



Introduction to FCC Rules and Equipment Authorization Program

**October 2005
TCB Workshop**

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



Overview

- General FCC information & processes
- Equipment authorization information
- TCB Equipment authorization information
- Frequently used/referenced rule sections
- Websites and information sources



Federal Communications Commission



- The Federal Communications Commission (FCC) is an independent United States government agency, directly responsible to Congress.
- The FCC was established by the Communications Act of 1934 and is charged with regulating interstate and international communications by radio, television, wire, satellite and cable.
- The FCC's jurisdiction covers the 50 states, the District of Columbia, and U.S. possessions



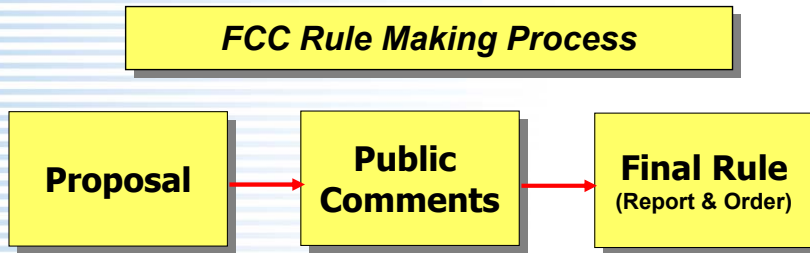
Federal Communications Commission

- FCC regulates the private sector telecommunications industry, in the public interest
 - First, the Commission establishes technical regulations for transmitters and other equipment to minimize their potential for causing interference to radio services.
 - Second, the Commission administers an authorization program to ensure that equipment reaching the market complies with the technical requirements.



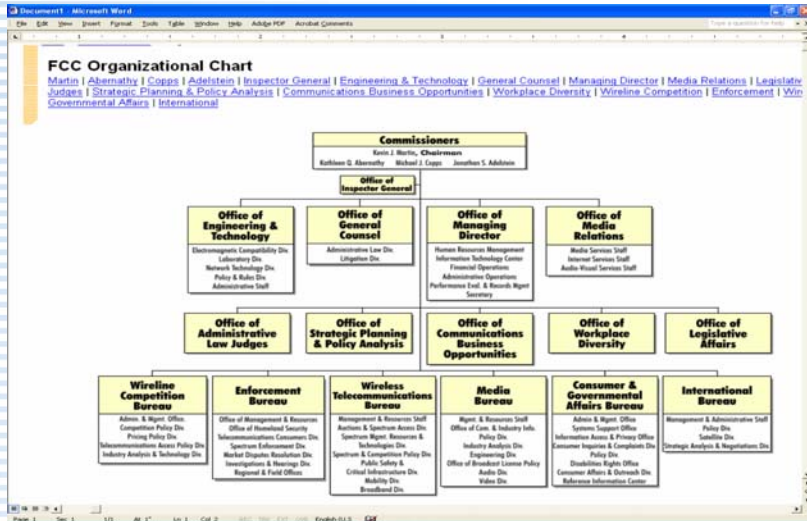
How are Regulations Made?

- Administrative Procedures Act (APA- 5 USC 553)
- Requires all US government agencies to give the public the opportunity to comment on any regulations that will affect them.
- These rules are codified in 47 CFR Part 1, Subpart C





FCC Organization



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<http://www.fcc.gov/fccorgchart.html>

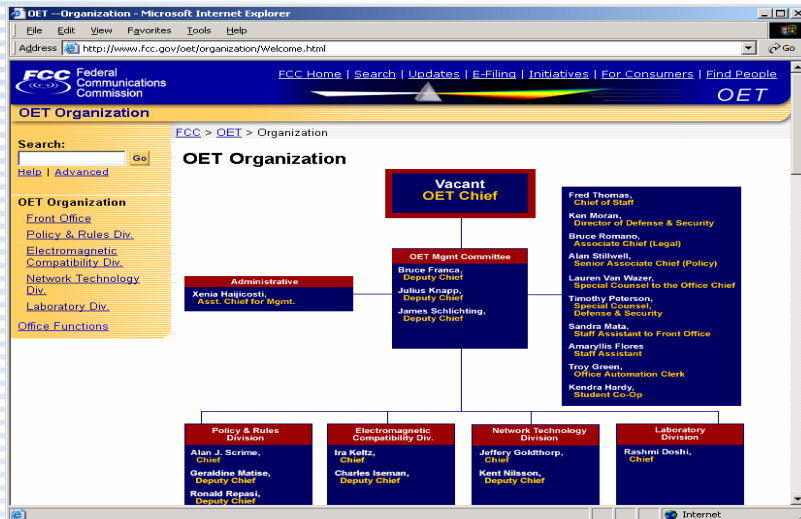


Office of Engineering & Technology

- FCC Office of Engineering and Technology (OET) mission is to manage the spectrum and ensure marketed radio frequency (RF) equipment does not cause interference with other radio services or products.
- OET uses the Equipment Authorization System (EAS) to facilitate the management of RF equipment to prevent interference.



OET Organization



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<http://www.fcc.gov/oet/organization/Welcome.html>



Equipment Authorization Program

- The FCC currently has four equipment approval programs
 - Verification
 - Supplier Declaration of Conformity (SDoC)
 - Declaration of Conformity (DoC)
 - Certification
- The product approval requirement is specified in the rule part under which equipment operates
- All four programs involve the use of the private sector to varying degrees



Equipment Authorization Program

The type of approval is specified in the rules for the particular type of device



- Certification**
(Approved by FCC or TCB)
- DoC**
(Self-approval using an accredited lab)
- SDoC**
(Self-approval Database by ACTA)
- Verification**
(Self-approval)



Equipment Authorization Types

Verification	SDoC	DoC	Certification ²
Most ISM Equipment		<i>PC's & Peripherals</i>	<i>PC's & Peripherals¹</i>
TV & FM Receivers		<i>Most Receivers</i>	<i>Most Receivers</i>
All Other Digital Devices		<i>TV Interface Devices</i>	<i>TV Interface Devices</i>
Pt-to-Pt Microwave		<i>Consumer ISM Equipment</i>	<i>Consumer ISM Equipment</i>
Broadcast Transmitters	<i>Telephone Equipment</i>		<i>Telephone Equipment¹</i>
Aux. Broadcast Transmitters			Most transmitters
INMARSAT Equipment			Scanning Receivers
406 MHz ELT			Access BPL
CATV Relay Transmitters			

- (1) The FCC Lab no longer certifies this equipment. However, this equipment may be certified by a TCB.
- (2) For several products the manufacturer is given the option to use either DoC or Certification.

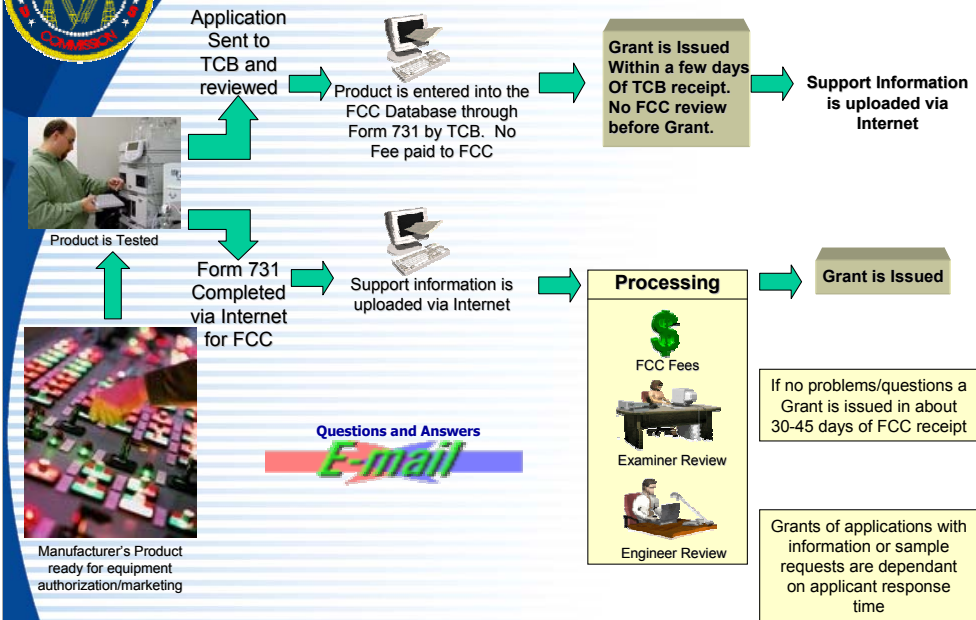


Why use the private sector?

- Speed at which technology is changing and shorter product life cycles require faster product approvals
- The private sector has the technical expertise and ability to certify equipment.
- Increase the resources performing conformity assessment
- Efficiencies in designing and approving product in the same geographic location
- Reduce uncertainty and delay in obtaining certification



Private Sector vs FCC Approval



Product is Tested



Manufacturer's Product ready for equipment authorization/marketing

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What is a TCB?

- A Telecommunication Certification Body is a Certification Body (TCB) that has been accredited to ISO/IEC Guide 65 by a recognized Accrediting Organization
- Is designated and recognized by the FCC to approve equipment subject to certification
- A TCB is an independent third-party certification body (Manufacturers are not permitted to become a TCB)
- Foreign entities may become a TCB in accordance with the terms of a government-to-government Mutual Recognition Agreement/Arrangement.



TCB Unlicensed Device Scopes A1-A4

- A1 - Low power transmitters operating on frequencies below 1 GHz (with the exception of spread spectrum devices), emergency alert systems Part 11, unintentional radiators (e.g., personal computers and associated peripherals and TV interface devices) and consumer ISM devices subject to Certification (e.g., microwave ovens, RF lighting and other consumer ISM devices).
- A2 - Low power transmitters and Radar detectors operating on frequencies above 1 GHz, with the exception of spread spectrum transmitters.
- A3 - Unlicensed Personal Communication System (PCS) devices.
- A4 - Unlicensed National Information Infrastructure (UNII) devices and low power transmitters using spread spectrum techniques.



TCB Licensed Device Scopes B1- B4

- B1 – Personal Mobile Radio Services
 - 47 CFR Parts 22(cellular), 24,25,26,27
- B2 – General Mobile Radio Services
 - 47 CFR Parts 22(non-cellular),73,73,90,95, & 97
- B3 – Maritime & Aviation Radio Services
 - 47 CFR Parts 80 & 87
- B4 – Microwave Radio Services
 - 47 CFR Parts 21, 74, & 101



TCB Excluded Devices

- Devices that may not be approved by TCB
 - New technology
 - Technology with no developed/FCC approved test procedure
 - Equipment requiring RF Exposure evaluation where the TCB doesn't have proper training
 - Equipment identified on the RF Exposure "Exclusion List"
- Examples of Non approvable Devices
 - UWB, Access BPL, Learned Mode Tx, SDR, Implanted Devices, UNII with DFS

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Policy Statement KDB 447498

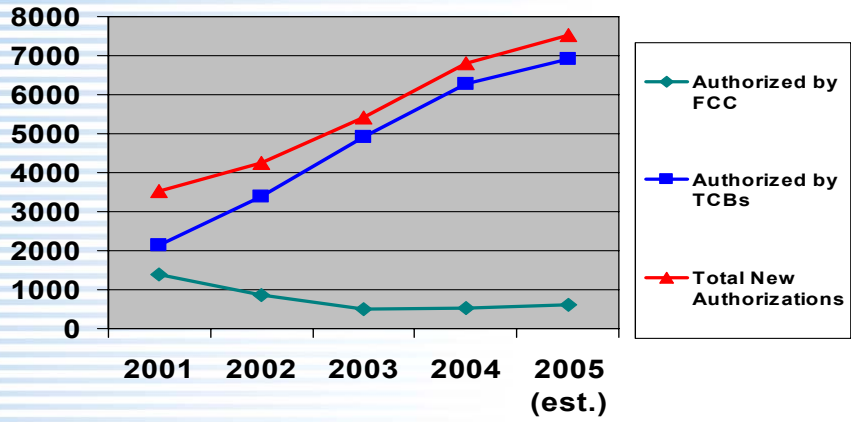
<https://gulfoss2.fcc.gov/prod/oet/cf/kdb/forms/FTSSearchResultPage.cfm?id=20676&switch=P>

RF Exposure Exclusion list KDB 628591

<https://gulfoss2.fcc.gov/prod/oet/cf/kdb/forms/FTSSearchResultPage.cfm?id=20247&switch=P>



Equipment Authorization Trends





FCC Regulations



- Title 47 of the Code of Federal Regulations (CFR)
 - Rules are divided into 101 different sections known as Rule Parts
 - Not all Rule Parts used-some reserved for later use.
- Rules Website
 - <http://wireless.fcc.gov/rules.html>



47CFR Frequently Used Rule Parts

- 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
 - 2.929 – 2.926 – ID Labels
 - 2.1033 – Application for Certification
 - 2.1043 – Permissive Changes
 - 2.1046 – 2.1057 – General tests for licensed devices

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- 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



Confidentiality 0.457 & 0.459

● Types of Confidentiality

- Long Term
 - Applies as long as FCC retains information or until 0.461 review requested and approved.
- Short Term
 - Applies for a limited time until the product is marketed. Intended for marketing purposes to allow a product to get to market before full information available on FCC website.



General Confidentiality Issues

- Submit justification letter
 - Justify why held
 - Reference rules
 - List files
- Doesn't apply to entire application
- FCC reviewed applications have fee
- FCC doesn't charge for TCB applications filed with confidentiality
- Short term applies for 45 day increments from day of grant
 - Max 180 days
 - Automatically released at end of term
 - Once product on market, information must be released to public.
- Be sure to check box when file uploaded
 - No immediate FCC review for TCB filings

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Long term confidentiality doesn't apply: Test report, FCCID label, RF exposure info, Cover letters, Attestation statements, Setup photos, correspondence.

Short term confidentiality doesn't apply: Test report, FCCID label, RF exposure info, & cover letters

Scanning Receivers and software defined/cognitive radios have special requirements called out in rule making.

A specific exhibit in an FCC may have either short or long term confidentiality but not both.

Some photos and users manuals will be held confidential but require additional justification.

If a TCB grants short term confidentiality any requests to extend that confidentiality must be sent to them

For extensions of short term confidentiality for FCC granted applications requests must be submitted at least 7 days in advance.



Application for Certification Information

- 2.1033(b)Part11,15,18
 - Name, address
 - FCCID
 - User/installation Manual
 - Circuit Description
 - Block Diagram
 - Schematics (when required)
 - Measurement Report
 - Photos
 - Internal, external, setup
- 2.1033(c)
 - Name, address
 - FCCID
 - User/installation Manual
 - Circuit Description
 - Emission Type
 - Frequency Range
 - Power levels & max.
 - Tune Up procedure
 - Schematics
 - Measurement Report
 - Photos



Permissive Changes 2.1043

- Changes in Certificated Equipment
 - Class 1, 2, & 3 PC's
 - In order to be considered permissible a change must meet the definition of a permissive change
 - Changes to the basic frequency determining and stabilizing circuitry (including clock and data rates), frequency multiplication stages, basic modulator circuit, or maximum power or field strength ratings are not permissible and require a new FCCID.



Permissive Changes 2.1043

- Changes in Certificated Equipment
 - Class 1 Permissive - No filing is required
 - Changes that do not degrade the characteristics reported to the FCC and do not require a modification of the grant.
 - Class 2 Permissive - Filing required.
 - Changes that degrade the performance reported to the FCC but are still in compliance with the limits and changes to the grant.
 - Class 3 Permissive - Filing required
 - Changes to software for a software defined/cognitive radio.



Permissive Changes 2.1043

- Requesting/Filing Class 2/3 changes
 - Select PC button on Form 731
 - Provide detailed description of changes
 - Enter all applicable Technical Specification on Form 731
 - If there is any question that the change is permissible, provide justification
 - Provide test report showing compliance with rules. Information required depends on changes made to equipment.



Unlicensed Devices-Part 15

- Part 15, Subpart B – Any device that intentionally generates RF energy, but does not intentionally radiate that energy
- Examples:
 - Digital devices (computers, data processing equipment, etc.)
 - Radio receivers that tune between 30-960 MHz
 - TV interface devices (VCRs, cable terminal devices, etc.)
- Part 15, Subpart C – Lists frequency bands and types of operation permitted.
- Examples:
 - Cordless Telephones
 - Remote Switches, door controls, alarms
 - WLAN



Licensed Radio Services



- Transmitters that require either an individual license or a blanket authorization are subject to requirements of a specific radio service.
- Examples
 - General Mobile Radio Services
 - Cellular Telephone Services
 - Broadcast Radio Services
 - Microwave Radio Services
 - Maritime and Aviation Radio Services



Equipment Authorization Rule Radio Service Rule Parts

- Part 11-Emergency Alert Systems
- Part 15-Low Power Unlicensed Devices
- Part 18-Industrial, Scientific & Medical Equipment
- Part 20-Commercial Mobile Radio
- Part 22-Public Mobile
- Part 24-Personal Communications Service
- Part 25-Satellite Communications
- Part 27-Miscellaneous Communications
- Part 68-Telephone Terminal Equipment



Equipment Authorization Rule Radio Service Rule Parts

- Part 73-Broadcast Services
- Part 74-Auxilliary Broadcast Services
- Part 78-Cable Television Relay
- Part 80-Maritime Service
- Part 87-Aviation Service
- Part 90-Private Land Mobile Service
- Part 95-Personal Radio Service
- Part 97-Amateur Radio Service
- Part 101-Fixed Microwave Service



Telephone Terminal Regulations



- Part 68 – Telephone Terminal Equipment (TTE)
- Examples
 - Public Switched Telephone Network (PSTN)
 - Private Line Interfaces
 - Analog Interfaces
 - Digital Interfaces
- www.part68.org
- Scope C



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 have highest priority
 - Part 2 rules have 2nd highest priority
 - Industry Standards
 - Text of the Report and Order
 - Public Notice Issued by the Commission
 - Knowledge Database
 - OET Website for Equipment Authorization General Information:
 - <http://www.fcc.gov/oet/ea/Welcome.html>



Test Sites

- Test Site Search
 - <https://gulfoss2.fcc.gov/prod/oet/cf/eas/reports/TestFirmSearch.cfm>
 - Only shows contract sites
- 2.948 Listed vs. Accredited
- Part 15 & 18 Device Requirements
- Contract vs. non-contract Sites
- Form 731 Test Site search differences



Accreditation of Test Laboratories

- A test laboratory that has been accredited by an organization recognized by the FCC is no longer required to file a description of its measurement facilities with Commission
- Reduces the burden on laboratories by eliminating the need for them to file duplicate information with both the FCC and an accrediting organization
- Laboratories outside the United States will be recognized by the FCC if one of the following two conditions are met:
 - the laboratory has been designated by a foreign authority and recognized by the Commission under the terms of a government-to-government Mutual Recognition Agreement or Arrangement; or
 - the laboratory has been accredited by an organization whose accreditations are recognized by the Commission.



Equipment Authorization Websites

- FCC Equipment Authorization Sites
 - <https://gulfoss2.fcc.gov/prod/oet/cf/eas/index.cfm>
 - <https://svartifoss2.fcc.gov/prod/oet/cf/eas/index.cfm>
- TCB Equipment Authorization Sites
 - <https://gulfoss2.fcc.gov/oetwl/index.html>
 - <https://svartifoss2.fcc.gov/oetwl/index.html>
- Status Check of Sites
 - www.fcc.gov/e-filing



FCC Equipment Authorization Website

FCC Laboratory Equipment Authorizations Electronic Filing Site - Microsoft Internet Explorer

Address: <http://www.fcc.gov/oea/eas/eas/index.cfm>

FCC Home | Search | Updates | E-Filing | Initiatives | For Consumers | Find People

Office of Engineering and Technology

FCC > FCC E-Info > EAS

Filing Options

- Grantee Registration
- Mobile Device Information
- Form 211
- Consents Unavailable Form 211
- AAL Attachments
- Submit Correspondence
- Rescind Items Test Form
- Rescind Test Form/Label Labels
- Test Form Account/Info Query
- Return to 159 Form

Reports

- Form/Label/Assignment Status
- Options Search
- Grantee Search
- Form/Label/Grantee Search
- Test Form
- Test Form Account/Info Query
- Rescind Items/Label Labels

Miscellaneous

- Out Files
- Account/Info Database
- User's Manual
- Out Software
- EAS

OET Laboratory Division Electronic Filing Site

Welcome and thank you for visiting the OET Laboratory Division Electronic Filing Site. The pages to the left are designed to provide the public a means to electronically file and report on Equipment Authorization Applications. We hope your visit at this site is both timely and useful.

Notes of Interest:

NOTICE: OET has created two generic mailboxes for submittal of inquiries to the Laboratory on Equipment Authorization issues: one is for administrative issues; the other is for policy or technical issues.

oetadm@fcc.gov - This mailbox should be used to submit: 1) requests for disbursements; 2) fee payment problems/questions; 3) transfer in control of grantee questions; and 4) all application filing problems/questions. Submit inquiries involving a rule and/or policy interpretation at www.fcc.gov/labhelp.

oetech@fcc.gov - This mailbox should be used to submit: 1) Equipment Authorization policy/procedural questions and 2) any questions directed to the Chief of Equipment Authorization Branch. Submit inquiries involving a rule and/or policy interpretation at www.fcc.gov/labhelp.

NOTICE: Per ET Docket 03-301, effective April 5, 2005, requests for Grantee Code assignments must be submitted electronically. Additionally, all modification of Grantee Code information - company name, address, contact information - must be submitted electronically by clicking Modify Grantee Information under Filing Options at the left of this page. To provide security against unauthorized modifications, the system requires both the Grantee Code and the associated Grantee Code Registration Number (GCR). This GCR will be automatically generated with an assignment of a new Grantee Code. The GCR for a Grantee Code assigned prior to April 5, 2005, may be requested by sending an e-mail to oetadm@fcc.gov. The request for the GCR must include the applicant's contact name and e-mail address.

A list of foreign test labs accepted by the FCC for Declaration of Conformity (DoC) testing under the terms of a Mutual Recognition Agreement (MRA) can be found at http://www.fcc.gov/oet/facts/conformity_labr.pdf.

Speed of Service (SOS) for the period 08/01/2005 - 08/31/2005: 50% were processed within 26 calendar days; 50% were processed within 52 calendar days. On August 31, the total number of applications pending at the FCC Laboratory was 0. Speed of Service is defined as the time from date of electronic filing to final action, minus the time during which additional information is requested of the applicant. If an application is submitted on a weekend or a holiday, the receipt date is the next business day.

Please send any comments or suggestions for this site to OET_Systems_Support

Last Reviewed/Updated on 03/29/2005

Federal Communications Commission
445 12th Street, SW
Washington, DC 20549

Phone: 888-CALL-FCC (326-9322)
TTY: 888-TELL-FCC (326-9322)
Fax: 202-418-0232
TDD: 202-418-0232

Web Policies & Privacy Statement
Customer Service Statement
Freedom of Information Act

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<https://gulfoss2.fcc.gov/prod/oet/cf/eas/index.cfm>



TCB Equipment Authorization Website

FCC OF TCB (Electronic Filing Site) - Microsoft Internet Explorer

Address: <http://ppl.fcc.gov/etef/etef/index.html>

FCC Home | Search | Updates | E-Filing | Initiatives | For Consumers | Find People

Office of Engineering and Technology

ECG > ECG.EFile > TCB Home Page

ECG.Bna.Mat

Welcome to the Office of Engineering & Technology Telecommunications Certification Bodies Electronic Filing Site

Notes of Interest and Up-Coming Events:

NOTICE: OET has created two generic mailboxes for submittal of inquiries to the Laboratory on Equipment Authorization issues: one is for administrative issues; the other is for policy or technical issues.

etefadmin@fcc.gov - This mailbox should be used to submit: 1) TCB requests for disimburse; 2) TCB requests for application audit; 3) requests to correct an application/grant mistake that is not correctable by a TCB; 4) Grantee Code fee payment problems/questions; 5) transfer in control of grantee questions; and 6) all application filing problems/questions. Submit inquiries involving a rule and/or policy interpretation at www.fcc.gov/labhelp.

etech@fcc.gov - This mailbox should be used to submit: 1) Equipment Authorization policy/procedural questions and 2) any questions directed to the Chief of Equipment Authorization Branch. Submit inquiries involving a rule and/or policy interpretation at www.fcc.gov/labhelp.

NOTICE: Per ET Docket 03-381, effective April 5, 2005, requests for Grantee Code assignments must be submitted electronically. Additionally, all modifications of Grantee Code information - company name, address, contact information - must be submitted electronically by clicking Modify Grantee Information under Filing Options at the left of this page. To provide security against unauthorized modifications, the system requires both the Grantee Code and the associated Grantee Code Registration Number (GCR). This number will be automatically generated for an assignment of a new Grantee Code. The GCR for a previously assigned Grantee Code may be requested by clicking OET Systems Support at the bottom of this page. The request for the GCR must be submitted by the Applicant on company.intelhead.com.

To view a list of TCBs designated to approve Telephone Terminal Equipment (TTE) Part 68 - Scope C, visit www.fcc.gov/etef/tcb/part68.html.

Last Reviewed/Updated on 06/13/2003

Please send any comments or suggestions for this site to OET_Systems_Support

Federal Communications Commission
445 12th Street, NW
Washington, DC 20554
[More FCC Contact Information...](#)

Phone: 800-CALL-FCC (225-5322)
TTY: 800-TOLL-FCC (833-5322)
Fax: 202-418-0232
E-mail: etef@fcc.gov

[Web Policies & Privacy Statement](#)
[Customer Service Standards](#)
[Freedom of Information Act](#)



Information Sources

- **Main FCC Website:**
 - For finding current issues and rule writing bureau hot topics:
 - www.fcc.gov
- **Electronic Documents Management Site:**
 - For finding Rulemakings, public notices and news release information
 - http://hraunfoss.fcc.gov/edocs_public/SilverStream/Pages/edocs.html
- **Knowledge Database**
 - For searching and asking questions not specific to a pending or granted FCCID, but related to the equipment authorization process
 - www.fcc.gov/labhelp



Knowledge Database (KDB)

● Web Based Database

- Knowledge base search
 - » Full Text Search
- Detail Criteria Search
 - » Search of specific database fields
 - » Allows multiple field searches
 - » Frequently Asked Questions (FAQ)
 - » Rule parts
 - » Tracking number searches
- Submission of Inquiries



Knowledge Database Website



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OET Email Boxes

- For questions related to a specific FCCID
 - EASADMIN@FCC.GOV
 - Requests for Dismissal of applications
 - Fee payment problems/questions
 - Transfer of control questions
 - Application filing problems/questions
 - EASTECH@FCC.GOV
 - Equipment Authorization technical policy/procedural questions
 - Questions specifically for the Chief of the Equipment Authorization Branch



Summary

- Rulemaking process is open to all interested parties
 - Rules are updated on a regular basis
 - Changes are made to adapt rules to changes in technology and streamline the process when possible
- FCC requirements address
 - Unintentional Radiators
 - Intentional Radiators
 - Licensed Radio Services
 - Telephone Terminal Equipment
- Multiple online and email resources for questions



Questions and Answers

Thanks!

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