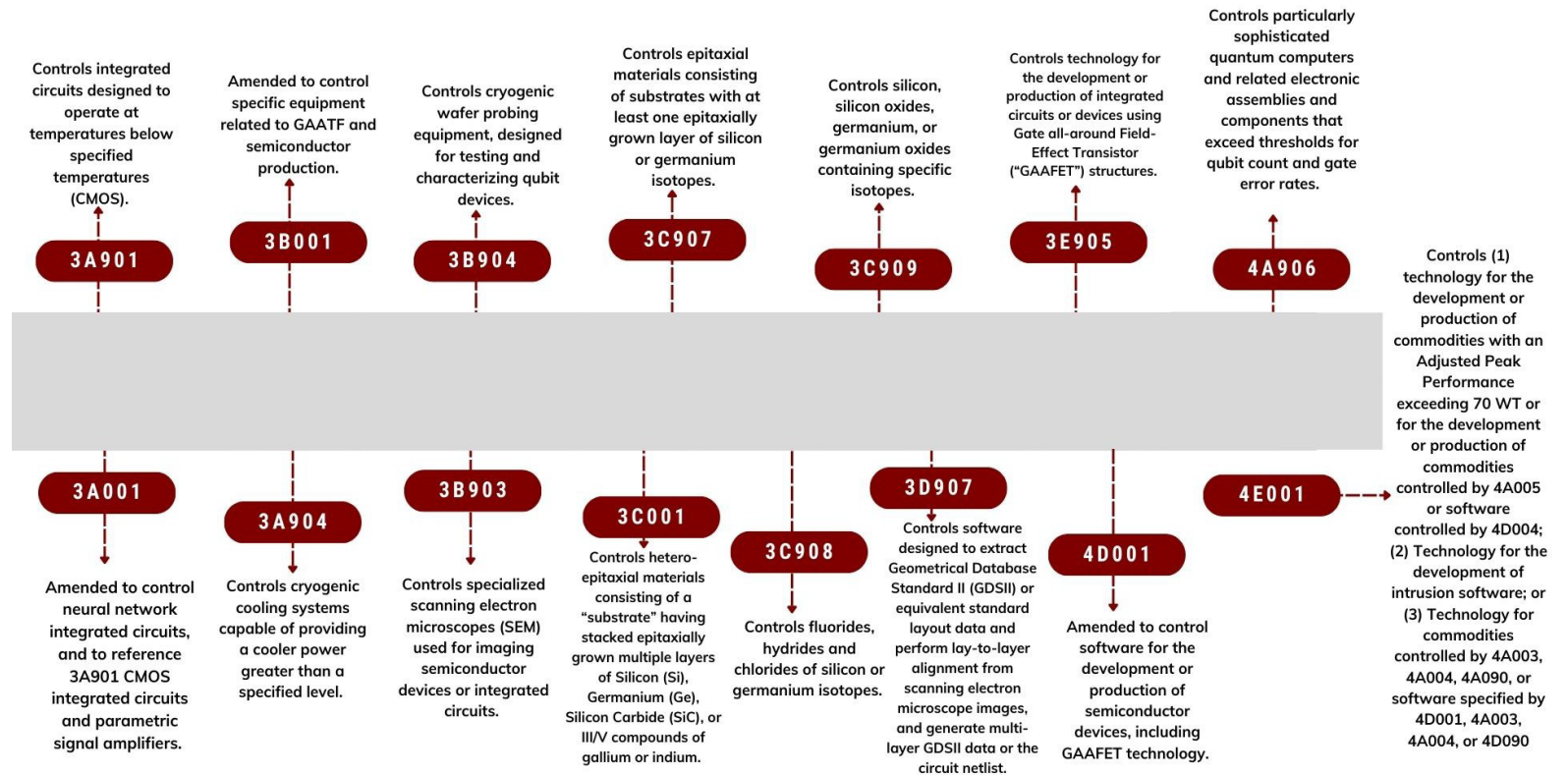


Regulations Regarding Quantum Technology Controls

Quantum Tech: 10/28/2025

Note: Export control regulations are subject to change. Always refer to the current applicable regulations and agency guidance.



Quantum - **Worldwide** License Requirement ECCNs

THE 18 NEW ECCNS IDENTIFIED IN THE 900 SERIES OF CCL: WORLDWIDE LICENSE REQUIREMENTS AND MORE LIMITED LICENSE EXCEPTION AVAILABILITY

2B910 This ECCN covers additive manufacturing equipment specifically designed to produce metal or metal alloy components. The technology is critical for high-precision military applications, including aircraft and missiles. **NS, RS, AT1**

2D910 This ECCN includes software specially designed or modified for the development or production of additive manufacturing equipment (2B910). **NS, RS, AT1**

2E903 This ECCN covers technology not specified elsewhere, used for the development or production of coating systems. These coatings protect ceramic matrix composite (CMC) materials in gas turbine engines, aircraft, and missiles, focusing on reducing surface erosion during combustion. **NS, RS, AT1**

2E910 This ECCN covers technology for the development or production of additive manufacturing equipment (2B910) **NS, RS, AT1**

3A901 This ECCN controls CMOS integrated circuits designed to operate at cryogenic temperatures below 4.5 K (−268.65 °C), often referred to as cryogenic CMOS. This technology is essential for quantum computing, requiring control due to its strategic significance. **NS, RS, AT1**

3A904 This ECCN includes cryogenic cooling systems capable of providing a cooling power greater than or equal to 600 μW at temperatures below 0.1 K for extended periods. This technology is vital for scaling quantum computers **NS, RS, AT1**

Quantum – **Worldwide** License Requirement ECCNs

3B903 This ECCN covers specialized scanning electron microscopes (SEM) used for imaging semiconductor devices or integrated circuits. These devices are essential for reverse engineering integrated circuits **NS, RS, AT1**

3B904 This ECCN controls cryogenic wafer probing equipment, designed for testing and characterizing qubit devices. Such equipment is critical for scaling quantum computing **NS, RS, AT1**

3C907 This ECCN includes epitaxial materials consisting of substrates with at least one epitaxially grown layer of silicon or germanium isotopes, key for developing spin-based quantum computers. **NS, RS, AT1**

3C908 This ECCN covers fluorides, hydrides, and chlorides of silicon or germanium isotopes, which are key materials for quantum computing technologies. **NS, RS, AT1**

3C909 This ECCN controls silicon, silicon oxides, germanium, or germanium oxides, containing specific isotopes crucial for the development of semiconducting qubits in quantum computers. **NS, RS, AT1**

3D901 This ECCN includes software designed for the development or production of items controlled by 3A901.b, 3B903, and 3B904, all of which are critical to quantum technologies. **NS, RS, AT1**

3D907 This ECCN covers software, such as Open Artwork System Interchange Standard, used to extract data and generate multi-layer “GDSII” data or circuit netlists from SEM images, key for reverse engineering integrated circuits. **NS, RS, AT1**

Quantum – **Worldwide** License Requirement ECCNs

3E901 This ECCN includes technology for the development or production of items in 3A901, 3A904, 3B903, 3B904, 3C907, 3C908, and 3C909, covering a wide range of quantum computing and advanced semiconductor technologies. **NS, RS, AT1**

3E905 This ECCN focuses on the technology for developing or producing integrated circuits using Gate All-Around Field-Effect Transistor (GAAFET) structures, crucial for advanced AI and military applications. **NS, RS, AT1**

4A906 This ECCN covers quantum computers and related electronic assemblies and components, particularly those exceeding thresholds for qubit count and gate error rates, representing high technological sophistication. **NS, RS, AT1**

4D906 This ECCN includes software specifically designed for quantum computers and related equipment under ECCN 4A906. **NS, RS, AT1**

4E906 This ECCN controls technology required for the development or production of quantum computers and related components under ECCN 4A906. **NS, RS, AT1**