



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



Equipment Authorization Regulations (continued)

- 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
 - <http://www.fcc.gov/oet/ea/eameasurements.htm>
 - OET Website for Equipment Authorization General Information:
<http://www.fcc.gov/oet/ea/Welcome.html>



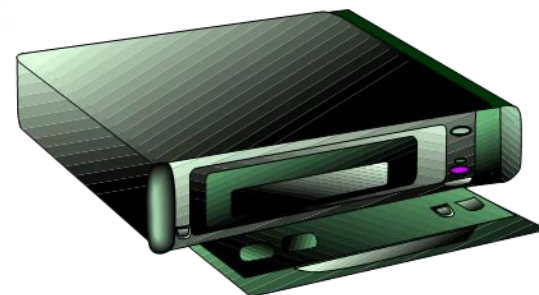
General Equipment Types

- 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



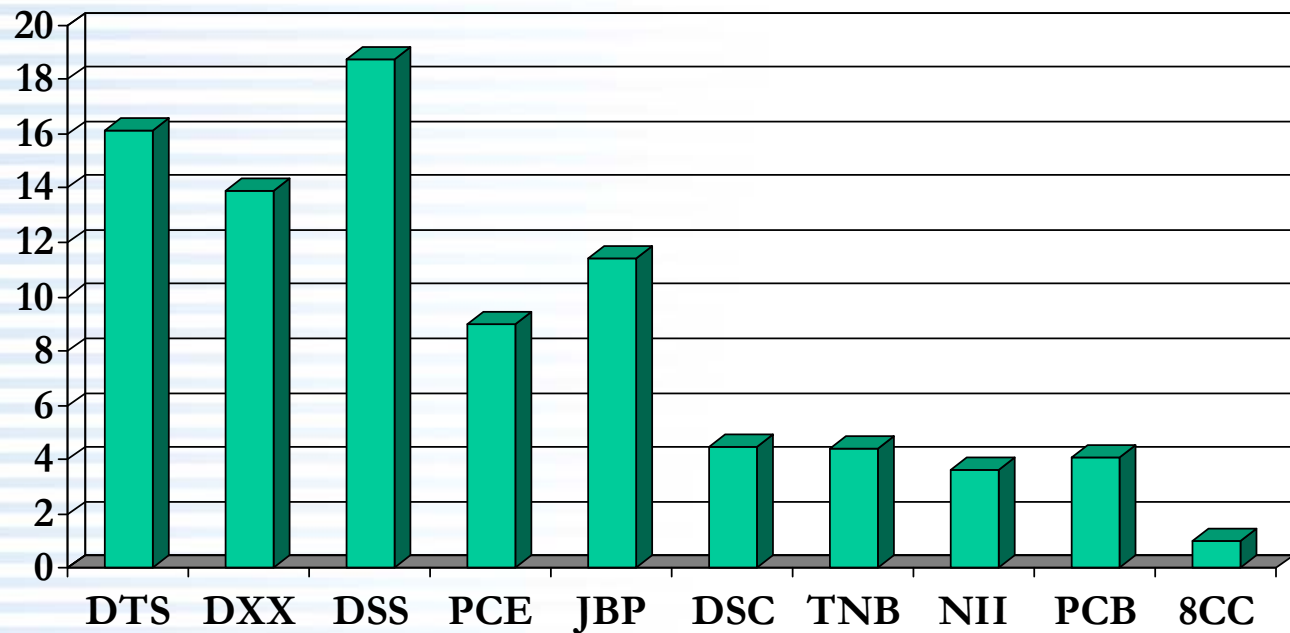
Licensed Device Tests

- 47 CFR Parts 2.1046 - 2.1057 Tests required for all Licensed Devices.
 - 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





Equipment Authorization Classifications

Category	Description	Percent	Rules
DTS	Digital Transmission System	16.1	15C
DXX	Part 15 Low Power Communication Device Transmitter	13.9	15C
DSS	Part 15 Spread Spectrum Transmitter	18.7	15C
JBP	Part 15 Class B Computing Device Peripheral	11.4	15B
PCE	PCS Licensed Transmitter held to ear	9	Licensed 24
DSC	Part 15 Security/Remote Control Transmitter	4.5	15C
TNB	Licensed Non-Broadcast Station Transmitter	4.4	Licensed 22
PCB	PCS Licensed Transmitter	4.1	Licensed 24
NII	Unlicensed National Information Infrastructure TX	3.6	15E
8CC	Part 18 Consumer Device	1	18
	Total	86.7	



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 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

The screenshot shows a web browser window titled "OET Laboratory Inquiry System - Windows Internet Explorer". The address bar contains the URL "https://fjallfoss.fcc.gov/oetcf/kdb/index.cfm". The browser's menu bar includes "File", "Edit", "View", "Favorites", "Tools", and "Help". The page content features the FCC logo and navigation links: "FCC Home", "Search", "Updates", "E-Filing", "Initiatives", "For Consumers", and "Find People". Below this is a yellow banner for the "Office of Engineering and Technology". The main content area is titled "Office of Engineering and Technology Laboratory Division Knowledge Database (KDB)" and includes a welcome message and a "Notes" section. The "Notes" section states: "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". The browser's status bar at the bottom shows "Internet" and "100%".



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



Questions and Answers

Thanks!