Overview of FCC Regulations for Licensed and Unlicensed Devices

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Overview

- FCC Rules
- Licensed/Licensed Exempt Certification
- FCC/TCB Authorizations
- FCC Knowledge Database (KDB)
- Information Sources
FCC Administrative Regulations

- 47 CFR Part 0
  - 0.457 & 0.459 Confidentiality

- 47 CFR Part 1
  - 1.1307 & 1.1310 – RF Exposure

- 47 CFR Part 2
  - Subpart I – Marketing
  - Subpart J – Equipment Authorization
    - 2.201-2.202 – Emission designators
    - 2.902-2.907 Authorization Types
    - 2.925 – 2.926 – ID Labels
    - 2.1033 – Application for Certification
    - 2.1043 – Permissive Changes
    - 2.1046 – 2.1057 – General tests for licensed devices
  - Subpart K – Importation of Devices
Equipment Authorization Regulations

**Administrative**
- Part 0: Commission organization
- Part 1: Practice and procedure
- Part 2: General rules and regulations

**License Exempt Operation**
- Part 15: Radio frequency devices
- Part 18: Industrial, Scientific, and Medical Equipment
- Part 68: Telephone Terminal Equipment

**Licensed Operation**
- Part 11: Emergency Alert Systems (EAS)
- Part 20: Commercial Mobile Radio Services
- Part 22: Public mobile services
- Part 24: Personal communication services
Licensed Operation (continued)

- Part 25: Satellite communications
- Part 27: Miscellaneous wireless communication service
- Part 73: Radio broadcast services
- Part 74: Experimental, Auxiliary & Special broadcast services
- Part 80: Maritime services
- Part 87: Aviation services
- Part 90: Private land mobile radio service
- Part 95: Personal radio service
- Part 97: Amateur radio services
- Part 101: Fixed microwave services
Measurement Techniques

What Measurement Techniques Should Be Used?
- A number of measurement techniques have been identified and can be found in:
  - FCC Rules
    - Radio Service Rules
    - Part 2 General Rules & Regulations
    - Industry Standards Incorporated by Reference
  - Industry Standards
  - Text of the Report and Order
  - Public Notice Issued by the Commission
  - Knowledge Database

- Measurement Procedures Website

- OET Website for Equipment Authorization General Information:
  http://www.fcc.gov/oet/ea/Welcome.html
General Equipment Types

License Exempt Devices – Parts 15 & 18

- Incidental Radiator - Parts 15.13 & 15.5(b)
  - DC Motors & mechanical light switches
- Unintentional Radiator - Part 15 Subpart B
- Intentional Radiator - Part 15 Subpart C +
  - Industrial, Scientific and Medical equipment – Part 18

Licensed Transmitters – Other Rule Parts
License Exempt Unintentional Radiators

- Part 15, Subpart B – Any device that intentionally generates RF energy, but does not intentionally radiate that energy.

Examples:

- **Digital devices** (data processing equipment, computers, etc.)
- **Radio receivers** that tune between 30-960 MHz
- **TV interface** devices (VCRs, cable terminal devices, etc.)
License Exempt Intentional Radiators

Part 15, Subpart C – Lists frequency bands and types of operation permitted.

Examples:

- Cordless Telephones
- Remote Switches, door controls, alarms
- Wireless Local Area Network (WLAN)
Licensed Radio Services

Transmitters that require either an individual license or a blanket authorization are subject to requirements of a specific radio service.

- General Mobile Radio Services (non-cellular)
- Personal Mobile Services
- Broadcast Radio Services
- Microwave Radio Services
- Maritime and Aviation Radio Services
Licensed vs Licensed Exempt Devices

- 2.1033 requirements slightly different
- License exempt devices typically lower power
- License exempt devices may be operated as soon as marketed
- Licensed devices typically require operator license before using
  - Blanket licensed and some Part 95 exceptions
- Licensed device grants have more detailed line entry info: power, emission designator and tolerance
Licensed Device Tests

- 2.1046 - RF power output
- 2.1047 - Modulation Characteristics
- 2.1049 - Occupied Bandwidth
- 2.1051 - Conducted Spurious Emissions
- 2.1053 - Radiated Spurious Emissions
- 2.1055 - Frequency Stability
- 2.1057 – Frequency range to be investigated
Equipment Authorization Top Ten Certification Equipment Classes

Percent vs Equipment Class

<table>
<thead>
<tr>
<th>Equipment Class</th>
<th>Percent</th>
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<tbody>
<tr>
<td>DTS</td>
<td>18</td>
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<tr>
<td>DXX</td>
<td>16</td>
</tr>
<tr>
<td>DSS</td>
<td>18</td>
</tr>
<tr>
<td>PCE</td>
<td>14</td>
</tr>
<tr>
<td>JBP</td>
<td>12</td>
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<tr>
<td>DSC</td>
<td>10</td>
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<tr>
<td>TNB</td>
<td>8</td>
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<tr>
<td>NII</td>
<td>6</td>
</tr>
<tr>
<td>PCB</td>
<td>4</td>
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<tr>
<td>8CC</td>
<td>2</td>
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# Equipment Authorization Classifications

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Percent</th>
<th>Rules</th>
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<tbody>
<tr>
<td>DTS</td>
<td>Digital Transmission System</td>
<td>16.1</td>
<td>15C</td>
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<tr>
<td>DXX</td>
<td>Part 15 Low Power Communication Device Transmitter</td>
<td>13.9</td>
<td>15C</td>
</tr>
<tr>
<td>DSS</td>
<td>Part 15 Spread Spectrum Transmitter</td>
<td>18.7</td>
<td>15C</td>
</tr>
<tr>
<td>JBP</td>
<td>Part 15 Class B Computing Device Peripheral</td>
<td>11.4</td>
<td>15B</td>
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<tr>
<td>PCE</td>
<td>PCS Licensed Transmitter held to ear</td>
<td>9</td>
<td>Licensed 24</td>
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<tr>
<td>DSC</td>
<td>Part 15 Security/Remote Control Transmitter</td>
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<td>15C</td>
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<td>TNB</td>
<td>Licensed Non-Broadcast Station Transmitter</td>
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<td>Licensed 22</td>
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<tr>
<td>PCB</td>
<td>PCS Licensed Transmitter</td>
<td>4.1</td>
<td>Licensed 24</td>
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<tr>
<td>NII</td>
<td>Unlicensed National Information Infrastructure TX</td>
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<td>15E</td>
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<tr>
<td>8CC</td>
<td>Part 18 Consumer Device</td>
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<td>18</td>
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<tr>
<td><strong>Total</strong></td>
<td></td>
<td>86.7</td>
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</table>
# Application for Certification Information

### 2.1033(b) Part 11, 15, 18
- Name, address
- FCCID
- User/installation Manual
- Circuit Description
- Block Diagram
- Schematics (when required)
- Measurement Report
- Photos
  - Internal, external, setup

### 2.1033(c) Other Parts
- Name, address
- FCCID
- User/installation Manual
- Circuit Description
- Emission Type
- Frequency Range
- Power levels & max.
- Tune Up procedure
- Schematics
- Measurement Report
- Photos
FCC vs TCB Authorization

FCC Authorization
- Electronically filed at: https://fjallfoss.fcc.gov/oetcf/eas/index.cfm
- No login required to file
- FCC Fee required
- Initial review ~ 45 days
- Info available to public when granted
- Can approve all devices except computers and peripherals

TCB Authorization
- Electronically filed by TCB at: https://fjallfoss.fcc.gov/tcb/index.html
- TCB login and password required to file
- No FCC Fee payment
- Grant issued in a few days
- Info available to public when granted
- No pre-grant FCC review
- Can approve new technology or devices with not test procedures
FCC vs TCB approvals

**FCC approvals**
- Devices considered New technology
  - Ultra Wideband Devices
  - UNII with Dynamic Frequency Selection
  - Broadband over Power Lines
- Devices without well established test procedures.

**TCB approval**
- Devices with well established test procedures.

**TCB Exclusion list**
- [www.fcc.gov/labhelp](http://www.fcc.gov/labhelp) publication # 628591
Telephone Terminal Regulations

47 CFR Part 68 – Telephone Terminal Equipment (TTE)

- Public Switched Telephone Network (PSTN)
- Private Line Interfaces
- Analog Interfaces
- Digital Interfaces
- www.part68.org
FCC Knowledge Database
www.fcc.gov/labhelp

Welcome to the OET Laboratory Division Knowledge Database (KDB) Site. This site is designed to provide the public a means to research answers to Equipment Authorization questions. The Knowledge Database Search accepts a text string as input and performs an "OR" boolean search. The Detail Criteria Search performs an "AND" boolean search. If the result of your search does not provide a conclusive answer, you may then select Submit an Inquiry. The process time for an inquiry response may be shortened by selecting a category that best matches your question. We hope that your visit to this site is both timely and helpful.

Notes:
The new application processing fee schedules will become effective April 28, 2009. The 2009 Office of Engineering and Technology (OET) Fee Filing Guide is available at www.fcc.gov/oet/ea/Wire_Transfer_grantee_code_fee_payment.pdf
Information On Line

Equipment Authorization Webpage
- Measurement techniques, explanation of EA programs, filing information, MRAs, TCBs, EA announcements, etc.: http://www.fcc.gov/oet/ea/

Procedures for information sharing and distribution
- Updated Interpretation Database & new contact desk for web based inquiries: http://www.fcc.gov/labhelp

OET Info on line (Orders, Public Notices, etc.)
- http://www.fcc.gov/oet/info/

FCC Rules and Regulations:
- http://www.fcc.gov/oet/info/rules

General FCC Information:
- http://www.fcc.gov

FCC MRA Webpage
- www.fcc.gov/oet/ea/mra