



**Federal Communications Commission
Office of Engineering and Technology
Laboratory Division**

April 9, 2020

PART 15 EQUIPMENT AUTHORIZATION EXEMPTIONS

1. INTRODUCTION

This guidance covers certain types of radio-frequency (RF) devices¹ that are exempt from demonstrating compliance under one of the equipment authorization procedures (SDoC or Certification)², but are still regulated under the FCC’s Part 15 general conditions of operation³. In other words, if an exempt device causes interference to other radio services, then the operator of that device must cease operating the device upon notification from the FCC and must remedy the interference. RF device interference can disrupt critical radio services, interference resolution can be costly for an equipment manufacturer, importer, and user, and future use of a device may be precluded if the interference cannot be remedied. For these reasons, the FCC strongly recommends that manufacturers of devices that are exempt from an equipment authorization should use good engineering design and manufacturing practices and undertake to have such equipment comply with appropriate technical standards, to minimize the risk of harmful interference⁴.

This guidance document discusses the following three categories of devices that are exempt from an equipment authorization:

- a. Incidental radiators;
- b. Unintentional radiators exempt under Section 15.103 and
- c. Subassemblies (exempt under Section 15.101).

2. INCIDENTAL RADIATORS

An incidental radiator (defined in Section 15.3(n)) is a type of electrical equipment that is not designed to use, generate, or emit RF energy. However, such equipment might produce radio-frequency emissions because of normal operation that can cause interference.

Many radio interference cases are caused from various types of electrical equipment that are incidental radiators, such as elevator motors, household appliances, dimmer switches, pool pumps, etc. Manufacturers need to be aware that incidental radiators are subject to the FCC’s general conditions

¹ For purposes of this guidance document, “radio frequency devices,” “devices,” and “equipment” are used interchangeably and should be read as having a common meaning.

² See 47 CFR §§ 2.906 et seq. and 2.907 et seq.

³ See 47 CFR § 15.5.

⁴ See 47 CFR § 15.15, and the first paragraph of 47 CFR § 15.103.

(continued....)

(Section 15.5) of operation and are required to employ good engineering practices to minimize the risk of harmful interference⁵.

3. UNINTENTIONAL RADIATORS

Digital devices⁶ are classified as unintentional radiators⁷ that use digital techniques. Section 15.103 provides exemptions for some types of digital devices⁸. The Section 15.103 exemption from the equipment authorization requirement applies ONLY to the digital logic within a product. For example, the digital logic used in kitchen appliances (Section 15.103(d)) or automobile electronics (Section 15.103(a)) is exempt. However, many modern products may also contain other functions, such as a Bluetooth or Wi-Fi transmitter (e.g., intentional radiator, as defined in Section 15.3(o)). **The transmitter function does not qualify under any Section 15.103 exemptions and requires an equipment authorization under the certification procedure** (see Section 15.103(i)).

The following devices are exempt from an equipment authorization, per Section 15.103.

- a) Digital devices used EXCLUSIVELY in any transportation vehicle, including motor vehicles, aircraft, and watercraft⁹.
- b) Digital devices used EXCLUSIVELY as electronic control systems, or as power systems, by public utilities or in industrial plants. The term “industrial plant” in this case means a large-scale production facility such as a dedicated building or factory. The term “public utility” means a dedicated building or large room owned or leased by the utility and does not extend to equipment installed in a subscriber's facility.

To be eligible for the control system exemption, a digital device must be specifically used for direct control of a power system or manufacturing process in a dedicated building or factory, and must not perform non-control functions such as the printing of billing information or running network management or information application software.

- c) Digital devices used EXCLUSIVELY as industrial test equipment, commercial test equipment, or medical test equipment. “Test equipment” includes devices used for maintenance, research, evaluation, simulation, and other analytical or scientific applications, in areas such as industrial plants, public utilities, hospitals, universities, laboratories, automotive service centers, and electronics repair shops. Devices designed for home use, such as consumer blood pressure meters, bathroom scales, and digital thermometers, do not fall under this exemption.
- d) Digital devices used EXCLUSIVELY in-home appliances. “Appliances” are devices that are designed to heat, cool, or move something by converting electrical energy into heat or motion. Examples of appliances include vacuum cleaners, toasters, air conditioners, and clothes dryers.

⁵ See 47 CFR § 15.13.

⁶ See 47 CFR § 15.3(k).

⁷ See 47 CFR § 15.3(z).

⁸ Devices that are general purpose and non-exclusive to the functions listed Section 15.103(a)-(h) operation, such as devices used for universal data processing functions, electronic computations, recording, filing, sorting, storage and retrieval, and networking are not considered to be exempt digital devices.

⁹ See KDB Publication 896810 D02 for guidance on authorization requirements for an onboard-vehicle battery charger.

Examples of products that are and are not considered to be appliances are listed in Table 1 and Table 2 of Appendix. Devices that use RF energy to do actual heating, cooling, or moving, such as microwave ovens, are subject to technical standards in Part 18 of the FCC rules.

Exempt household appliances are electrical machines intended for household tasks that assist persons in washing and drying clothes, household cleaning, cooking, or food preparation; or equipment that is directly involved in conditioning the supply of household water and air (heating, cooling, and humidifying) in a residence. This exemption is limited to basic housekeeping appliances and is not intended to apply to all home-use products that may contain digital logic.

To be exempt under Section 15.103, only the digital circuitry directly responsible for operation of the basic functions of the appliance is exempt; The digital circuitry must be contained within the major appliance, not remotely connected via wire, cable, or other communication system. For example, the digital controller board within a washing machine responsible for different cycles and washing modes.

Radio Frequency Wireless transmitters¹⁰ (e.g., Bluetooth, Wi-Fi, cellular) used in an appliance are not exempt, and are subject to the technical requirements and compliance to the appropriate equipment authorization procedures.

- e) Specialized medical digital devices, generally used at the direction of or under the supervision of a licensed health care practitioner, whether used in a patient's home or a health care facility. Examples of devices that are exempted by this provision include computerized cameras used in surgery, CAT scanners, X-ray equipment, and kidney dialysis machines.

Non-specialized medical devices marketed through retail channels for use by the general public do not fall under this exemption, nor do digital devices used for record keeping or any purpose not directly connected with medical treatment. Non-exempt devices include over-the-counter blood pressure gauges and digital thermometers. Medical diathermy equipment and ultrasonic equipment, while exempt from the Part 15 digital device standards, are examples of equipment subject to the regulations in Part 18.

It is important to note that just because a product may involve health care functions, that does not automatically mean it can qualify under the Section 15.103(e) exemption (i.e., use generally requires health-care practitioner supervision), nor will it necessarily be a Part 18 medical device (i.e., generally uses RF energy to produce physical, biological, or chemical effects).

- f) Digital devices that have a power consumption of 6 nW or less, such as digital watches and solar calculators.
- g) Joystick or mouse controllers, or similar devices, used with digital devices, but that contain only non-digital circuitry or a simple circuit to convert a signal to the format required (such as an integrated circuit for analog-to-digital (A/D) conversion). The systems to which the joystick or mouse controller connect to are required to comply with the technical requirements and equipment authorization procedures. However, the joystick and mouse controllers by themselves are viewed as passive add-on devices and are exempt from the technical standards in Part 15.

¹⁰ A Wireless function used in an appliance that is not an intentional radio frequency radiator such as infrared or ultrasound is considered part of the digital logic as exempt.

- h) Digital devices that do not generate or use frequencies above 1.705 MHz and do not operate while connected through a power cord to the AC power lines or do not operate while being charged are exempt. If the battery-operated device can still operate while being charged it does not fall under this exemption. Wireless charges are not digital devices and not exempt. They are regulated under Part 18 or as a Part 15 intentional radiator.
- i) Responsible parties should note that equipment (e.g., end products¹¹) containing multiple devices (e.g., refrigerator with Bluetooth) is not fully exempt from the Part 15 technical standards unless all the devices in the equipment meet the criteria for exemption. If only one of the included devices qualifies for exemption, the remainder of the equipment must comply with any applicable regulations. If a device performs more than one function and all those functions do not meet the criteria for exemption, the device does not qualify for inclusion under the exemptions.

4. DIGITAL DEVICE SUBASSEMBLIES

Circuit boards, integrated circuit chips, and other components that are completely internal to a product that do not constitute a final product, are examples of subassemblies. These include internal memory expansion boards, internal disk drives, internal disk drive controller boards, CPU boards, and power supplies. Subassemblies may be sold to the general public or to manufacturers for incorporation into a final product.

Equipment authorization is not required for a peripheral device or a subassembly that is sold to an equipment manufacturer for further fabrication. The equipment manufacturer who buys the peripheral device or subassembly is responsible for obtaining the necessary equipment authorization prior to further marketing.¹²

For instance, KDB Publication [657217](#) provides more details on a list of computer subassemblies. .

While subassemblies are not directly subject to FCC technical standards or equipment authorization requirements, manufactures of subassemblies should design their subassemblies so that the final product will comply with the FCC's technical standards¹³.

¹¹ See 47 CFR § 2.1(c) definition.

¹² See 47 CFR § 15.101(d)(1).

¹³ See 47 CFR §§ 15.101(d)(2) and 15.101(e).

Appendix A Household Appliances

Table 1 Exempt Digital Devices in Appliances		
Exempt Digital Devices in Cooking or Food Preparation Products		
Refrigerators	Freezers	Food warming pads
Stoves	Juice extractors	Deep-fat fryers
Bread makers	Coffee Makers	
Exempt Digital Devices in Appliances for Washing and Drying Clothes		
Washing machines	Clothes dryers	
Exempt Digital Devices in Household Cleaning Equipment		
Trash compactors	Rug cleaners	Vacuum cleaners
Irons	Dishwashers	In-sink garbage disposals
Exempt Digital Devices in Household Water and Air Conditioning Equipment		
Humidifiers Dehumidifiers	Water Heaters	Room Fan Heater
Room air-conditioners (window, floor. standing)	HVAC systems (*not including external thermostats)	Central Air-conditioners (Split-System)

Table 2 Non-Exempt Devices		
External Thermostats*	Exercise Equipment	Hair Dryers
Heat Guns	Hair straighteners	Electric Blankets
Paper Shredders	Bed Warmers	Portable Personal Fan Heaters

* Thermostat is connected via wire and not contained within the appliance.

Questions about specific appliances may be submitted to the FCC at <http://www.fcc.gov/labhelp> . The link "Submit an Inquiry" should be used to access the inquiry form and submit a question.

Change Notice:

04/09/2020: 772105 D01 Exempt Devices v01r01 replaces 772105 D01 Exempt Devices v01 to fix a typo in the example table. Dishwashers were inadvertently left out in v01 and added in v01r01