## Examples of Radiation-Emitting Electronic Products

<table>
<thead>
<tr>
<th>Radiation Use</th>
<th>Ionizing (x-ray)</th>
<th>Optical (visible, UV, IR, laser)</th>
<th>RF, Microwave, VLF/ELF, magnetic</th>
<th>Acoustic (sonic, ultrasonic)</th>
</tr>
</thead>
</table>
| **Medical: Diagnostic** | • General radiography  
• Dental radiography  
• Fluoroscopy  
• Computed tomography  
• Mammography | • Slit lamp  
• Retinal acuity  
• Fluorescence spectroscopy  
• Transilluminator | • Magnetic resonance imaging | • Ultrasoundography  
• Doppler ultrasound  
• Color doppler ultrasound |
|                     | • Medical accelerator  
(Rad therapy) | • Wound healing  
• Low-level laser therapy  
• PUVA therapy | • Hyperthermia  
• Diathermy  
• Bone healing  
• Wound healing  
• Prostate therapy | • Hyperthermia  
• Diathermy/physical therapy  
• Bone healing  
• Lithotripsy |
| **Medical: Therapeutic** | • Intra-operative electron beam | • Surgical laser  
• Ophthalmic, PRK laser  
• Dental laser | • Electrocautery | • Phacoemulsifier  
• Needle guide |
| **Medical: Surgical** | • Bone density measurement  
• Cabinet x-ray  
• Veterinary imaging | • Germicide lamps  
• Dental resin curing  
• Operating lights  
• Patient positioning  
• X-Ray indicator light field | • Blood warmers (microwave)  
• Sterilizer (microwave)  
• Telemetry | • Bone density measuring  
• Geriatric bath (ultrasound)  
• Hearing aid |
| **Medical: Other** | • Analytical x-ray  
• Oscilloscope | • Research lasers  
• UV/IR research, uses  
• X-Ray indicator light field | • Many scientific uses  
• Nuclear magnetic resonance  
• Weather doppler | • Many scientific uses |
| **Scientific, Other** | • Analytical x-ray  
• Oscilloscope | • Ranging & detection  
• Alignment, surveying  
• Laser welder  
• Laser material processing  
• Process control/ machine vision  
• UV curing | • Dielectric heater, sealer  
• Food processing  
• Dryer  
• Air traffic control | • Nondestructive tests  
• Gauging  
• Detect motion/occupancy  
• Cleaner  
• Welder |
| **Industrial** | • Cabinet x-ray  
• Industrial x-ray  
• Check weld/metal integrity | • Sun tan parlors  
• Fluorescent lamp  
• IR detector or security  
• Fiberoptic communication  
• Reprographics  
• Mercury vapor lamp  
• UPS readers  
• Laser pointer  
• IR data transmit/control | • Police radar  
• Pest controllers  
• EAS, metal detector  
• Security system (microwave)  
• Walkie-talkie  
• Clothes dryer  
• Communication  
• Microwave LAN  
• RF-excited lighting | • Jewelry cleaners  
• Motion detector  
• Security system  
• Humidifier |
| **Business, Commercial, Security** | • People (contraband) scanner  
• Baggage x-ray | • Halogen lamp  
• Laser light shows  
• Laser printer  
• Sun tan bed, lamps  
• CD and CD-ROM player  
• Laser toys/novelties  
• Laser gunsight  
• Remote controller  
• Autofocus camera  
• Digital display/monitor | • Cellular telephone  
• Microwave oven  
• Electric blanket  
• CB/amateur radio  
• Intrusion/anti-theft  
• Remote controller  
• Video monitor | • Ultrasound toothbrush  
• Pest repeller  
• Intrusion alarm/security  
• Audio system/radio  
• Massager  
• Humidifier  
• Autofocus camera  
• Telephone ringer |
| **Consumer (household, entertainment, sports)** | • Television receiver  
• Video monitor  
• Night vision scope | • Halogen lamp  
• Laser light shows  
• Laser printer  
• Sun tan bed, lamps  
• CD and CD-ROM player  
• Laser toys/novelties  
• Laser gunsight  
• Remote controller  
• Autofocus camera  
• Digital display/monitor | • Cellular telephone  
• Microwave oven  
• Electric blanket  
• CB/amateur radio  
• Intrusion/anti-theft  
• Remote controller  
• Video monitor | • Ultrasound toothbrush  
• Pest repeller  
• Intrusion alarm/security  
• Audio system/radio  
• Massager  
• Humidifier  
• Autofocus camera  
• Telephone ringer |

*products subject to mandatory radiation performance standard are in dark red*
Overlap of FDA Enforcement Authorities for Radiation-Emitting Products
(with examples of products)

**RCHSA**
- Television Receivers,
- Microwave Ovens,
- Cabinet X-Ray Systems,
- Retail Laser Scanners,
- Electric Blankets,
- Mercury Vapor Lamps,
- Laser Printers, Laser Welders,
- Laser pointers & CD players,
- Video Monitors, Police Radar,
- Cellular Telephones,
- Electronic Article Surveillance

**MQSA** (Mammography Facilities)
- Mammography Equipment,
- Stereotactic Devices

**DEVICES**
- Diagnostic X-Ray Equipment,
- Microwave Diathermy,
- PUVA, Surgical Lasers,
- Diagnostic Ultrasound,
- Radiation Therapy, MRI,
- Ophthalmic Instruments,
- Sunlamps, Lithotripter


**MQSA** = Mammography Quality Standards Act of 1992

**Devices** = Federal Food, Drug, and Cosmetic Act, Chapter V, Medical Devices