) 2021/821, the prohibitions in paragraphs 1 and 2 of this Article shall not apply to the sale, supply, transfer or export of dual-use goods and technology or to the related provision of technical and financial assistance, for non-military use and for a non-military end user, intended for:
 - (a) humanitarian purposes, health emergencies, the urgent prevention or mitigation of an event likely to have a serious and significant impact on human health and safety or the environment or as a response to natural disasters;

- (b) medical or pharmaceutical purposes;
- (c) temporary export of items for use by news media;
- (d) software updates;
- (e) use as consumer communication devices;
- (f) ensuring cyber-security and information security for natural and legal persons, entities and bodies in Russia except for its government and undertakings directly or indirectly controlled by that government; or
- (g) personal use of natural persons travelling to Russia or members of their immediate families travelling with them, and limited to personal effects, household effects, vehicles or tools of trade owned by those individuals and not intended for sale.

With the exception of points (f) and (g) of this paragraph, the exporter shall declare in the customs declaration that the items are being exported under the relevant exception set out in this paragraph and shall notify the competent authority of the Member State where the exporter is resident or established of the first use of the relevant exception within 30 days from the date when the first export took place.

4. By way of derogation from paragraphs 1 and 2 of this Article, and without prejudice to the authorisation requirements pursuant to Regulation (EU) 2021/821, the competent authorities may authorise the sale, supply, transfer or export of dual-use goods and technology or the provision of related technical or financial assistance, for non-military use and for a non-military end user, after having determined that such goods or technology or the related technical or financial assistance are:
- (a) intended for cooperation between the Union, the governments of Member States and the government of Russia in purely civilian matters;
 - (b) intended for intergovernmental cooperation in space programmes;
 - (c) intended for the operation, maintenance, fuel retreatment and safety of civil nuclear capabilities, as well as civil nuclear cooperation, in particular in the field of research and development;
 - (d) intended for maritime safety;
 - (e) intended for civilian telecommunications networks, including the provision of internet services;
 - (f) intended for the exclusive use of entities owned, or solely or jointly controlled by a legal person, entity or body which is incorporated or constituted under the law of a Member State or of a partner country;

- (g) intended for the diplomatic representations of the Union, Member States and partner countries, including delegations, embassies and missions.
5. By way of derogation from paragraphs 1 and 2 of this Article, and without prejudice to the authorisation requirements pursuant to Regulation (EU) 2021/821, the competent authorities may authorise the sale, supply, transfer or export of dual-use goods and technology or the provision of related technical or financial assistance, for non-military use and for a non-military end-user, after having determined that such goods or technology or the related technical or financial assistance are due under contracts concluded before 26 February 2022, or ancillary contracts necessary for the execution of such a contract, provided that the authorisation is requested before 1 May 2022.
 6. All authorisations required under this Article shall be granted by the competent authorities in accordance with the rules and procedures laid down in Regulation (EU) 2021/821, which shall apply *mutatis mutandis*. The authorisation shall be valid throughout the Union.
 7. When deciding on requests for authorisations referred to in paragraphs 4 and 5, the competent authorities shall not grant an authorisation if they have reasonable grounds to believe that:
 - (i) the end-user might be a military end-user, a natural or legal person, entity or body in Annex IV or that the goods might have a military end-use; or

- (ii) the sale, supply, transfer or export of goods and technology referred to in paragraph 1 or the provision of related technical or financial assistance is intended for aviation or the space industry.
 - 8. The competent authorities may annul, suspend, modify or revoke an authorisation which they have granted pursuant to paragraphs 4 and 5 if they deem that such annulment, suspension, modification or revocation is necessary for the effective implementation of this Regulation.’;
- (3) Article 2a is replaced by the following:
- ‘Article 2a*
- 1. It shall be prohibited to sell, supply, transfer or export, directly or indirectly, goods and technology which might contribute to Russia’s military and technological enhancement, or the development of the defence and security sector, as listed in Annex VII, whether or not originating in the Union, to any natural or legal person, entity or body in Russia or for use in Russia.

2. It shall be prohibited to:
 - (a) provide technical assistance, brokering services or other services related to the goods and technology referred to in paragraph 1 and to the provision, manufacture, maintenance and use of these goods and technology, directly or indirectly to any natural or legal person, entity or body in Russia, or for use in Russia;
 - (b) provide financing or financial assistance related to the goods and technology referred to in paragraph 1 for any sale, supply, transfer or export of those goods and technology, or for the provision of related technical assistance, brokering services or other services, directly or indirectly to any natural or legal person, entity or body in Russia, or for use in Russia.
3. The prohibitions in paragraphs 1 and 2 shall not apply to the sale, supply, transfer or export of the goods and technology referred to in paragraph 1 or to the related provision of technical and financial assistance, for non-military use and for a non-military end-user, intended for:
 - (a) humanitarian purposes, health emergencies, the urgent prevention or mitigation of an event likely to have a serious and significant impact on human health and safety or the environment, or as a response to natural disasters;
 - (b) medical or pharmaceutical purposes;

- (c) temporary export of items for use by news media;
- (d) software updates;
- (e) use as consumer communication devices;
- (f) ensuring cyber-security and information security for natural and legal persons, entities and bodies in Russia except for its government and undertakings directly or indirectly controlled by that government; or
- (g) personal use of natural persons travelling to Russia or members of their immediate families travelling with them, and limited to personal effects, household effects, vehicles or tools of trade owned by those individuals and not intended for sale.

With the exception of points (f) and (g) of this paragraph, the exporter shall declare in the customs declaration that the items are being exported under the relevant exception set out in this paragraph and shall notify the competent authority of the Member State where the exporter is resident or established of the first use of the relevant exception within 30 days from the date when the first export took place.

4. By way of derogation from paragraphs 1 and 2, the competent authorities may authorise the sale, supply, transfer or export of the goods and technology referred to in paragraph 1 or the provision of related technical or financial assistance, for non-military use and for a non-military end-user, after having determined that such goods or technology or the related technical or financial assistance are:
- (a) intended for cooperation between the Union, the governments of Member States and the government of Russia in purely civilian matters;
 - (b) intended for intergovernmental cooperation in space programmes;
 - (c) intended for the operation, maintenance, fuel retreatment and safety of civil nuclear capabilities, as well as civil nuclear cooperation, in particular in the field of research and development;
 - (d) intended for maritime safety;
 - (e) intended for civilian telecommunications networks, including the provision of internet services;
 - (f) intended for the exclusive use of entities owned, or solely or jointly controlled by a legal person, entity or body which is incorporated or constituted under the law of a Member State or of a partner country; or
 - (g) intended for the diplomatic representations of the Union, Member States and partner countries, including delegations, embassies and missions.

5. By way of derogation from paragraphs 1 and 2, the competent authorities may authorise the sale, supply, transfer or export of the goods and technology referred to in paragraph 1 or the provision of related technical or financial assistance, for non-military use and for a non-military end-user, after having determined that such goods or technology or the related technical or financial assistance are due under contracts concluded before 26 February 2022, or ancillary contracts necessary for the execution of such a contract, provided that the authorisation is requested before 1 May 2022.
6. All authorisations required under this Article shall be granted by the competent authorities in accordance with the rules and procedures laid down in Regulation (EU) 2021/821, which shall apply *mutatis mutandis*. The authorisation shall be valid throughout the Union.
7. When deciding on requests for authorisations referred to in paragraphs 4 and 5, the competent authorities shall not grant an authorisation if they have reasonable grounds to believe that:
 - (i) the end-user might be a military end-user, a natural or legal person, entity or body listed in Annex IV or that the goods might have a military end-use; or
 - (ii) the sale, supply, transfer or export of goods and technology referred to in paragraph 1 or the provision of related technical or financial assistance is intended for aviation or the space industry.

8. The competent authorities may annul, suspend, modify or revoke an authorisation which they have granted pursuant to paragraphs 4 and 5 if they deem that such annulment, suspension, modification or revocation is necessary for the effective implementation of this Regulation.’;

(4) The following Articles are inserted:

‘Article 2b

1. With regard to the entities listed in Annex IV, by way of derogation from Article 2(1) and (2) and Article 2a(1) and (2), and without prejudice to the authorisation requirements pursuant to Regulation (EU) 2021/821, the competent authorities may only authorise the sale, supply, transfer or export of dual-use goods and technology and goods and technology listed in Annex VII, or the provision of related technical or financial assistance after having determined that:
 - (a) such goods or technology or the related technical or financial assistance are necessary for the urgent prevention or mitigation of an event likely to have a serious and significant impact on human health and safety or the environment;
or
 - (b) such goods or technology or the related technical or financial assistance are due under contracts concluded before 26 February 2022, or ancillary contracts necessary for the execution of such a contract, provided that the authorisation is requested before 1 May 2022.

2. All authorisations required under this Article shall be granted by the competent authorities of the Member State in accordance with the rules and procedures laid down in Regulation (EU) 2021/821, which shall apply *mutatis mutandis*. The authorisation shall be valid throughout the Union.
3. The competent authorities may annul, suspend, modify or revoke an authorisation which they have granted pursuant to paragraph 1 if they deem that such annulment, suspension, modification or revocation is necessary for the effective implementation of this Regulation.

Article 2c

1. The notification to the competent authority referred to in Articles 2(3) and 2a(3) shall be submitted by electronic means, whenever possible, on forms containing at least all the elements of, and in the order provided for in, the models set out in Annex IX.
2. All authorisations referred to in Articles 2, 2a and 2b shall be issued by electronic means, whenever possible, on forms containing at least all the elements of, and in the order provided for in, the models set out in Annex IX.

Article 2d

1. The competent authorities shall exchange information on authorisations granted and denials issued pursuant to Articles 2, 2a and 2b with the other Member States and the Commission without delay. The exchange of information shall be carried out using the electronic system provided pursuant to Article 23(6) of Regulation (EU) 2021/821.
2. Information received as a result of the application of this Article shall be used only for the purpose for which it was requested, including the exchanges mentioned in paragraph 4.

Member States and the Commission shall ensure the protection of confidential information acquired in application of this Article in accordance with Union law and the respective national law.

Member States and the Commission shall ensure that classified information provided or exchanged under this Article is not downgraded or declassified without the prior written consent of the originator.

3. Before a Member State grants an authorisation in accordance with Articles 2, 2a and 2b for a transaction which is essentially identical to a transaction which is the subject of a still valid denial issued by another Member State or by other Member States, it shall first consult the Member State or Member States which issued the denial. If, following such consultations, the Member State concerned decides to grant an authorisation, it shall inform the other Member States and the Commission thereof, providing all relevant information to explain the decision.
4. The Commission, in consultation with the Member States shall, where appropriate, exchange information with partner countries, with a view to supporting the effectiveness of export control measures under this Regulation and the consistent application of export control measures applied by partner countries.

Article 2e

1. It shall be prohibited to provide public financing or financial assistance for trade with, or investment in, Russia.
2. The prohibition in paragraph 1 shall not apply to:
 - (a) binding financing or financial assistance commitments established prior to 26 February 2022;

- (b) the provision of public financing or financial assistance up to the total value of 10 000 000 EUR per project to small and medium-sized enterprises established in the Union; or
 - (c) the provision of public financing or financial assistance for trade in food, and for agricultural, medical or humanitarian purposes.’;
- (5) in paragraph 2 of Article 3, ‘Article 11 of Regulation (EC) No 428/2009’ is replaced with ‘Article 14 of Regulation (EU) No 2021/821’;
- (6) the following Articles are inserted:

‘Article 3b

1. It shall be prohibited to sell, supply, transfer or export, directly or indirectly, goods and technology suited for use in oil refining, as listed in Annex X, whether or not originating in the Union, to any natural or legal person, entity or body in Russia or for use in Russia.

2. It shall be prohibited to:
 - (a) provide technical assistance, brokering services or other services related to the goods and technology referred to in paragraph 1 and to the provision, manufacture, maintenance and use of those goods and technology, directly or indirectly to any natural or legal person, entity or body in Russia or for use in Russia.
 - (b) provide financing or financial assistance related to the goods and technology referred to in paragraph 1 for any sale, supply, transfer or export of those goods and technology, or for the provision of related technical assistance, brokering services or other services, directly or indirectly to any person, entity or body in Russia or for use in Russia.
3. The prohibitions in paragraphs 1 and 2 shall not apply to the execution until 27 May 2022 of contracts concluded before 26 February 2022, or ancillary contracts necessary for the execution of such contracts.

4. By way of derogation from paragraphs 1 and 2, the competent authorities may authorise, under such conditions as they deem appropriate, the sale, supply, transfer or export of the goods and technology listed in Annex X or the provision of related technical or financial assistance, after having determined that such goods or technology or the provision of related technical or financial assistance are necessary for the urgent prevention or mitigation of an event likely to have a serious and significant impact on human health and safety or the environment.

In duly justified cases of emergency, the sale, supply, transfer or export may proceed without prior authorisation, provided that the exporter notifies the competent authority within five working days after the sale, supply, transfer or export has taken place, providing detail about the relevant justification for the sale, supply, transfer or export without prior authorisation.

Article 3c

1. It shall be prohibited to sell, supply, transfer or export, directly or indirectly, goods and technology suited for use in aviation or the space industry, as listed in Annex XI, whether or not originating in the Union, to any natural or legal person, entity or body in Russia or for use in Russia.
2. It shall be prohibited to provide insurance and reinsurance, directly or indirectly, in relation to goods and technology listed in Annex XI to any person, entity or body in Russia or for use in Russia.

3. It shall be prohibited to provide any one or any combination of the following activities: overhaul, repair, inspection, replacement, modification or defect rectification of an aircraft or component, with the exception of pre-flight inspection, in relation to the goods and technology listed in Annex XI, directly or indirectly, to any natural or legal person, entity or body in Russia or for use in Russia.
4. It shall be prohibited to:
 - (a) provide technical assistance, brokering services or other services related to the goods and technology referred to in paragraph 1 and to the provision, manufacture, maintenance and use of those goods and technology, directly or indirectly to any natural or legal person, entity or body in Russia or for use in Russia.
 - (b) provide financing or financial assistance related to the goods and technology referred to in paragraph 1 for any sale, supply, transfer or export of those goods and technology, or for the provision of related technical assistance, brokering services or other services, directly or indirectly to any natural or legal person, entity or body in Russia or for use in Russia.

5. With regard to the goods listed in Annex XI, the prohibitions in paragraphs 1 and 4 shall not apply to the execution until 28 March 2022 of contracts concluded before 26 February 2022, or ancillary contracts necessary for the execution of such contracts.’;
- (7) in paragraph 2 of Article 4, ‘EU’ is replaced by ‘Union’;
- (8) Article 5 is replaced by the following:

‘Article 5

1. It shall be prohibited to directly or indirectly purchase, sell, provide investment services for or assistance in the issuance of, or otherwise deal with transferable securities and money-market instruments with a maturity exceeding 90 days, issued after 1 August 2014 to 12 September 2014, or with a maturity exceeding 30 days, issued after 12 September 2014 to 12 April 2022 or any transferable securities and money market instruments issued after 12 April 2022 by:
- (a) a major credit institution, or other major institution having an explicit mandate to promote competitiveness of the Russian economy, its diversification and encouragement of investment, established in Russia with over 50 % public ownership or control as of 1 August 2014, as listed in Annex III; or

- (b) a legal person, entity or body established outside the Union whose proprietary rights are directly or indirectly owned for more than 50 % by an entity listed in Annex III; or
 - (c) a legal person, entity or body acting on behalf or at the direction of an entity referred to in point (b) of this paragraph or listed in Annex III.
- 2. It shall be prohibited to directly or indirectly, purchase, sell, provide investment services for or assistance in the issuance of, or otherwise deal with transferable securities and money-market instruments issued after 12 April 2022 by:
 - (a) any major credit institution, or other institution with over 50 % public ownership or control as of 26 February 2022 or any other credit institution having a significant role in supporting the activities of Russia, its government or the Central Bank and established in Russia, as listed in Annex XII; or
 - (b) a legal person, entity or body established outside the Union whose proprietary rights are directly or indirectly owned for more than 50 % by an entity listed in Annex XII; or
 - (c) a legal person, entity or body acting on behalf or at the direction of an entity referred to in point (a) or (b) of this paragraph.

3. It shall be prohibited to directly or indirectly purchase, sell, provide investment services for or assistance in the issuance of, or otherwise deal with transferable securities and money-market instruments with a maturity exceeding 30 days, issued after 12 September 2014 to 12 April 2022 or any transferable securities and money market instruments issued after 12 April 2022 by:
- (a) a legal person, entity or body established in Russia predominantly engaged, and with major activities, in the conception, production, sales or export of military equipment or services, as listed in Annex V, except legal persons, entities or bodies active in the space or the nuclear energy sectors;
 - (b) a legal person, entity or body established in Russia, which is publicly controlled or with over 50 % public ownership and having estimated total assets of over RUB 1 trillion and whose estimated revenues originate for at least 50 % from the sale or transportation of crude oil or petroleum products, as listed in Annex VI;
 - (c) a legal person, entity or body established outside the Union whose proprietary rights are directly or indirectly owned for more than 50 % by an entity listed in point (a) or (b) of this paragraph; or
 - (d) a legal person, entity or body acting on behalf or at the direction of an entity referred to in point (a), (b) or (c) of this paragraph.

4. It shall be prohibited to directly or indirectly purchase, sell, provide investment services for or assistance in the issuance of, or otherwise deal with transferable securities and money-market instruments, issued after 12 April 2022 by:
 - (a) a legal person, entity or body established in Russia, which is publicly controlled or with over 50 % public ownership and in which Russia, its Government or Central Bank has the right to participate in profits or with which Russia, its Government or Central Bank has other substantial economic relationships, as listed in Annex XIII; or
 - (b) a legal person, entity or body established outside the Union whose proprietary rights are directly or indirectly owned for more than 50 % by an entity listed Annex XIII; or
 - (c) a legal person, entity or body acting on behalf or at the direction of an entity referred to in point (a) or (b) of this paragraph.
5. It shall be prohibited to list and provide services as of 12 April 2022 on trading venues registered or recognised in the Union for the transferable securities of any legal person, entity or body established in Russia and with over 50 % public ownership.

6. It shall be prohibited to directly or indirectly make or be part of any arrangement to make
- (i) new loans or credit with a maturity exceeding 30 days to any legal person, entity or body referred to in paragraph 1 or 3, after 12 September 2014 to 26 February 2022; or
 - (ii) any new loans or credit to any legal person, entity or body referred to in paragraph 1, 2, 3 or 4 after 26 February 2022.

The prohibition shall not apply to:

- (a) loans or credit that have a specific and documented objective to provide financing for non-prohibited imports or exports of goods and non-financial services between the Union and any third State, including the expenditure for goods and services from another third State that is necessary for executing the export or import contracts; or
- (b) loans that have a specific and documented objective to provide emergency funding to meet solvency and liquidity criteria for legal persons established in the Union, whose proprietary rights are owned for more than 50 % by any entity referred to in Annex III.

7. The prohibition in paragraph 6 shall not apply to drawdown or disbursements made under a contract concluded before 26 February 2022 provided that the following conditions are met:
- (a) all the terms and conditions of such drawdown or disbursements:
 - (i) were agreed before 26 February 2022; and
 - (ii) have not been modified on or after that date; and
 - (b) before 26 February 2022 a contractual maturity date has been fixed for the repayment in full of all funds made available and for the cancellation of all the commitments, rights and obligations under the contract; and
 - (c) at the time of its conclusion the contract was not in breach of the prohibitions of this Regulation in force at that time.

The terms and conditions of drawdowns and disbursements referred to in point (a) include provisions concerning the length of the repayment period for each drawdown or disbursement, the interest rate applied or the interest rate calculation method, and the maximum amount.’;

(9) the following Articles are inserted:

Article 5b

1. It shall be prohibited to accept any deposits from Russian nationals or natural persons residing in Russia, or legal persons, entities or bodies established in Russia, if the total value of deposits of the natural or legal person, entity or body per credit institution exceeds 100 000 EUR.
2. Paragraph 1 shall not apply to nationals of a Member State or natural persons having a temporary or permanent residence permit in a Member State,
3. Paragraph 1 shall not apply to deposits which are necessary for non-prohibited cross-border trade in goods and services between the Union and Russia.

Article 5c

1. By way of derogation from Article 5b(1), the competent authorities may authorise the acceptance of such a deposit, under such conditions as they deem appropriate, after having determined that the acceptance of such a deposit is:
 - (a) necessary to satisfy the basic needs of natural or legal persons, entities or bodies referred to in Article 5b(1) and their dependent family members, including payments for food, rent or mortgage, medicines and medical treatment, taxes, insurance premiums, and public utility charges;

- (b) intended exclusively for the payment of reasonable professional fees or the reimbursement of incurred expenses associated with the provision of legal services;
 - (c) necessary for extraordinary expenses, provided that the relevant competent authority has notified the competent authorities of the other Member States and the Commission of the grounds on which it considers that a specific authorisation should be granted, at least two weeks prior to the authorisation; or
 - (d) necessary for official purposes of a diplomatic mission or consular post or international organisation.
- 2, The Member State concerned shall inform the other Member States and the Commission of any authorisation granted under paragraphs 1(a), (b) and (d) within two weeks of the authorisation.

Article 5d

1. By way of derogation from Article 5b(1), the competent authorities may authorise the acceptance of such a deposit, under such conditions as they deem appropriate, after having determined that the acceptance of such a deposit is:
 - (a) necessary for humanitarian purposes, such as delivering or facilitating the delivery of assistance, including medical supplies, food, or the transfer of humanitarian workers and related assistance or for evacuations; or
 - (b) necessary for civil society activities that directly promote democracy, human rights or the rule of law in Russia.
2. The Member State concerned shall inform the other Member States and the Commission of any authorisation granted under paragraph 1 within two weeks of the authorisation.

Article 5e

1. It shall be prohibited for Union central securities depositories to provide any services as defined in the Annex of Regulation (EU) No 909/2014 for transferable securities issued after 12 April 2022 to any Russian national or natural person residing in Russia or any legal person, entity or body established in Russia.

2. Paragraph 1 shall not apply to nationals of a Member State or natural persons having a temporary or permanent residence permit in a Member State.

Article 5f

1. It shall be prohibited to sell euro denominated transferable securities issued after 12 April 2022 or units in collective investment undertakings providing exposure to such securities, to any Russian national or natural person residing in Russia or any legal person, entity or body established in Russia.
2. Paragraph 1 shall not apply to nationals of a Member State or natural persons having a temporary or permanent residence permit in a Member State.

Article 5g

1. Without prejudice to the applicable rules concerning reporting, confidentiality and professional secrecy, credit institutions shall:
 - (a) supply to the national competent authority of the Member State where they are located or to the Commission by no later than 27 May 2022, a list of deposits exceeding 100 000 EUR held by Russian nationals or natural persons residing in Russia, or by legal persons, entities or bodies established in Russia. They shall provide updates regarding the amounts of such deposits every 12 months.

- (b) supply to the national competent authority of the Member State where they are located information on deposits exceeding EUR 100 000 held by Russian nationals or natural persons residing in Russia who have acquired the citizenship of a Member State or residence rights in a Member State through an investor citizenship scheme or an investor residence scheme.’;

(10) Articles 6 and 7 are replaced by the following:

Article 6

1. The Member States and the Commission shall inform each other of the measures taken under this Regulation and share any other relevant information at their disposal in connection with this Regulation, in particular information in respect of:
 - (a) authorisations granted under this Regulation;
 - (b) information received under Article 5g;
 - (c) violation and enforcement problems and judgments handed down by national courts.
2. The Member States shall immediately inform each other and the Commission of any other relevant information at their disposal which might affect the effective implementation of this Regulation.

3. Any information provided or received in accordance with this Article shall be used for the purposes for which it was provided or received, including ensuring the effectiveness of the measures set out in this Regulation.

Article 7

The Commission shall be empowered to amend Annexes I and IX on the basis of information supplied by Member States.’;

- (11) Articles 11 and 12 are replaced by the following:

Article 11

1. No claims in connection with any contract or transaction the performance of which has been affected, directly or indirectly, in whole or in part, by the measures imposed under this Regulation, including claims for indemnity or any other claim of this type, such as a claim for compensation or a claim under a guarantee, notably a claim for extension or payment of a bond, guarantee or indemnity, particularly a financial guarantee or financial indemnity, of whatever form, shall be satisfied, if they are made by:
 - (a) legal persons, entities or bodies listed in Annexes III, IV, V, VI, XII or XIII or referred to in point (b) or (c) of Article 5(1), in point (b) or (c) of Article 5(2), in point (c) or (d) of Article 5(3), in point (b) or (c) of Article 5(4) and in point (a), (b) or (c) of Article 5a ;

- (b) any other Russian person, entity or body;
 - (c) any person, entity or body acting through or on behalf of one of the persons, entities or bodies referred to in points (a) or (b) of this paragraph.
2. In any proceedings for the enforcement of a claim, the onus of proving that satisfying the claim is not prohibited by paragraph 1 shall be on the person seeking the enforcement of that claim.
 3. This Article is without prejudice to the right of the persons, entities and bodies referred to in paragraph 1 to judicial review of the legality of the non-performance of contractual obligations in accordance with this Regulation.

Article 12

It shall be prohibited to participate, knowingly and intentionally, in activities the object or effect of which is to circumvent prohibitions in this Regulation including by acting as a substitute for natural or legal persons, entities or bodies referred to in Articles 5, 5a, 5b, 5e and 5f or by acting to their benefit by using the exceptions in Articles 5(6), 5a(2) 5b(2), 5e(2) or 5f(2).’;

(12) The following Article is inserted:

‘Article 12a

1. The Commission shall process personal data in order to carry out its tasks under this Regulation. These tasks include the handling of information on deposits and information on authorisations granted by the competent authorities.
2. For the purposes of this Regulation, the Commission service listed in Annex I is designated as “controller” for the Commission within the meaning of Article 3(8) of Regulation (EU) 2018/1725* in relation to the processing activities necessary to accomplish the tasks referred to in paragraph 1.

* Regulation (EU) 2018/1725 of the European Parliament and of the Council of 23 October 2018 on the protection of natural persons with regard to the processing of personal data by the Union institutions, bodies, offices and agencies and on the free movement of such data, and repealing Regulation (EC) No 45/2001 and Decision No 1247/2002/EC (OJ L 295, 21.11.2018, p. 39).’;

(13) Annex I is replaced by Annex I to this Regulation;

(14) Annex III is amended in accordance with Annex II to this Regulation;

(15) Annex IV is replaced by Annex III to this Regulation;

- (16) Annex V is amended in accordance with Annex IV to this Regulation;
- (17) Annex VI is amended in accordance with Annex V to this Regulation;
- (18) Annex VII is inserted in accordance with Annex VI to this Regulation;
- (19) Annex VIII is inserted in accordance with Annex VII to this Regulation;
- (20) Annex IX is inserted in accordance with Annex VIII to this Regulation;
- (21) Annex X is inserted in accordance with Annex IX to this Regulation;
- (22) Annex XI is inserted in accordance with Annex X to this Regulation;
- (23) Annex XII is inserted in accordance with Annex XI to this Regulation;
- (24) Annex XIII is inserted in accordance with Annex XII to this Regulation.

Article 2

This Regulation shall enter into force on the day following that of its publication in the *Official Journal of the European Union*.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels, 25 February 2022.

For the Council

The President

J. BORRELL FONTELLES

ANNEX I

‘ANNEX I

Websites for information on the competent authorities
and address for notification to the European Commission

BELGIUM

https://diplomatie.belgium.be/nl/Beleid/beleidsthemas/vrede_en_veiligheid/sancties

https://diplomatie.belgium.be/fr/politique/themes_politiques/paix_et_securite/sanctions

https://diplomatie.belgium.be/en/policy/policy_areas/peace_and_security/sanctions

BULGARIA

<https://www.mfa.bg/en/101>

CZECH REPUBLIC

www.financnianalytickyurad.cz/mezinarodni-sankce.html

DENMARK

<http://um.dk/da/Udenrigspolitik/folkeretten/sanktioner/>

GERMANY

<http://www.bmwi.de/DE/Themen/Aussenwirtschaft/aussenwirtschaftsrecht,did=404888.html>

ESTONIA

http://www.vm.ee/est/kat_622/

IRELAND

<http://www.dfa.ie/home/index.aspx?id=28519>

GREECE

<http://www.mfa.gr/en/foreign-policy/global-issues/international-sanctions.html>

SPAIN

<http://www.exteriores.gob.es/Portal/en/PoliticaExteriorCooperacion/GlobalizacionOportunidadesRiesgos/Paginas/SancionesInternacionales.aspx>

FRANCE

<http://www.diplomatie.gouv.fr/fr/autorites-sanctions/>

CROATIA

<http://www.mvep.hr/sankcije>

ITALY

https://www.esteri.it/mae/it/politica_estera/politica_europea/misure_deroghe

CYPRUS

http://www.mfa.gov.cy/mfa/mfa2016.nsf/mfa35_en/mfa35_en?OpenDocument

LATVIA

<http://www.mfa.gov.lv/en/security/4539>

LITHUANIA

<http://www.urm.lt/sanctions>

LUXEMBOURG

<https://maee.gouvernement.lu/fr/directions-du-ministere/affaires-europeennes/organisations-economiques-int/mesures-restrictives.html>

HUNGARY

<https://kormany.hu/kulgaszdasagi-es-kulugyminiszterium/ensz-eu-szankcios-tajekoztato>

MALTA

<https://foreignaffairs.gov.mt/en/Government/SMB/Pages/Sanctions-Monitoring-Board.aspx>

NETHERLANDS

<https://www.rijksoverheid.nl/onderwerpen/internationale-sancties>

AUSTRIA

http://www.bmeia.gv.at/view.php3?f_id=12750&LNG=en&version=

POLAND

<https://www.gov.pl/web/dyplomacja>

PORTUGAL

<http://www.portugal.gov.pt/pt/ministerios/mne/quero-saber-mais/sobre-o-ministerio/medidas-restritivas/medidas-restritivas.aspx>

ROMANIA

<http://www.mae.ro/node/1548>

SLOVENIA

http://www.mzz.gov.si/si/omejevalni_ukrepi

SLOVAKIA

https://www.mzv.sk/europske_zalezitosti/europske_politiky-sankcie_eu

FINLAND

<http://formin.finland.fi/kvyhteisty/pakotteet>

SWEDEN

<http://www.ud.se/sanktioner>

Address for notifications to the European Commission:

European Commission

Directorate-General for Financial Stability, Financial Services and Capital Markets Union (DG FISMA)

Rue de Spa 2

B-1049 Brussels, Belgium

E-mail: relex-sanctions@ec.europa.eu

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ANNEX II

The title of Annex III to Regulation (EU) No 833/2014 is replaced by the following:

‘ANNEX III

List of legal persons, entities and bodies referred to in Article 5(1)(a)

[...]

ANNEX III

‘ANNEX IV

List of natural or legal persons, entities or bodies, referred to in Article 2(7), 2a(7) and 2b(1)

JSC Sirius

OJSC Stankoinstrument

OAo JSC Chemcomposite

JSC Kalashnikov

JSC Tula Arms Plant

NPK Technologii Maschinostrojenija

OAo Wysokototschnye Kompleksi

OAo Almaz Antey

OAo NPO Bazalt

Admiralty Shipyard JSC

Aleksandrov Scientific Research Technological Institute NITI

Argut OOO

Communication center of the Ministry of Defense

Federal Research Center Boreskov Institute of Catalysis

Federal State Budgetary Enterprise of the Administration of the President of Russia

Federal State Budgetary Enterprise Special Flight Unit Rossiya of the Administration of the President of Russia

Federal State Unitary Enterprise Dukhov Automatics Research Institute (VNIIA)

Foreign Intelligence Service (SVR)

Forensic Center of Nizhniy Novgorod Region Main Directorate of the Ministry of Interior Affairs

International Center for Quantum Optics and Quantum Technologies (the Russian Quantum Center)

Irkut Corporation

Irkut Research and Production Corporation Public Joint Stock Company

Joint Stock Company Scientific Research Institute of Computing Machinery

JSC Central Research Institute of Machine Building (JSC TsNIIMash)

JSC Kazan Helicopter Plant Repair Service

JSC Shipyard Zaliv (Zaliv Shipbuilding yard)

JSC Rocket and Space Centre – Progress

Kamensk-Uralsky Metallurgical Works J.S. Co.

Kazan Helicopter Plant PJSC

Komsomolsk-na-Amur Aviation Production Organization (KNAAPO)

Ministry of Defence RF

Moscow Institute of Physics and Technology

NPO High Precision Systems JSC

NPO Splav JSC

OPK Oboronprom

PJSC Beriev Aircraft Company

PJSC Irkut Corporation

PJSC Kazan Helicopters

POLYUS Research Institute of M.F. Stelmakh Joint Stock Company

Promtech-Dubna, JSC

Public Joint Stock Company United Aircraft Corporation

Radiotechnical and Information Systems (RTI) Concern

Rapart Services LLC; Rosoboronexport OJSC (ROE)

Rostec (Russian Technologies State Corporation)

Rostekh – Azimuth

Russian Aircraft Corporation MiG

Russian Helicopters JSC

SP KVANT (Sovmestnoe Predpriyatie Kvantovye Tekhnologii)

Sukhoi Aviation JSC

Sukhoi Civil Aircraft

Tactical Missiles Corporation JSC

Tupolev JSC

UEC-Saturn

United Aircraft Corporation

JSC AeroKompozit

United Engine Corporation

UEC-Aviadvigatel JSC

United Instrument Manufacturing Corporation

United Shipbuilding Corporation

JSC PO Sevmash

Krasnoye Sormovo Shipyard

Severnaya Shipyard

Shipyard Yantar

UralVagonZavod

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ANNEX IV

The title of Annex V to Regulation (EU) No 833/2014 is replaced by the following:

‘ANNEX V

List of legal persons, entities and bodies referred to in Article 5(3)(a)

[...]

ANNEX V

The title of Annex VI to Regulation (EU) No 833/2014 is replaced by the following:

‘ANNEX VI

List of legal persons, entities and bodies referred to in Article 5(3)(b)

[...]

ANNEX VI

‘ANNEX VII

List of goods and technology referred to in Articles 2a(1) and 2b(1)

General Notes, Acronyms and Abbreviations, and Definitions in Annex I to Regulation (EU) 2021/821 apply to this Annex, with the exception of “Part I - General Notes, Acronyms and Abbreviations, and Definitions, General Notes to Annex I, point 2.”.

Definitions of Terms used in the Common Military List (CML) of the European Union (2020/C 85/01) apply to this Annex.

Without prejudice to Article 12 of this regulation, non-controlled items containing one or more components listed in this Annex are not subject to the controls under Art. 2b of this Regulation.

Category I - Electronics

- X.A.I.001 Electronic devices and components.
- a. “Microprocessor microcircuits”, “microcomputer microcircuits”, and microcontroller microcircuits having any of the following:
1. A performance speed of 5 GFLOPS or more and an arithmetic logic unit with an access width of 32 bit or more;
 2. A clock frequency rate exceeding 25 MHz; or

3. More than one data or instruction bus or serial communication port that provides a direct external interconnection between parallel “microprocessor microcircuits” with a transfer rate of 2,5 Mbyte/s;
- b. Storage integrated circuits, as follows:
1. Electrically erasable programmable read-only memories (EEPROMs) with a storage capacity;
 - a. Exceeding 16 Mbits per package for flash memory types; or
 - b. Exceeding either of the following limits for all other EEPROM types:
 1. Exceeding 1 Mbit per package; or
 2. Exceeding 256 kbit per package and a maximum access time of less than 80 ns;
 2. Static random access memories (SRAMs) with a storage capacity:
 - a. Exceeding 1 Mbit per package; or
 - b. Exceeding 256 kbit per package and a maximum access time of less than 25 ns;

- c. Analog-to-digital converters having any of the following:
 - 1. A resolution of 8 bit or more, but less than 12 bit, with an output rate greater than 200 Mega Samples Per Second (MSPS);
 - 2. A resolution of 12 bit with an output rate greater than 10^5 Mega Samples per Second (MSPS);
 - 3. A resolution of more than 12 bit but equal to or less than 14 bit with an output rate greater than 10 Mega Samples per Second (MSPS); or
 - 4. A resolution of more than 14 bit with an output rate greater than 2,5 Mega Samples Per Second (MSPS);
- d. Field programmable logic devices having a maximum number of single-ended digital input/outputs between 200 and 700;
- e. Fast Fourier Transform (FFT) processors having a rated execution time for a 1 024 point complex FFT of less than 1 ms;
- f. Custom integrated circuits for which the function is unknown, or the control status of the equipment in which the integrated circuits will be used is unknown to the manufacturer, having any of the following:
 - 1. More than 144 terminals; or
 - 2. A typical “basic propagation delay time” of less than 0,4 ns;

- g. Traveling-wave “vacuum electronic devices”, pulsed or continuous wave, as follows:
 - 1. Coupled cavity devices, or derivatives thereof;
 - 2. Devices based on helix, folded waveguide, or serpentine waveguide circuits, or derivatives thereof, having any of the following:
 - a. An “instantaneous bandwidth” of half an octave or more and average power (expressed in kW) times frequency (expressed in GHz) of more than 0,2; or
 - b. An “instantaneous bandwidth” of less than half an octave; and average power (expressed in kW) times frequency (expressed in GHz) of more than 0,4;
- h. Flexible waveguides designed for use at frequencies exceeding 40 GHz;
- i. Surface acoustic wave and surface skimming (shallow bulk) acoustic wave devices, having either of the following:
 - 1. A carrier frequency exceeding 1 GHz; or
 - 2. A carrier frequency of 1 GHz or less; and
 - a. A “frequency side-lobe rejection” exceeding 55 dB;

- b. A product of the maximum delay time and bandwidth (time in microseconds and bandwidth in MHz) of more than 100; or
- c. A dispersive delay of more than 10 microseconds;

Technical Note: For the purpose of X.A.I.001.i 'Frequency side-lobe rejection' is the maximum rejection value specified in data sheet.

j. "Cells" as follows:

- 1. "Primary cells" having an "energy density" of 550 Wh/kg or less at 293 K (20°C);
- 2. "Secondary cells" having an "energy density" of 350 Wh/kg or less at 293 K (20°C);

Note: X.A.I.001.j does not control batteries, including single cell batteries.

Technical Notes:

- 1. For the purpose of X.A.I.001.j energy density (Wh/kg) is calculated from the nominal voltage multiplied by the nominal capacity in ampere-hours (Ah) divided by the mass in kilograms. If the nominal capacity is not stated, energy density is calculated from the nominal voltage squared then multiplied by the discharge duration in hours divided by the discharge load in Ohms and the mass in kilograms.
- 2. For the purpose of X.A.I.001.j, a "cell" is defined as an electrochemical device, which has positive and negative electrodes, and electrolyte, and is a source of electrical energy. It is the basic building block of a battery.
- 3. For the purpose of X.A.I.001.j.1, a "primary cell" is a "cell" that is not designed to be charged by any other source.
- 4. For the purpose of X.A.I.001.j.2, a "secondary cell" is a "cell" that is designed to be charged by an external electrical source.

- k. “Superconductive” electromagnets or solenoids specially designed to be fully charged or discharged in less than one minute, having all of the following:
- Note: X.A.I.001.k does not control “superconductive” electromagnets or solenoids designed for Magnetic Resonance Imaging (MRI) medical equipment.
1. Maximum energy delivered during the discharge divided by the duration of the discharge of more than 500 kJ per minute;
 2. Inner diameter of the current carrying windings of more than 250 mm; and
 3. Rated for a magnetic induction of more than 8T or “overall current density” in the winding of more than 300 A/mm²;
- l. Circuits or systems for electromagnetic energy storage, containing components manufactured from “superconductive” materials specially designed for operation at temperatures below the “critical temperature” of at least one of their “superconductive” constituents, having all of the following:
1. Resonant operating frequencies exceeding 1 MHz;
 2. A stored energy density of 1 MJ/m³ or more; and
 3. A discharge time of less than 1 ms;
- m. Hydrogen/hydrogen-isotope thyratrons of ceramic-metal construction and rate for a peak current of 500 A or more;

- n. Not used;
 - o. Solar cells, cell-interconnect-coverglass (CIC) assemblies, solar panels, and solar arrays, which are “space qualified” and not controlled by 3A001.e.4¹.
- X.A.I.002 General purpose "electronic assemblies", modules and equipment.
- a. Electronic test equipment, other than those specified in the CML or in Regulation (EU) 2021/821;
 - b. Digital instrumentation magnetic tape data recorders having any of the following characteristics;
 - 1. A maximum digital interface transfer rate exceeding 60 Mbit/s and employing helical scan techniques;
 - 2. A maximum digital interface transfer rate exceeding 120 Mbit/s and employing fixed head techniques; or
 - 3. “Space qualified”;
 - c. Equipment, with a maximum digital interface transfer rate exceeding 60 Mbit/s, designed to convert digital video magnetic tape recorders for use as digital instrumentation data recorders;
 - d. Non-modular analog oscilloscopes having a bandwidth of 1 GHz or greater;

¹ Ref. Annex I to Regulation (EU) 2021/821

- e. Modular analog oscilloscope systems having either of the following characteristics:
 - 1. A mainframe with a bandwidth of 1 GHz or greater; or
 - 2. Plug-in modules with an individual bandwidth of 4 GHz or greater;
- f. Analog sampling oscilloscopes for the analysis of recurring phenomena with an effective bandwidth greater than 4 GHz;
- g. Digital oscilloscopes and transient recorders, using analog-to-digital conversion techniques, capable of storing transients by sequentially sampling single-shot inputs at successive intervals of less than 1 ns (greater than 1 Giga Samples per Second (GSPS)), digitizing to 8 bits or greater resolution and storing 256 or more samples.

Note: X.A.I.002 controls the following specially designed components for analog oscilloscopes:

- 1. Plug-in units;
- 2. External amplifiers;
- 3. Pre-amplifiers;
- 4. Sampling devices;
- 5. Cathode ray tubes.

X.A.I.003 Specific processing equipment, other than those specified in the CML or in Regulation (EU) 2021/821, as follows:

- a. Frequency changers capable of operating in the frequency range from 300 up to 600 Hz, other than those specified in the CML or in Regulation (EU) 2021/821;

- b. Mass spectrometers, other than those specified in the CML or in Regulation (EU) 2021/821;
- c. All flash x-ray machines, or components of pulsed power systems designed thereof, including Marx generators, high power pulse shaping networks, high voltage capacitors, and triggers;
- d. Pulse amplifiers, other than those specified in the CML or in Regulation (EU) 2021/821;
- e. Electronic equipment for time delay generation or time interval measurement, as follows:
 - 1. Digital time delay generators with a resolution of 50 nanoseconds or less over time intervals of 1 microsecond or greater; or
 - 2. Multi-channel (three or more) or modular time interval meter and chronometry equipment with resolution of 50 nanoseconds or less over time intervals of 1 microsecond or greater;
- f. Chromatography and spectrometry analytical instruments.

X.B.I.001 Equipment for the manufacture of electronic components or materials, as follows and specially designed components and accessories therefor.

- a. Equipment specially designed for the manufacture of electron tubes, optical elements and specially designed components therefor controlled by 3A001¹ or X.A.I.001;
- b. Equipment specially designed for the manufacture of semiconductor devices, integrated circuits and “electronic assemblies”, as follows, and systems incorporating or having the characteristics of such equipment:

Note: X.B.I.001.b. also controls equipment used or modified for use in the manufacture of other devices, such as imaging devices, electro-optical devices, acoustic-wave devices.

1. Equipment for the processing of materials for the manufacture of devices and components as specified in the heading of X.B.I.001.b, as follows:

Note: X.B.I.001 does not control quartz furnace tubes, furnace liners, paddles, boats (except specially designed caged boats), bubblers, cassettes or crucibles specially designed for the processing equipment controlled by X.B.I.001.b.1.

- a. Equipment for producing polycrystalline silicon and materials controlled by 3C001²;
- b. Equipment specially designed for purifying or processing III/V and II/VI semiconductor materials controlled by 3C001, 3C002, 3C003, 3C004, or 3C005³ except crystal pullers, for which see X.B.I.001.b.1.c below;

¹ Ref. Annex I to Regulation (EU) 2021/821

² Ref. Annex I to Regulation (EU) 2021/821

³ Ref. Annex I to Regulation (EU) 2021/821

c. Crystal pullers and furnaces, as follows:

Note: X.B.I.001.b.1.c does not control diffusion and oxidation furnaces.

1. Annealing or recrystallizing equipment other than constant temperature furnaces employing high rates of energy transfer capable of processing wafers at a rate exceeding 0,005 m² per minute;
2. “Stored program controlled” crystal pullers having any of the following characteristics:
 - a. Rechargeable without replacing the crucible container;
 - b. Capable of operation at pressures above 2,5 x 10⁵ Pa; or
 - c. Capable of pulling crystals of a diameter exceeding 100 mm;
- d. “Stored program controlled” equipment for epitaxial growth having any of the following characteristics:
 1. Capable of producing silicon layer with a thickness uniform to less than ± 2,5 % across a distance of 200 mm or more;
 2. Capable of producing a layer of any material other than silicon with a thickness uniformity across the wafer of equal to or better than ± 3,5 %; or

3. Rotation of individual wafers during processing;
- e. Molecular beam epitaxial growth equipment;
 - f. Magnetically enhanced “sputtering” equipment with specially designed integral load locks capable of transferring wafers in an isolated vacuum environment;
 - g. Equipment specially designed for ion implantation, ion-enhanced or photo-enhanced diffusion, having any of the following characteristics:
 1. Patterning capability;
 2. Beam energy (accelerating voltage) exceeding 200 keV;
 3. Optimised to operate at a beam energy (accelerating voltage) of less than 10 keV; or
 4. Capable of high energy oxygen implant into a heated “substrate”;
 - h. “Stored program controlled” equipment for the selective removal (etching) by means of anisotropic dry methods (e.g., plasma), as follows:
 1. “Batch types” having either of the following:
 - a. End-point detection, other than optical emission spectroscopy types; or

- b. Reactor operational (etching) pressure of 26,66 Pa or less;
2. “Single wafer types” having any of the following:
- a. End-point detection, other than optical emission spectroscopy types;
 - b. Reactor operational (etching) pressure of 26,66 Pa or less; or
 - c. Cassette-to-cassette and load locks wafer handling;

Notes:

1. “Batch types” refers to machines not specially designed for production processing of single wafers. Such machines can process two or more wafers simultaneously with common process parameters, e.g., RF power, temperature, etch gas species, flow rates.
2. “Single wafer types” refers to machines specially designed for production processing of single wafers. These machines may use automatic wafer handling techniques to load a single wafer into the equipment for processing. The definition includes equipment that can load and process several wafers but where the etching parameters, e.g., RF power or end point, can be independently determined for each individual wafer.

i. “Chemical vapor deposition” (CVD) equipment, e.g., plasma-enhanced CVD (PECVD) or photo-enhanced CVD, for semiconductor device manufacturing, having either of the following capabilities, for deposition of oxides, nitrides, metals or polysilicon:

1. “Chemical vapor deposition” equipment operating below 105 Pa;
or
2. PECVD equipment operating either below 60 Pa or having automatic cassette-to-cassette and load lock wafer handling;

Note: X.B.I.001.b.1.i does not control low pressure “chemical vapor deposition” (LPCVD) systems or reactive “sputtering” equipment.

j. Electron beam systems specially designed or modified for mask making or semiconductor device processing having any of the following characteristics:

1. Electrostatic beam deflection;
2. Shaped, non-Gaussian beam profile;
3. Digital-to-analog conversion rate exceeding 3 MHz;
4. Digital-to-analog conversion accuracy exceeding 12 bit; or

5. Target-to-beam position feedback control precision of 1 micrometer or finer;

Note: X.B.I.001.b.1.j does not control electron beam deposition systems or general purpose scanning electron microscopes.

- k. Surface finishing equipment for the processing of semiconductor wafers as follows:

1. Specially designed equipment for backside processing of wafers thinner than 100 micrometer and the subsequent separation thereof; or
2. Specially designed equipment for achieving a surface roughness of the active surface of a processed wafer with a two-sigma value of 2 micrometer or less, total indicator reading (TIR);

Note: X.B.I.001.b.1.k does not control single-side lapping and polishing equipment for wafer surface finishing.

- l. Interconnection equipment which includes common single or multiple vacuum chambers specially designed to permit the integration of any equipment controlled by X.B.I.001 into a complete system;

m. “Stored program controlled” equipment using “lasers” for the repair or trimming of “monolithic integrated circuits” with either of the following characteristics:

1. Positioning accuracy less than ± 1 micrometer; or
2. Spot size (kerf width) less than 3 micrometer.

Technical Note: For the purpose of X.B.I.001.b.1, 'sputtering' is an overlay coating process wherein positively charged ions are accelerated by an electric field towards the surface of a target (coating material). The kinetic energy of the impacting ions is sufficient to cause target surface atoms to be released and deposited on the substrate. (Note: Triode, magnetron or radio frequency sputtering to increase adhesion of coating and rate of deposition are ordinary modifications of the process.).

2. Masks, mask substrates, mask-making equipment and image transfer equipment for the manufacture of devices and components as specified in the heading of X.B.I.001, as follows:

Note: The term masks refers to those used in electron beam lithography, X-ray lithography, and ultraviolet lithography, as well as the usual ultraviolet and visible photo-lithography.

- a. Finished masks, reticles and designs therefor, except:
 1. Finished masks or reticles for the production of integrated circuits not controlled by 3A001¹; or

¹ Ref. Annex I to Regulation (EU) 2021/821

2. Masks or reticles, having both of the following characteristics:
 - a. Their design is based on geometries of 2,5 micrometer or more; and
 - b. The design does not include special features to alter the intended use by means of production equipment or “software”;
- b. Mask substrates as follows:
 1. Hard surface (e.g., chromium, silicon, molybdenum) coated “substrates” (e.g., glass, quartz, sapphire) for the preparation of masks having dimensions exceeding 125 mm x 125 mm; or
 2. Substrates specially designed for X-ray masks;
- c. Equipment, other than general purpose computers, specially designed for computer aided design (CAD) of semiconductor devices or integrated circuits;
- d. Equipment or machines, as follows, for mask or reticle fabrication:
 1. Photo-optical step and repeat cameras capable of producing arrays larger than 100 mm x 100 mm, or capable of producing a single exposure larger than 6 mm x 6 mm in the image (i.e., focal) plane, or capable of producing line widths of less than 2,5 micrometer in the photoresist on the “substrate”;

2. Mask or reticle fabrication equipment using ion or “laser” beam lithography capable of producing line widths of less than 2,5 micrometer; or
3. Equipment or holders for altering masks or reticles or adding pellicles to remove defects;

Note: X.B.I.001.b.2.d.1 and b.2.d.2 do not control mask fabrication equipment using photo-optical methods which was either commercially available before the 1st January 1980, or has a performance no better than such equipment.

- e. “Stored program controlled” equipment for the inspection of masks, reticles or pellicles with:
 1. A resolution of 0,25 micrometer or finer; and
 2. A precision of 0,75 micrometer or finer over a distance in one or two coordinates of 63,5 mm or more;

Note: X.B.I.001.b.2.e does not control general purpose scanning electron microscopes except when specially designed and instrumented for automatic pattern inspection.

- f. Align and expose equipment for wafer production using photo-optical or X-ray methods, e.g., lithography equipment, including both projection image transfer equipment and step and repeat (direct step on wafer) or step and scan (scanner) equipment, capable of performing any of the following functions:

Note: X.B.I.001.b.2.f does not control photo-optical contact and proximity mask align and expose equipment or contact image transfer equipment.

1. Production of a pattern size of less than 2,5 micrometer;
 2. Alignment with a precision finer than $\pm 0,25$ micrometer (3 sigma);
 3. Machine-to-machine overlay no better than $\pm 0,3$ micrometer; or
 4. A light source wavelength shorter than 400 nm;
- g. Electron beam, ion beam or X-ray equipment for projection image transfer capable of producing patterns less than 2,5 micrometer;

Note: For focused, deflected-beam systems (direct write systems), see X.B.I.001.b.1.j.

- h. Equipment using “lasers” for direct write on wafers capable of producing patterns less than 2,5 micrometer.

3. Equipment for the assembly of integrated circuits, as follows:
 - a. “Stored program controlled” die bonders having all of the following characteristics:
 1. Specially designed for “hybrid integrated circuits”;
 2. X-Y stage positioning travel exceeding 37,5 x 37,5 mm; and
 3. Placement accuracy in the X-Y plane of finer than ± 10 micrometer;
 - b. “Stored program controlled” equipment for producing multiple bonds in a single operation (e.g., beam lead bonders, chip carrier bonders, tape bonders);
 - c. Semi-automatic or automatic hot cap sealers, in which the cap is heated locally to a higher temperature than the body of the package, specially designed for ceramic microcircuit packages controlled by 3A001¹ and that have a throughput equal to or more than one package per minute.

Note: X.B.I.001.b.3 does not control general purpose resistance type spot welders.

¹ Ref. Annex I to Regulation (EU) 2021/821

4. Filters for clean rooms capable of providing an air environment of 10 or less particles of 0,3 micrometer or smaller per 0,02832 m³ and filter materials therefor.

Technical Note: For the purpose of X.B.I.001, 'stored program controlled' is a control using instructions stored in an electronic storage that a processor can execute in order to direct the performance of predetermined functions. Equipment may be 'stored program controlled' whether the electronic storage is internal or external to the equipment.

X.B.I.002 Equipment for the inspection or testing of electronic components and materials, and specially designed components and accessories therefor.

- a. Equipment specially designed for the inspection or testing of electron tubes, optical elements and specially designed components therefor controlled by 3A001¹ or X.A.I.001;
- b. Equipment specially designed for the inspection or testing of semiconductor devices, integrated circuits and “electronic assemblies”, as follows, and systems incorporating or having the characteristics of such equipment:

Note: X.B.I.002.b also controls equipment used or modified for use in the inspection or testing of other devices, such as imaging devices, electro-optical devices, acoustic-wave devices.

1. “Stored program controlled” inspection equipment for the automatic detection of defects, errors or contaminants of 0,6 micrometer or less in or on processed wafers, substrates, other than printed circuit boards or chips, using optical image acquisition techniques for pattern comparison;

¹ Ref. Annex I to Regulation (EU) 2021/821

Note: X.B.I.002.b.1 does not control general purpose scanning electron microscopes, except when specially designed and instrumented for automatic pattern inspection.

2. Specially designed “stored program controlled” measuring and analysis equipment, as follows:
 - a. Specially designed for the measurement of oxygen or carbon content in semiconductor materials;
 - b. Equipment for line width measurement with a resolution of 1 micrometer or finer;
 - c. Specially designed flatness measurement instruments capable of measuring deviations from flatness of 10 micrometer or less with a resolution of 1 micrometer or finer.
3. “Stored program controlled” wafer probing equipment having any of the following characteristics:
 - a. Positioning accuracy finer than 3,5 micrometer;
 - b. Capable of testing devices having more than 68 terminals; or
 - c. Capable of testing at a frequency exceeding 1 GHz;

4. Test equipment as follows:
- a. “Stored program controlled” equipment specially designed for testing discrete semiconductor devices and unencapsulated dice, capable of testing at frequencies exceeding 18 GHz;
- Technical Note: Discrete semiconductor devices include photocells and solar cells.
- b. “Stored program controlled” equipment specially designed for testing integrated circuits and “electronic assemblies” thereof, capable of functional testing:
1. At a “pattern rate” exceeding 20 MHz; or
 2. At a “pattern rate” exceeding 10 MHz but not exceeding 20 MHz and capable of testing packages of more than 68 terminals.

Notes: X.B.I.002.b.4.b does not control test equipment specially designed for testing:

1. Memories;
2. “Assemblies” or a class of “electronic assemblies” for home and entertainment applications; and
3. Electronic components, “electronic assemblies” and integrated circuits not controlled by 3A001¹ or X.A.I.001 provided such test equipment does not incorporate computing facilities with “user accessible programmability”.

¹ Ref. Annex I to Regulation (EU) 2021/821

Technical Note: For purposes of X.B.I.002.b.4.b, “pattern rate” is defined as the maximum frequency of digital operation of a tester. It is therefore equivalent to the highest data rate that a tester can provide in non-multiplexed mode. It is also referred to as test speed, maximum digital frequency or maximum digital speed.

- c. Equipment specially designed for determining the performance of focal-plane arrays at wavelengths of more than 1 200 nm, using “stored program controlled” measurements or computer aided evaluation and having any of the following characteristics:
 1. Using scanning light spot diameters of less than 0,12 mm;
 2. Designed for measuring photosensitive performance parameters and for evaluating frequency response, modulation transfer function, uniformity of responsivity or noise; or
 3. Designed for evaluating arrays capable of creating images with more than 32 x 32 line elements;
5. Electron beam test systems designed for operation at 3 keV or below, or “laser” beam systems, for non-contactive probing of powered-up semiconductor devices having any of the following:
 - a. Stroboscopic capability with either beam blanking or detector strobing;

- b. An electron spectrometer for voltage measurements with a resolution of less than 0,5 V; or
- c. Electrical tests fixtures for performance analysis of integrated circuits;

Note: X.B.I.002.b.5 does not control scanning electron microscopes, except when specially designed and instrumented for non-contactive probing of a powered-up semiconductor device.

- 6. “Stored program controlled” multifunctional focused ion beam systems specially designed for manufacturing, repairing, physical layout analysis and testing of masks or semiconductor devices and having either of the following characteristics:
 - a. Target-to-beam position feedback control precision of 1 micrometer or finer; or
 - b. Digital-to-analog conversion accuracy exceeding 12 bit;
- 7. Particle measuring systems employing “lasers” designed for measuring particle size and concentration in air having both of the following characteristics:
 - a. Capable of measuring particle sizes of 0,2 micrometer or less at a flow rate of 0,02832 m³ per minute or more; and
 - b. Capable of characterizing Class 10 clean air or better.

Technical Note: For the purpose of X.B.I.002, “stored program controlled” is a control using instructions stored in an electronic storage that a processor can execute in order to direct the performance of predetermined functions. Equipment may be “stored program controlled” whether the electronic storage is internal or external to the equipment.

- X.C.I.001 Positive resists designed for semiconductor lithography specially adjusted (optimised) for use at wavelengths between 370 and 193 nm.
- X.D.I.001 “Software” specially designed for the “development”, “production”, or “use” of electronic devices or components controlled by X.A.I.001, general purpose electronic equipment controlled by X.A.I.002, or manufacturing and test equipment controlled by X.B.I.001 and X.B.I.002; or “software” specially designed for the “use” of equipment controlled by 3B001.g and 3B001.h¹.
- X.E.I.001 “Technology” for the “development”, “production” or “use” of electronic devices or components controlled by X.A.I.001, general purpose electronic equipment controlled by X.A.I.002, or manufacturing and test equipment controlled by X.B.I.001 or X.B.I.002, or materials controlled by X.C.I.001.

¹ Ref. Annex I to Regulation (EU)2021/821

Category II – Computers

Note: Category II does not control goods for the personal use of the natural persons.

X.A.II.001 Computers, “electronic assemblies” and related equipment, not controlled by 4A001 or 4A003¹, and specially designed components therefor.

Note: The control status of the “digital computers” and related equipment described in X.A.II.001 is determined by the control status of other equipment or systems provided:

- a. The “digital computers” or related equipment are essential for the operation of the other equipment or systems;
- b. The “digital computers” or related equipment are not a “principal element” of the other equipment or systems; and

N.B.1: The control status of “signal processing” or “image enhancement” equipment specially designed for other equipment with functions limited to those required for the other equipment is determined by the control status of the other equipment even if it exceeds the “principal element” criterion.

N.B.2: For the control status of “digital computers” or related equipment for telecommunications equipment, see Category 5, Part 1 (Telecommunications)².

- c. The “technology” for the “digital computers” and related equipment is determined by 4E³.

¹ Ref. Annex I to Regulation (EU) 2021/821

² Ref. Annex I to Regulation (EU) 2021/821

³ Ref. Annex I to Regulation (EU) 2021/821

- a. Electronic computers and related equipment, and “electronic assemblies” and specially designed components therefor, rated for operation at an ambient temperature above 343 K (70°C);
- b. “Digital computers”, including equipment of “signal processing” or image enhancement”, having an “Adjusted Peak Performance” (“APP”) equal to or greater than 0,0128 Weighted TeraFLOPS (WT);
- c. “Electronic assemblies” that are specially designed or modified to enhance performance by aggregation of processors, as follows:

1. Designed to be capable of aggregation in configurations of 16 or more processors;
2. Not used;

Note 1: X.A.II.001.c applies only to “electronic assemblies” and programmable interconnections with a “APP” not exceeding the limits in X.A.II.001.b, when shipped as unintegrated “electronic assemblies”. It does not apply to “electronic assemblies” inherently limited by nature of their design for use as related equipment controlled by X.A.II.001.k.

Note 2: X.A.II.001.c does not control any “electronic assembly” specially designed for a product or family of products whose maximum configuration does not exceed the limits of X.A.II.001.b.

- d. Not used;
- e. Not used;

- f. Equipment for “signal processing” or “image enhancement” having an “Adjusted Peak Performance” (“APP”) equal to or greater than 0,0128 Weighted TeraFLOPS WT;
- g. Not used;
- h. Not used;
- i. Equipment containing “terminal interface equipment” exceeding the limits in X.A.III.101;

Technical Note: For the purpose of X.A.II.001.i, “terminal interface equipment” means equipment at which information enters or leaves the telecommunication system, e.g. telephone, data device, computer, etc.

- j. Equipment specially designed to provide external interconnection of “digital computers” or associated equipment that allows communications at data rates exceeding 80 Mbyte/s.

Note: X.A.II.001.j does not control internal interconnection equipment (e.g., backplanes, buses) passive interconnection equipment, “network access controllers” or “communication channel controllers”.

Technical Note: For the purpose of X.A.II.001.j, “communication channel controllers” is the physical interface which controls the flow of synchronous or asynchronous digital information. It is an assembly that can be integrated into computer or telecommunications equipment to provide communications access.

- k. “Hybrid computers” and “electronic assemblies” and specially designed components therefor containing analog-to-digital converters having all of the following characteristics:
 - 1. 32 channels or more; and
 - 2. A resolution of 14 bit (plus sign bit) or more with a conversion rate of 200 000 Hz or more.

X.D.II.001 “Program” proof and validation “software”, “software” allowing the automatic generation of “source codes”, and operating system “software” that are specially designed for “real-time processing” equipment.

- a. “Program” proof and validation “software” using mathematical and analytical techniques and designed or modified for “programs” having more than 500 000 “source code” instructions;
- b. “Software” allowing the automatic generation of “source codes” from data acquired on line from external sensors described in the Regulation (EU) 2021/821; or
- c. Operating system “software” specially designed for “real-time processing” equipment that guarantees a “global interrupt latency time” of less than 20 microseconds.

Technical Note: For the purpose of X.D.II.001, 'global interrupt latency time' is the time taken by the computer system to recognise an interrupt due to the event, service the interrupt and perform a context switch to an alternate memory-resident task waiting on the interrupt.

X.D.II.002 “Software” other than that controlled in 4D001¹ specially designed or modified for the “development”, “production” or “use” of equipment controlled by 4A101², X.A.II.001.

X.E.II.001 “Technology” for the “development”, “production” or “use” of equipment controlled by X.A.II.001, or “software” controlled by X.D.II.001 or X.D.II.002.

X.E.II.001 “Technology” for the “development” or “production” of equipment designed for 'multi-data-stream processing'.

Technical Note: For the purpose of X.E.II.001, “multi-data-stream processing” is a microprogram or equipment architecture technique that permits simultaneous processing of two or more data sequences under the control of one or more instruction sequences by means such as:

1. Single Instruction Multiple Data (SIMD) architectures such as vector or array processors;
2. Multiple Single Instruction Multiple Data (MSIMD) architectures;
3. Multiple Instruction Multiple Data (MIMD) architectures, including those that are tightly coupled, closely coupled or loosely coupled; or
4. Structured arrays of processing elements, including systolic arrays.

Category III. Part 1 – Telecommunications

Note: Category III.Part 1 does not control goods for the personal use of the natural persons.

¹ Ref. Annex I to Regulation (EU) 2021/821

² Ref. Annex I to Regulation (EU) 2021/821

X.A.III.101 Telecommunication equipment.

- a. Any type of telecommunications equipment, not controlled by 5A001.a¹, specially designed to operate outside the temperature range from 219 K (-54°C) to 397 K (124°C).
- b. Telecommunication transmission equipment and systems, and specially designed components and accessories therefor, having any of the following characteristics, functions or features:

Note: Telecommunication transmission equipment:

- a. Categorised as follows, or combinations thereof:
 1. Radio equipment (e.g., transmitters, receivers and transceivers);
 2. Line terminating equipment;
 3. Intermediate amplifier equipment;
 4. Repeater equipment;
 5. Regenerator equipment;
 6. Translation encoders (transcoders);
 7. Multiplex equipment (statistical multiplex included);
 8. Modulators/demodulators (modems);
 9. Transmultiplex equipment (see CCITT Rec. G701);
 10. "Stored program controlled" digital cross-connection equipment;
 11. "Gateways" and bridges;
 12. "Media access units"; and

¹ Ref. Annex I to Regulation (EU) 2021/821

- b. Designed for use in single or multi-channel communication via any of the following:
 1. Wire (line);
 2. Coaxial cable;
 3. Optical fibre cable;
 4. Electromagnetic radiation; or
 5. Underwater acoustic wave propagation.
1. Employing digital techniques, including digital processing of analog signals, and designed to operate at a “digital transfer rate” at the highest multiplex level exceeding 45 Mbit/s or a “total digital transfer rate” exceeding 90 Mbit/s;

Note: X.A.III.101.b.1 does not control equipment specially designed to be integrated and operated in any satellite system for civil use.

2. Modems using the “bandwidth of one voice channel” with a “data signalling rate” exceeding 9 600 bits per second;
3. Being “stored program controlled” digital cross connect equipment with “digital transfer rate” exceeding 8,5 Mbit/s per port.
4. Being equipment containing any of the following:
 - a. “Network access controllers” and their related common medium having a “digital transfer rate” exceeding 33 Mbit/s; or
 - b. “Communication channel controllers” with a digital output having a “data signalling rate” exceeding 64 000 bit/s per channel;

Note: If any uncontrolled equipment contains a “network access controller”, it cannot have any type of telecommunications interface, except those described in, but not controlled by X.A.III.101.b.4.

5. Employing a “laser” and having any of the following characteristics:
 - a. A transmission wavelength exceeding 1 000 nm; or
 - b. Employing analog techniques and having a bandwidth exceeding 45 MHz;
 - c. Employing coherent optical transmission or coherent optical detection techniques (also called optical heterodyne or homodyne techniques);
 - d. Employing wavelength division multiplexing techniques; or
 - e. Performing “optical amplification”;
6. Radio equipment operating at input or output frequencies exceeding:
 - a. 31 GHz for satellite-earth station applications; or
 - b. 26,5 GHz for other applications;

Note: X.A.III.101.b.6 does not control equipment for civil use when conforming with an International Telecommunications Union (ITU) allocated band between 26,5 GHz and 31 GHz.
7. Being radio equipment employing any of the following:
 - a. Quadrature-amplitude-modulation (QAM) techniques above level 4 if the “total digital transfer rate” exceeds 8,5 Mbit/s;

- b. QAM techniques above level 16 if the “total digital transfer rate” is equal to or less than 8,5 Mbit/s;
- c. Other digital modulation techniques and having a “spectral efficiency” exceeding 3 bit/s/Hz; or
- d. Operating in the 1,5 MHz to 87,5 MHz band and incorporating adaptive techniques providing more than 15 dB suppression of an interfering signal.

Notes:

1. X.A.III.101.b.7 does not control equipment specially designed to be integrated and operated in any satellite system for civil use.
2. X.A.III.101.b.7 does not control radio relay equipment for operation in an International Telecommunications Union (ITU) allocated band:
 - a. Having any of the following:
 1. Not exceeding 960 MHz; or
 2. With a “total digital transfer rate” not exceeding 8,5 Mbit/s; and
 - b. Having a “spectral efficiency” not exceeding 4 bit/s/Hz.
- c. “Stored program controlled” switching equipment and related signalling systems, having any of the following characteristics, functions or features, and specially designed components and accessories therefor:

Note: Statistical multiplexers with digital input and digital output which provide switching are treated as 'stored program controlled' switches.

1. “Data (message) switching” equipment or systems designed for “packet-mode operation”, electronic assemblies and components therefor, other than those specified in the CML or in Regulation (EU) 2021/821.

2. Not used;
3. Routing or switching of “datagram” packets;
Note: X.A.III.101.c.3 does not control networks restricted to using only “network access controllers” or to “network access controllers” themselves.
4. Not used;
5. Multi-level priority and pre-emption for circuit switching;
Note: X.A.III.101.c.5 does not control single-level call preemption.
6. Designed for automatic hand-off of cellular radio calls to other cellular switches or automatic connection to a centralised subscriber data base common to more than one switch;
7. Containing “stored program controlled” digital cross connect equipment with “digital transfer rate” exceeding 8,5 Mbit/s per port.
8. “Common channel signalling” operating in either non-associated or quasi-associated mode of operation;
9. “Dynamic adaptive routing”;

10. Being packet switches, circuit switches and routers with ports or lines exceeding any of the following:
 - a. A “data signalling rate” of 64 000 bit/s per channel for a ‘communications channel controller’; or

Note: X.A.III.101.c.10.a does not control multiplex composite links composed only of communication channels not individually controlled by X.A.III.101.b.1.
 - b. A “digital transfer rate” of 33 Mbit/s for a “network access controller” and related common media;

Note: X.A.III.101.c.10 does not control packet switches or routers with ports or lines not exceeding the limits in X.A.III.101.c.10.
11. “Optical switching”;
12. Employing “Asynchronous Transfer Mode” (“ATM”) techniques.
- d. Optical fibres and optical fibre cables of more than 50 m in length designed for single mode operation;
- e. Centralised network control having all of the following characteristics:
 1. Receives data from the nodes; and
 2. Process these data in order to provide control of traffic not requiring operator decisions, and thereby performing “dynamic adaptive routing”;

Note 1: X.A.III.101.e does not include cases of routing decisions taken on predefined information.

Note 2: X.A.III.101.e does not preclude control of traffic as a function of predictable statistical traffic conditions.

- f. Phased array antennas, operating above 10,5 GHz, containing active elements and distributed components, and designed to permit electronic control of beam shaping and pointing, except for landing systems with instruments meeting International Civil Aviation Organization (ICAO) standards (microwave landing systems (MLS)).
- g. Mobile communications equipment other than those specified in the CML or in Regulation (EU) 2021/821, electronic assemblies and components therefor; or
- h. Radio relay communications equipment designed for use at frequencies equal to or exceeding 19,7 GHz and components therefor, other than those specified in the CML or in Regulation (EU) 2021/821.

Technical Note: For the purpose of X.A.III.101:

- 1) “Asynchronous transfer mode” (“ATM”) is a transfer mode in which the information is organised into cells; it is asynchronous in the sense that the recurrence of cells depends on the required or instantaneous bit rate.
- 2) “Bandwidth of one voice channel” is data communication equipment designed to operate in one voice channel of 3 100 Hz, as defined in CCITT Recommendation G.151.
- 3) “Communications channel controller” is the physical interface that controls the flow of synchronous or asynchronous digital information. It is an assembly that can be integrated into computer or telecommunications equipment to provide communications access.

- 4) "Datagram" is a self-contained, independent entity of data carrying sufficient information to be routed from the source to the destination data terminal equipment without reliance on earlier exchanges between this source and destination data terminal equipment and the transporting network.
- 5) "Fast select" is a facility applicable to virtual calls that allows data terminal equipment to expand the possibility to transmit data in call set-up and clearing "packets" beyond the basic capabilities of a virtual call.
- 6) "Gateway" is the function, realised by any combination of equipment and "software", to carry out the conversion of conventions for representing, processing or communicating information used on one system into the corresponding, but different conventions used in another system.
- 7) "Integrated Services Digital Network" (ISDN) is a unified end-to-end digital network, in which data originating from all types of communication (e.g., voice, text, data, still and moving pictures) are transmitted from one port (terminal) in the exchange (switch) over one access line to and from the subscriber.
- 8) "Packet" is a group of binary digits including data and call control signals that is switched as a composite whole. The data, call control signals, and possible error control information are arranged in a specified format.
- 9) "Common channel signalling" means the transmission of control information (signalling) via a separate channel than that used for the messages. The signalling channel usually controls multiple message channels.
- 10) "Data signalling rate" means the rate, as defined in ITU Recommendation 53-36, taking into account that, for non-binary modulation, baud and bit per second are not equal. Bits for coding, checking and synchronization functions are to be included.
- 11) "Dynamic adaptive routing" means Automatic rerouting of traffic based on sensing and analysis of current actual network conditions
- 12) "Media access unit" means equipment that contains one or more communication interfaces ("network access controller", "communications channel controller", modem or computer bus) to connect terminal equipment to a network.

- 13) “Spectral efficiency” is the “digital transfer rate” [bits/s] / 6 dB spectrum bandwidth in Hz.
- 14) “Stored program controlled” is a control using instructions stored in an electronic storage that a processor can execute in order to direct the performance of predetermined functions. Note: Equipment may be “stored program controlled” whether the electronic storage is internal or external to the equipment.

X.B.III.101 Telecommunications test equipment, other than those specified in the CML or in Regulation (EU) 2021/821.

X.C.III.101 Preforms of glass or of any other material optimised for the manufacture of optical fibres controlled by X.A.III.101.

X.D.III.101 “Software” specially designed or modified for the “development”, “production” or “use” of equipment controlled by X.A.III.101 and X.B.III.101, and dynamic adaptive routing software as described as follows:

- a. “Software”, other than in machine-executable form, specially designed for “dynamic adaptive routing”.
- b. Not used;

X.E.III.101 “Technology” for the “development”, “production” or “use” of equipment controlled by X.A.III.101 or X.B.III.101, or “software” controlled by X.D.III.101, and other “technologies” as follows:

- a. Specific “technologies” as follows:
 1. “Technology” for the processing and application of coatings to optical fibre specially designed to make it suitable for underwater use;
 2. “Technology” for the “development” of equipment employing “Synchronous Digital Hierarchy” (“SDH”) or “Synchronous Optical Network” (“SONET”) techniques.

Technical Note: For the purpose of X.E.III.101:

- 1) “Synchronous digital hierarchy” (SDH) is a digital hierarchy providing a means to manage, multiplex, and access various forms of digital traffic using a synchronous transmission format on different types of media. The format is based on the Synchronous Transport Module (STM) that is defined by CCITT Recommendation G.703, G.707, G.708, G.709 and others yet to be published. The first level rate of “SDH” is 155,52 Mbits/s.
- 2) “Synchronous optical network” (SONET) is a network providing a means to manage, multiplex and access various forms of digital traffic using a synchronous transmission format on fibre optics. The format is the North America version of “SDH” and also uses the Synchronous Transport Module (STM). However, it uses the Synchronous Transport Signal (STS) as the basic transport module with a first level rate of 51,81 Mbits/s. The SONET standards are being integrated into those of “SDH”.

Category III. Part 2 - Information Security

Note: Category III.Part 2 does not control goods for the personal use of the natural persons.

X.A.III.201 Equipment as follows:

- a. Not used;
- b. Not used;
- c. Goods classified as mass market encryption in accordance with Cryptography Note – Note 3 to Category 5, Part 2¹.

X.D.III.201 “Information Security” “software” as follows:

Note: This entry does not control “software” designed or modified to protect against malicious computer damage, e.g., viruses, where the use of “cryptography” is limited to authentication, digital signature and/or the decryption of data or files.

- a. Not used;
- b. Not used;
- c. “Software” classified as mass market encryption software in accordance with Cryptography Note – Note 3 to Category 5, Part 2².

¹ Ref. Annex I to Regulation (EU) 2021/821

² Ref. Annex I to Regulation (EU) 2021/821

X.E.III.201 “Information Security” “technology” according to the General Technology Note, as follows:

- a. Not used;
- b. “Technology”, other than specified in the CML or in Regulation (EU) 2021/821, for the “use” of mass market goods controlled by X.A.III.201.c or mass market “software” controlled by X.D.III.201.c.

Category IV – Sensors and Lasers

X.A.IV.001 Marine or terrestrial acoustic equipment, capable of detecting or locating underwater objects or features or positioning surface vessels or underwater vehicles; and specially designed components, other than those specified in the CML or in Regulation (EU) 2021/821.

X.A.IV.002 Optical Sensors as follows:

- a. Image intensifier tubes and specially designed components therefor, as follows:
 1. Image intensifier tubes having all the following:
 - a. A peak response in wavelength range exceeding 400 nm, but not exceeding 1 050 nm;
 - b. A microchannel plate for electron image amplification with a hole pitch (center-to-center spacing) of less than 25 micrometers; and
 - c. Having any of the following:
 1. An S-20, S-25 or multialkali photocathode; or
 2. A GaAs or GaInAs photocathode;

2. Specially designed microchannel plates having both of the following characteristics:
 - a. 15 000 or more hollow tubes per plate; and
 - b. Hole pitch (center-to-center spacing) of less than 25 micrometers.
 - b. Direct view imaging equipment operating in the visible or infrared spectrum, incorporating image intensifier tubes having the characteristics listed in X.A.IV.002.a.1.
- X.A.IV.003 Cameras as follows:
- a. Cameras that meet the criteria of Note 3 to 6A003.b.4.¹
 - b. Not used;
- X.A.IV.004 Optics as follows:
- a. Optical filters:
 1. For wavelengths longer than 250 nm, comprised of multi-layer optical coatings and having either of the following:
 - a. Bandwidths equal to or less than 1 nm Full Width Half Intensity (FWHI) and peak transmission of 90 % or more; or

¹ Ref. Annex I to Regulation (EU) 2021/821

- b. Bandwidths equal to or less than 0,1 nm FWHI and peak transmission of 50 % or more;

Note: X.A.IV.004 does not control optical filters with fixed air gaps or Lyot-type filters.

- 2. For wavelengths longer than 250 nm, and having all of the following:
 - a. Tunable over a spectral range of 500 nm or more;
 - b. Instantaneous optical bandpass of 1,25 nm or less;
 - c. Wavelength resettable within 0,1 ms to an accuracy of 1 nm or better within the tunable spectral range; and
 - d. A single peak transmission of 91 % or more;
 - 3. Optical opacity switches (filters) with a field of view of 30° or wider and a response time equal to or less than 1 ns;
- b. “Fluoride fibre” cable, or optical fibres therefor, having an attenuation of less than 4 dB/km in the wavelength range exceeding 1 000 nm but not exceeding 3 000 nm.

Technical Note: For the purpose of X.A.IV.004.b “Fluoride fibres” are fibres manufactured from bulk fluoride compounds.

X.A.IV.005 “Lasers” as follows:

- a. Carbon dioxide (CO₂) “lasers” having any of the following:
 1. A CW output power exceeding 10 kW;
 2. A pulsed output with a “pulse duration” exceeding 10 µs; and
 - a. An average output power exceeding 10 kW; or
 - b. A pulsed “peak power” exceeding 100 kW; or
 3. A pulsed output with a “pulse duration” equal to or less than 10 µs; and
 - a. A pulse energy exceeding 5 J per pulse and “peak power” exceeding 2,5 kW; or
 - b. An average output power exceeding 2,5 kW;
- b. Semiconductor lasers, as follows:
 1. Individual, single-transverse mode semiconductor “lasers” having:
 - a. An average output power exceeding 100 mW; or
 - b. A wavelength exceeding 1 050 nm;

2. Individual, multiple-transverse mode semiconductor “lasers”, or arrays of individual semiconductor “lasers”, having a wavelength exceeding 1 050 nm;
- c. Ruby “lasers” having an output energy exceeding 20 J per pulse;
- d. Non-“tunable” “pulsed lasers” having an output wavelength exceeding 975 nm but not exceeding 1 150 nm and having any of the following:
 1. A “pulse duration” equal to or exceeding 1 ns but not exceeding 1 μ s, and having any of the following:
 - a. A single transverse mode output and having any of the following:
 1. A “wall-plug efficiency” exceeding 12 % and an “average output power” exceeding 10 W and capable of operating at a pulse repetition frequency greater than 1 kHz; or
 2. An “average output power” exceeding 20 W; or
 - b. A multiple transverse mode output and having any of the following:
 1. A “wall-plug efficiency” exceeding 18 % and an “average output power” exceeding 30W;
 2. A “peak power” exceeding 200 MW; or
 3. An “average output power” exceeding 50 W; or

2. A “pulse duration” exceeding 1 μ s and having any of the following:
 - a. A single transverse mode output and having any of the following:
 1. A “wall-plug efficiency” exceeding 12 % and an “average output power” exceeding 10 W and capable of operating at a pulse repetition frequency greater than 1 kHz; or
 2. An “average output power” exceeding 20 W; or
 - b. A multiple transverse mode output and having any of the following:
 1. A “wall-plug efficiency” exceeding 18 % and an “average output power” exceeding 30 W; or
 2. An “average output power” exceeding 500 W;
- e. Non-“tunable” continuous wave “(CW) lasers”, having an output wavelength exceeding 975 nm but not exceeding 1 150 nm and having any of the following:
 1. A single transverse mode output and having any of the following:
 - a. A “wall-plug efficiency” exceeding 12 % and an “average output power” exceeding 10 W and capable of operating at a pulse repetition frequency greater than 1 kHz; or
 - b. An “average output power” exceeding 50 W; or

2. A multiple transverse mode output and having any of the following:
 - a. A “wall-plug efficiency” exceeding 18 % and an “average output power” exceeding 30 W; or
 - b. An “average output power” exceeding 500 W;

Note: X.A.IV.005.e.2.b does not control multiple transverse mode, industrial “lasers” with output power less than or equal to 2 kW with a total mass greater than 1 200kg. For the purpose of this note, total mass includes all components required to operate the “laser”, e.g., “laser”, power supply, heat exchanger, but excludes external optics for beam conditioning and/or delivery.

- f. Non-“tunable” “lasers”, having a wavelength exceeding 1 400 nm, but not exceeding 1 555 nm and having any of the following:
 1. An output energy exceeding 100 mJ per pulse and a pulsed “peak power” exceeding 1 W; or
 2. An average or CW output power exceeding 1 W;
- g. Free electron “lasers”.

Technical Note: For the purpose of X.A.IV.005 “Wall-plug efficiency” is defined as the ratio of “laser” output power (or “average output power”) to total electrical input power required to operate the “laser”, including the power supply/conditioning and thermal conditioning/heat exchanger.

X.A.IV.006 “Magnetometers”, “Superconductive” electromagnetic sensors, and specially designed components therefor, as follows:

- a. “Magnetometers”, other than those specified in the CML or in Regulation (EU) 2021/821, having a “sensitivity” lower (better) than 1,0 nT (rms) per square root Hz.

Technical Note: For the purposes of X.A.IV.006.a, “sensitivity” (noise level) is the root mean square of the device-limited noise floor which is the lowest signal that can be measured.

- b. “Superconductive” electromagnetic sensors, components manufactured from “superconductive” materials:
 1. Designed for operation at temperatures below the “critical temperature” of at least one of their “superconductive” constituents (including Josephson effect devices or “superconductive” quantum interference devices (SQUIDS));
 2. Designed for sensing electromagnetic field variations at frequencies of 1 KHz or less; and
 3. Having any of the following characteristics:
 - a. Incorporating thin-film SQUIDS with a minimum feature size of less than 2 μm and with associated input and output coupling circuits;
 - b. Designed to operate with a magnetic field slew rate exceeding 1×10^6 magnetic flux quanta per second;

- c. Designed to function without magnetic shielding in the earth's ambient magnetic field; or
- d. Having a temperature coefficient less (smaller) than 0,1 magnetic flux quantum/K.

X.A.IV.007 Gravity meters (gravimeters) for ground use, other than those specified in the CML or in Regulation (EU) 2021/821, as follows:

- a. Having a static accuracy of less (better) than 100 μ Gal; or
- b. Being of the quartz element (Worden) type.

X.A.IV.008 Radar systems, equipment and major components, other than those specified in the CML or in Regulation (EU) 2021/821, and specially designed components therefor, as follows:

- a. Airborne radar equipment, other than those specified in the CML or in Regulation (EU) 2021/821, and specially designed components therefor.
- b. "Space-qualified" "laser" radar or Light Detection and Ranging (LIDAR) equipment specially designed for surveying or for meteorological observation.
- c. Millimeter wave enhanced vision radar imaging systems specially designed for rotary wing aircraft and having all of the following:
 - 1. Operates at a frequency of 94 GHz;

2. An average output power of less than 20 mW;
3. Radar beam width of 1 degree; and
4. Operating range equal to or greater than 1 500 m.

X.A.IV.009 Specific processing equipment, as follows:

- a. Seismic detection equipment not controlled by X.A.IV.009.c.
- b. Radiation hardened TV cameras, other than those specified in the CML or in Regulation (EU) 2021/821.
- c. Seismic intrusion detection systems that detect, classify and determine the bearing on the source of a detected signal.

X.B.IV.001 Equipment, including tools, dies, fixtures or gauges, and other specially designed components and accessories therefor, specially designed or modified for any of the following:

- a. For the manufacture or inspection of:
 1. Free electron “laser” magnet wigglers;
 2. Free electron “laser” photo injectors;

- b. For the adjustment, to required tolerances, of the longitudinal magnetic field of free electron “lasers”.

X.C.IV.001 Optical sensing fibres that are modified structurally to have a “beat length” of less than 500 mm (high birefringence) or optical sensor materials not described in 6C002.b¹ and having a zinc content of equal to or more than 6 % by “mole fraction.”

Technical Note: For the purpose of X.C.IV.001:

- 1) “Mole fraction” is defined as the ratio of moles of ZnTe to the sum of the moles of CdTe and ZnTe present in the crystal.
- 2) “Beat length” is the distance over which two orthogonally polarised signals, initially in phase, must pass in order to achieve a 2 Pi radian(s) phase difference.

X.C.IV.002 Optical materials, as follows:

- a. Low optical absorption materials, as follows:

1. Bulk fluoride compounds containing ingredients with a purity of 99,999 % or better; or

Note: X.C.IV.002.a.1 controls fluorides of zirconium or aluminum and variants.

2. Bulk fluoride glass made from compounds controlled by 6C004.e.1²;

- b. “Optical fibre preforms” made from bulk fluoride compounds containing ingredients with a purity of 99,999 % or better, “specially designed” for the manufacture of “fluoride fibres” controlled by X.A.IV.004.b.

¹ Ref. Annex I to Regulation (EU) 2021/821

² Ref. Annex I to Regulation (EU) 2021/821

Technical Note: For the purpose of X.C.IV.002:

- 1) “Fluoride fibres” are fibres manufactured from bulk fluoride compounds.
- 2) “Optical fibre preforms” are bars, ingots, or rods of glass, plastic or other materials that have been specially processed for use in fabricating optical fibres. The characteristics of the preform determine the basic parameters of the resultant drawn optical fibres.

X.D.IV.001 “Software”, other than those specified in the CML or in Regulation (EU) 2021/821, specially designed for the “development”, “production”, or “use” of goods controlled by 6A002, 6A003¹, X.A.IV.001, X.A.IV.006, X.A.IV.007, or X.A.IV.008.

X.D.IV.002 “Software” specially designed for the “development” or “production” of equipment controlled by X.A.IV.002, X.A.IV.004, or X.A.IV.005.

X.D.IV.003 Other “software”, as follows:

- a. Air Traffic Control (ATC) “software” application “programs” hosted on general purpose computers located at Air Traffic Control centers, and capable of automatically handing over primary radar target data (if not correlated with secondary surveillance radar (SSR) data) from the host ATC center to another ATC center.
- b. “Software” specially designed for seismic intrusion detection systems in X.A.IV.009.c.
- c. “Source Code” specially designed for seismic intrusion detection systems in X.A.IV.009.c.

¹ Ref. Annex I to Regulation (EU) 2021/821

X.E.IV.001 “Technology” for the “development”, “production” or “use” of equipment controlled by X.A.IV.001, X.A.IV.006, X.A.IV.007, X.A.IV.008 or X.A.IV.009.c.

X.E.IV.002 “Technology” for the “development” or “production” of equipment, materials or “software” controlled by X.A.IV.002, X.A.IV.004, or X.A.IV.005, X.B.IV.001, X.C.IV.001, X.C.IV.002, or X.D.IV.003.

X.E.IV.003 Other “technology” as follows:

- a. Optical fabrication technologies for serially producing optical components at a rate exceeding 10 m² of surface area per year on any single spindle and having all of the following:
 1. Area exceeding 1 m²; and
 2. Surface figure exceeding $\lambda/10$ (rms) at the designed wavelength;
- b. “Technology” for optical filters with a bandwidth equal to or less than 10 nm, a field of view (FOV) exceeding 40° and a resolution exceeding 0,75 line pairs per milliradian;
- c. “Technology” for the “development” or “production” of cameras controlled by X.A.IV.003;

- d. “Technology” required for the “development” or “production” of non-triaxial fluxgate “magnetometers” or non-triaxial fluxgate “magnetometer” systems, having any of the following:
1. “Sensitivity” lower (better) than 0,05 nT (rms) per square root Hz at frequencies of less than 1 Hz; or
 2. “Sensitivity” lower (better) than 1×10^{-3} nT (rms) per square root Hz at frequencies of 1 Hz or more.
- e. “Technology” required for the “development” or “production” of infrared up-conversion devices having all of the following:
1. A response in the wavelength range exceeding 700 nm but not exceeding 1 500 nm; and
 2. A combination of an infrared photodetector, light emitting diode (OLED), and nanocrystal to convert infrared light into visible light.

Technical Note: For the purposes of X.E.IV.003, “sensitivity” (or noise level) is the root mean square of the device-limited noise floor which is the lowest signal that can be measured.

Category V – Navigation and Avionics

X.A.V.001 Airborne communication equipment, all "aircraft" inertial navigation systems, and other avionic equipment, including components, other than those specified in the CML or in Regulation (EU) 2021/821.

Note 1: X.A.V.001. does not control headsets or microphones.

Note 2: X.A.V.001. does not control goods for the personal use of the natural persons.

X.B.V.001 Other equipment specially designed for the test, inspection, or “production” of navigation and avionics equipment.

X.D.V.001 “Software”, other than specified in the CML or in Regulation (EU) 2021/821, for the “development”, “production”, or “use” of navigation, airborne communication and other avionics.

X.E.V.001 “Technology”, other than specified in the CML or in Regulation (EU) 2021/821, for the “development”, “production” or “use” of navigation, airborne communication, and other avionics equipment.

Category VI – Marine

X.A.VI.001 Vessels, marine systems or equipment, and specially designed components therefor, components and accessories as follows:

a. Underwater vision systems, as follows:

1. Television systems (comprising camera, lights, monitoring and signal transmission equipment) having a limiting resolution when measured in air of more than 500 lines and specially designed or modified for remote operation with a submersible vehicle; or

2. Underwater television cameras having a limiting resolution when measured in air of more than 700 lines;

Technical Note: Limiting resolution in television is a measure of horizontal resolution usually expressed in terms of the maximum number of lines per picture height discriminated on a test chart, using IEEE Standard 208/1960 or any equivalent standard.

b. Photographic still cameras specially designed or modified for underwater use, having a film format of 35 mm or larger, and having autofocusing or remote focusing “specially designed” for underwater use;

c. Stroboscopic light systems, specially designed or modified for underwater use, capable of a light output energy of more than 300 J per flash;

- d. Other underwater camera equipment, other than those specified in the CML or in Regulation (EU) 2021/821;
- e. Not used;
- f. Vessels (surface or underwater), including inflatable boats, and specially designed components therefor, other than those specified in the CML or in Regulation (EU) 2021/821;

Note: X.A.VI.001.f does not control vessels on temporary sojourn, used for private transport or for the transport of passengers or goods from or through the customs territory of the Union.

- g. Marine engines (both inboard and outboard) and submarine engines and specially designed components therefor, other than those specified in the CML or in Regulation (EU) 2021/821;
- h. Self-contained underwater breathing apparatus (scuba gear) and accessories therefor, other than those specified in the CML or in Regulation (EU) 2021/821;
- i. Life jackets, inflation cartridges, dive compasses and dive computers;
Note: X.A.VI.001.i does not control goods for the personal use of the natural persons.
- j. Underwater lights and propulsion equipment;
Note: X.A.VI.001.j does not control goods for the personal use of the natural persons.
- k. Air compressors and filtration system specially designed for filling air cylinders;

X.D.VI.001 “Software” specially designed or modified for the “development”, “production” or “use” of equipment controlled by X.A.VI.001.

X.D.VI.002 “Software” specially designed for the operation of unmanned submersible vehicles used in the oil and gas industry.

X.E.VI.001 “Technology” for the “development”, “production” or “use” of equipment controlled by X.A.VI.001.

Category VII – Aerospace and Propulsion

X.A.VII.001 Diesel engines, and tractors and specially designed components therefor, other than those specified in the CML or in Regulation (EU) 2021/821.

- a. Diesel engines, other than those specified in the CML or in Regulation (EU) 2021/821, for trucks, tractors, and automotive applications, having an overall power output of 298kW or more.
- b. Off highway wheel tractors of carriage capacity 9 t or more; and major components and accessories, other than those specified in the CML or in Regulation (EU) 2021/821.
- c. Road tractors for semi-trailers, with single or tandem rear axles rated for 9 t per axel or more and specially designed major components.

Note: X.A.VII.001.b and X.A.VII.001.c do not control vehicles on temporary sojourn, used for private transport or for the transport of passengers or goods from or through the customs territory of the Union.

X.A.VII.002 Gas turbine engines and components, other than those specified in the CML or in Regulation (EU) 2021/821.

- a. Not used.
- b. Not used.

- c. Aero gas turbine engines and components specially designed therefor.

Note: X.A.VII.002.c does not control aero gas turbine engines that are destined for use in civil “aircraft” and that have been in use in bona fide civil “aircraft” for more than eight years. If they have been in use in bona fide civil “aircraft” for more than eight years, see ANNEX XI.

- d. Not used.

- e. Pressurised aircraft breathing equipment components specially designed therefor, other than those specified in the CML or in Regulation (EU) 2021/821.

X.B.VII.001 Vibration test equipment and specially designed components, other than those specified in the CML or in Regulation (EU) 2021/821.

Note: X.B.VII.001. controls only equipment for the “development” or “production”. It does not control condition monitoring systems.

X.B.VII.002 Specially designed “equipment”, tooling or fixtures for manufacturing or measuring gas turbine blades, vanes or tip shroud castings, as follows:

- a. Automated equipment using non-mechanical methods for measuring airfoil wall thickness;
- b. Tooling, fixtures or measuring equipment for the “laser”, water jet or ECM/EDM hole drilling processes controlled by 9E003.c¹;
- c. Ceramic core leaching equipment;
- d. Ceramic core manufacturing equipment or tools;

¹ Ref. Annex I to Regulation (EU) 2021/821

- e. Ceramic shell wax pattern preparation equipment;
- f. Ceramic shell burn out or firing equipment.

X.D.VII.001 “Software”, other than those specified in the CML or in Regulation (EU) 2021/821, for the “development” or “production” of equipment controlled by X.A.VII.001 or X.B.VII.001.

X.D.VII.002 “Software”, for the “development” or “production” of equipment controlled by X.A.VII.002 or X.B.VII.002.

X.E.VII.001 “Technology”, other than those specified in the CML or in Regulation (EU) 2021/821, for the “development” or “production” or “use” of equipment controlled by X.A.VII.001 or X.B.VII.001.

X.E.VII.002 “Technology”, for the “development”, “production” or “use” of equipment controlled by X.A.VII.002 or X.B.VII.002.

X.E.VII.003 Other “technology”, not described by 9E003¹, as follows:

- a. Rotor blade tip clearance control systems employing active compensating casing “technology” limited to a design and development data base; or
- b. Gas bearing for turbine engine rotor assemblies.’

¹ Ref. Annex I to Regulation (EU) 2021/821

ANNEX VII

‘ANNEX VIII

List of partner countries referred to in Articles 2(4), 2a(4) and 2d(4)

THE UNITED STATES OF AMERICA’

ANNEX VIII

‘ANNEX IX

A. Model for supply, transfer or export notification, application and authorisation forms

(referred to in Article 2c of this Regulation)

The export authorisation is valid in all Member States of the European Union until its expiry date.

EUROPEAN UNION

EXPORT AUTHORISATION / NOTIFICATION
(Reg. (EU) 2022/328)

<p>If notifying pursuant to Article 2(3) or 2a(3) of Regulation XXX/XXX, indicate what point(s) applies/apply:</p> <ul style="list-style-type: none"> <input type="checkbox"/> (a) humanitarian purposes, health emergencies, the urgent prevention or mitigation of an event likely to have a serious and significant impact on human health and safety or the environment or as a response to natural disasters; <input type="checkbox"/> (b) medical or pharmaceutical purposes; <input type="checkbox"/> (c) temporary export of items for use by news media; <input type="checkbox"/> (d) software updates; <input type="checkbox"/> (e) use as consumer communication devices; <input type="checkbox"/> (f) ensuring cyber-security and information security for natural and legal persons, and bodies in Russia except for its government and undertakings directly or indirectly controlled by that government; <input type="checkbox"/> (g) personal use of the natural persons travelling to Russia or members of their immediate families travelling with them, and limited to personal effects, household effects, vehicles or tools of trade owned by the individuals and not intended for sale 	<p>For authorisations, indicate if this has been requested pursuant to Article 2(4), 2(5), 2a(4), 2a(5) or 2b(1) of Regulation XXX/XXX:</p>
	<p>For authorisations pursuant to Article 2(4) or 2a(4) of Regulation XXX/XXX, indicate what point(s) applies/apply:</p> <ul style="list-style-type: none"> <input type="checkbox"/> (a) intended for cooperation between the Union, the governments of Member States and the government of Russia in purely civilian matters; <input type="checkbox"/> (b) intended for the space industry, including cooperation in the academic field and intergovernmental cooperation in space programmes; <input type="checkbox"/> (c) intended for the operation, maintenance, fuel retreatment and safety of civil nuclear capabilities, as well as civil nuclear cooperation, notably in the field of research and development; <input type="checkbox"/> (d) intended for maritime safety; <input type="checkbox"/> (e) intended for civilian telecommunications networks, including the provision of internet services; <input type="checkbox"/> (f) intended for the exclusive use of entities owned, or solely or jointly controlled by a legal person, entity or body which is incorporated or constituted under the law of a Member State or of a partner country; <input type="checkbox"/> (g) for the diplomatic representations of the Union, Member States and partner countries, including delegations, embassies and missions.
	<p>For authorisations pursuant to Article 2b(1) of Regulation XXX/XXX, indicate what point applies:</p> <ul style="list-style-type: none"> <input type="checkbox"/> (a) urgent prevention or mitigation of an event likely to have a serious and significant impact on human health and safety or the environment; <input type="checkbox"/> (b) contracts concluded before 26 February 2022, or ancillary contracts necessary for the execution of such a contract, provided that the authorisation is requested before 1 May 2022.

1	1. Exporter	2. Identification number	3. Expiry date (if applicable)	
	5. Consignee	4. Contact point details		
		6. Issuing authority		
		7. Agent/Representative (if different from exporter)	8. Country of consignment	Code ¹
		9. End user (if different from consignee)	10. Member State of current or future location of the items	Code ²
11. Member State of intended entry into the customs export procedure	Code ²			
12. Country of final destination	Code ²			
1		Confirm that the end user is non military	Yes/No	

¹ See Regulation (EC) No 1172/95 (OJ L 118, 25.5.1995, p. 10).

	13. Description of the items ¹		14. Country of origin		Code ²	
			15. Harmonised System or Combined Nomenclature Code (if applicable with 8 digit; CAS number if available)		16. Control list no (for listed items)	
			17. Currency and Value		18. Quantity of the items	
	19. End use	Confirm that the end use is non military	Yes/No	20. Contract date (if applicable)	21. Customs export procedure	
	22. Additional information:					
Available for pre-printed information At discretion of Member States						
			For completion by issuing authority			
			Stamp			
			Signature			
			Issuing Authority			
			Date			

¹ If needed, this description may be given in one or more attachments to this form (1bis). In this case, indicate the exact number of attachments in this box. The description should be as precise as possible and integrate, where relevant, the CAS or other references for chemical items in particular.

EUROPEAN UNION

(Reg. (EU) 2022/328)

1 Bis	1. Exporter	2. Identification number	
	13. Description of the items	14. Country of origin	Code²
		15. Commodity code (if applicable with 8 digit; CAS number if available)	16. Control list no (for listed items)
		17. Currency and Value	18. Quantity of the items
	13. Description of the items	14. Country of origin	Code²
		15. Commodity code (if applicable with 8 digit; CAS number if available)	16. Control list no (for listed items)
		17. Currency and Value	18. Quantity of the items
13. Description of the items	14. Country of origin	Code²	
	15. Commodity code	16. Control list no	
	17. Currency and value	18. Quantity of the items	
13. Description of the items	14. Country of origin	Code²	
	15. Commodity code	16. Control list no	
	17. Currency and value	18. Quantity of the items	
13. Description of the items	14. Country of origin	Code²	
	15. Commodity code	16. Control list no	
	17. Currency and value	18. Quantity of the items	
13. Description of the items	14. Country of origin	Code²	
	15. Commodity code	16. Control list no	
	17. Currency and value	18. Quantity of the items	

**B. Model for brokering services/ technical assistance notification,
application and authorisation forms**

(referred to in Article 2C of this Regulation)

EUROPEAN UNION	PROVISION OF TECHNICAL ASSISTANCE (Reg. (EU) 2022/328)
<p>If notifying pursuant to Article 2(3) or 2a(3) of Regulation XXX/XXX, indicate what point(s) applies/apply:</p> <ul style="list-style-type: none"> <input type="checkbox"/> (a) humanitarian purposes, health emergencies, the urgent prevention or mitigation of an event likely to have a serious and significant impact on human health and safety or the environment or as a response to natural disasters; <input type="checkbox"/> (b) medical or pharmaceutical purposes; <input type="checkbox"/> (c) temporary export of items for use by news media; <input type="checkbox"/> (d) software updates; <input type="checkbox"/> (e) use as consumer communication devices; <input type="checkbox"/> (f) ensuring cyber-security and information security for natural and legal persons, and bodies in Russia except for its government and undertakings directly or indirectly controlled by that government; <input type="checkbox"/> (g) personal use of the natural persons travelling to Russia or members of their immediate families travelling with them, and limited to personal effects, household effects, vehicles or tools of trade owned by the individuals and not intended for sale. 	<p>For authorisations, indicate if this has been requested pursuant to Article 2(4), 2(5), 2a(4), 2a(5) or 2b(1) of Regulation XXX/XXX:</p>
	<p>For authorisations pursuant to Article 2(4) or 2a(4) of Regulation XXX/XXX, indicate what point(s) applies/apply:</p> <ul style="list-style-type: none"> <input type="checkbox"/> (a) intended for cooperation between the Union, the governments of Member States and the government of Russia in purely civilian matters; <input type="checkbox"/> (b) intended for the space industry, including cooperation in the academic field and intergovernmental cooperation in space programmes; <input type="checkbox"/> (c) intended for the operation, maintenance, fuel retreatment and safety of civil nuclear capabilities, as well as civil nuclear cooperation, notably in the field of research and development; <input type="checkbox"/> (d) intended for maritime safety; <input type="checkbox"/> (e) intended for civilian telecommunications networks, including the provision of internet services; <input type="checkbox"/> (f) intended for the exclusive use of entities owned, or solely or jointly controlled by a legal person, entity or body which is incorporated or constituted under the law of a Member State or of a partner country; <input type="checkbox"/> (g) for the diplomatic representations of the Union, Member States and partner countries, including delegations, embassies and missions.
	<p>For authorisations pursuant to Article 2b(1) of Regulation XXX/XXX, indicate what point applies:</p> <ul style="list-style-type: none"> <input type="checkbox"/> (a) urgent prevention or mitigation of an event likely to have a serious and significant impact on human health and safety or the environment; <input type="checkbox"/> (b) contracts concluded before 26 February 2022, or ancillary contracts necessary for the execution of such a contract, provided that the authorisation is requested before 1 May 2022.

1	1. Broker/ Supplier of technical assistance/ Applicant	2. Identification number	3. Expiry date (if applicable)	
		4. Contact point details		
	5. Exporter in originating third country (if applicable)	6. Issuing authority		
	7. Consignee			
		8. Member State in which the broker / supplier of technical assistance is resident or established	Code ¹	
		9. Originating country/ Country of location of the items subject of brokering services	Code ¹	
	10. End user in third country of destination (if different from consignee)	11. Country of destination	Code ¹	
		12. Third parties involved, e.g. agents (if applicable)		
	1	Confirm that the end user is non military		Yes/No

¹ See Regulation (EC) No 1172/95 (OJ L 118, 25.5.1995, p. 10).

	13. Description of the items / technical assistance.		14. Harmonised System or Combined Nomenclature Code (if applicable)	15. Control list no (if applicable)
			16. Currency and Value	17. Quantity of the items (if applicable)
18. End use	Confirm that the end use is non military		Yes/No	
19. Additional information:				
Available for pre-printed information At discretion of Member States				
			For completion by issuing authority	Stamp
			Signature Issuing Authority	
			Date	

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ANNEX IX

‘ANNEX X

List of goods and technologies referred to in Article 3b(1)

CN	Product
8479 89 97 or 8543 70 90	Alkylation and isomerization units
8479 89 97 or 8543 70 90	Aromatic hydrocarbon production units
8419 40 00	Atmospheric-vacuum crude distillation units (CDU)
8479 89 97 or 8543 70 90	Catalytic reforming / cracker units
8419 89 98, 8419 89 30 or 8419 89 10	Delayed cokers
8419 89 98, 8419 89 30 or 8419 89 10	Flexicoking units
8479 89 97	Hydrocracking reactors
8419 89 98, 8419 89 30, 8419 89 10, or 8479 89 97	Hydrocracking reactor vessels
8479 89 97 or 8543 70 90	Hydrogen generation technology
8421 39 15, 8421 39 25, 8421 39 35, 8421 39 85, 8479 89 97 or 8543 70 90	Hydrogen recovery and purification technology
8479 89 97 or 8543 70 90	Hydrotreatment technology/units
8479 89 97 or 8543 70 90	Naphtha isomerisation units

CN	Product
8479 89 97 or 8543 70 90	Polymerisation units
8419 89 10, 8419 89 30, or 8419 89 98, 8479 89 97 or 8543 70 90	Refinery fuel gas treatment and sulphur recovery technology (including amine scrubbing units, sulphur recovery units, tail gas treatment units)
8456 90 00, 8479 89 97 or 8543 70 90	Solvent de-asphalting units
8479 89 97 or 8543 70 90	Sulphur production units
8479 89 97 or 8543 70 90	Sulphuric acid alkylation and sulphuric acid regeneration units
8419 89 10, 8419 89 30, or 8419 89 98, 8479 89 97 or 8543 70 90	Thermal cracking units
8479 89 97 or 8543 70 90	[Toluene and heavy aromatics] Transalkylation units
8479 89 97 or 8543 70 90	Visbreakers
8479 89 97 or 8543 70 90	Vacuum gas oil hydrocracking units

ANNEX X

‘ANNEX XI

List of goods and technologies referred to in Article 3c(1)

CN Code	Description
88	Aircraft, spacecraft, and parts thereof

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ANNEX XI

‘ANNEX XII

List of legal persons, entities and bodies referred to in Article 5(2)(c)

Alfa Bank;

Bank Otkritie;

Bank Rossiya; and

Promsvyazbank

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ANNEX XII

‘ANNEX XIII

List of legal persons, entities and bodies referred to in Article 5(4)(a)

Almaz-Antey;

Kamaz;

Novorossiysk Commercial Sea Port;

Rostec (Russian Technologies State Corporation);

Russian Railways;

JSC PO Sevmash;

Sovcomflot; and

United Shipbuilding Corporation

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