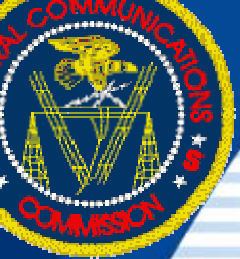


International Workshop on Mutual Recognition Agreement for R&TTE

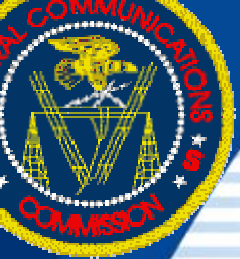
December 14-15, 2006

**George Tannahill
FCC Lab - Technical Research Branch
george.tannahill@fcc.gov
Office of Engineering and Technology
Federal Communications Commission**



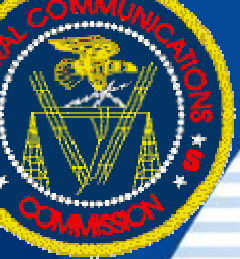
Overview

- FCC Overview
- FCC Regulations
- Equipment Approval Process
 - General information
 - TCB information
 - MRA information
- Post Grant Surveillance
- Information Sources

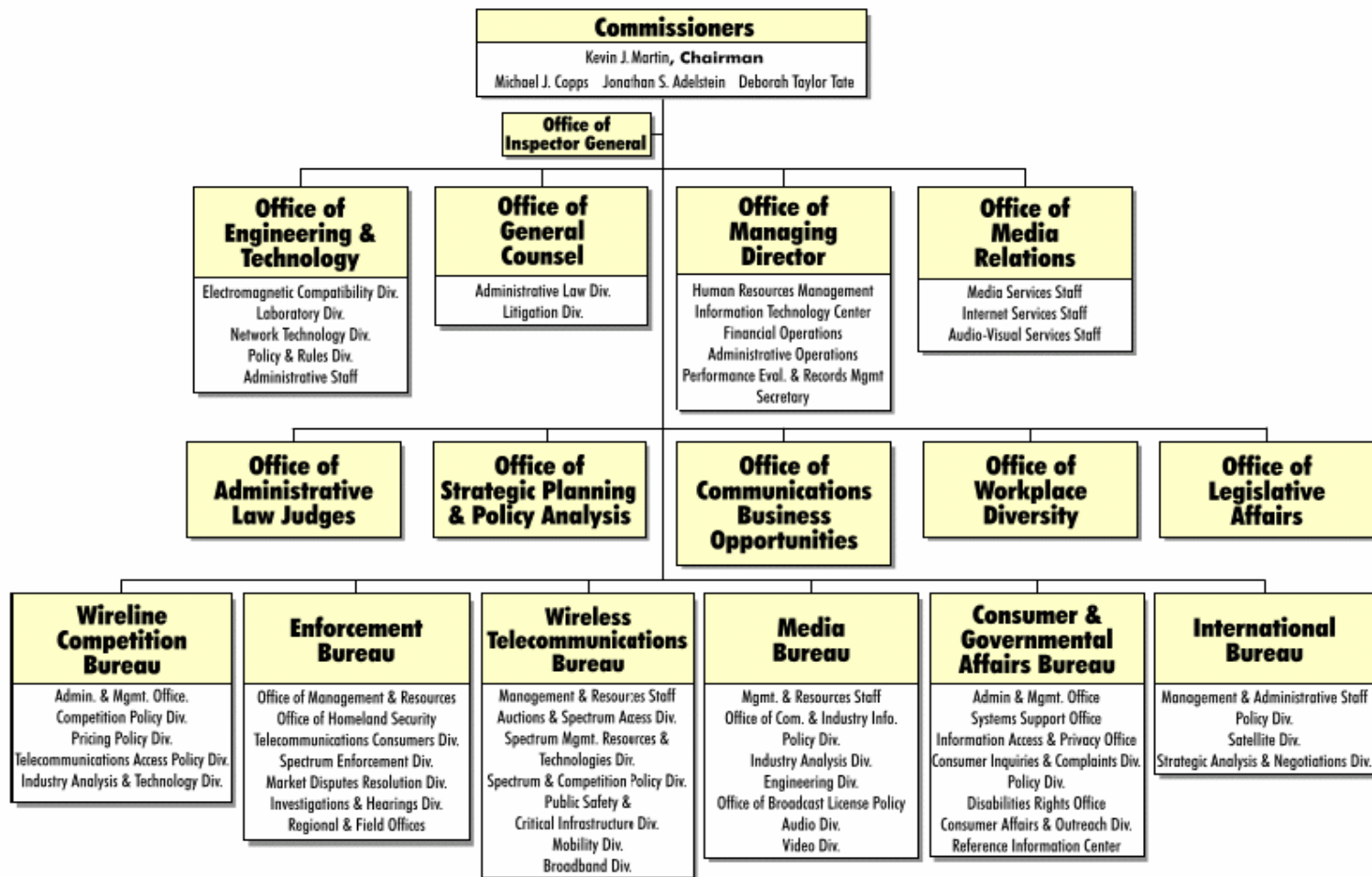


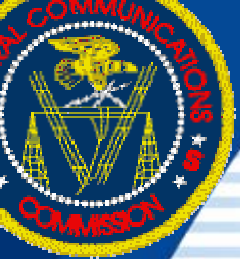
Federal Communications Commission

- Federal Communications Commission (FCC) regulates the private sector telecommunications industry, in the public interest
 - Establishes technical regulations for transmitters and other equipment to minimize their potential for causing interference to radio services.
 - Administers an authorization program to ensure that equipment reaching the market complies with the technical requirements



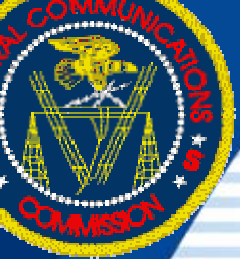
FCC Organizational Chart





OET Lab Principle Functions

- Equipment Authorization including monitoring Telecommunication Certification Bodies
- Ensure compliance through market surveillance and enforcement
- Technical Studies supporting regulatory policies and rulemaking
- Providing web-based comprehensive and timely clarification of technical standards and procedures

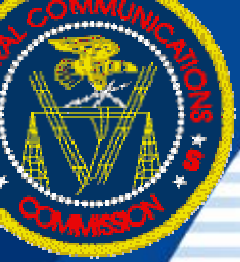


FCC Regulations



- Title 47 of the Code of Federal Regulations (47 CFR)

- Transmitter specifications
- Radio Services
- EMC specifications
- Telephone Terminal Equipment
- Test Methods
- Equipment Authorization Requirement
- Marketing and Importation Rules



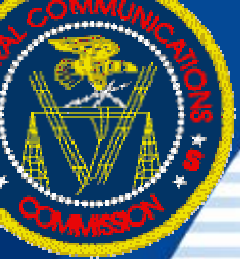
FCC Regulations Overview

● Administrative Rules

- Contain general requirements applicable to all other rule sections
 - 47 CFR Parts 0, 1 and 2
 - Examples: application filing process, general description of required tests, confidentiality, etc.

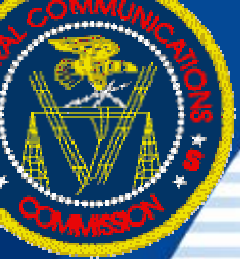
● Radio Service Rules

- Contain specific user licensing and equipment authorization testing requirements
 - 47 CFR Part 15, 18, 22, 24, etc.
 - Examples: Line conducted and radiated emission limits for specific products, occupied bandwidth masks, etc.



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
 - 2.929 – 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

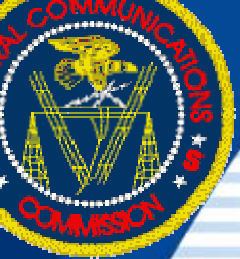
- Part 0: Commission organization
- Part 1: Practice and procedure
- Part 2: General rules and regulations

● License Exempt Operation

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

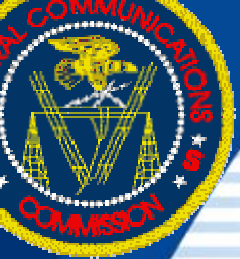
● Licensed Operation

- Part 22: Public mobile services
- Part 24: Personal communication services



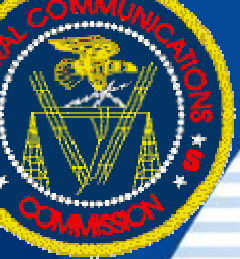
Equipment Authorization Regulations (continued)

- Licensed Operation (continued)
 - Part 25: Satellite communications
 - Part 27: Miscellaneous wireless communication service
 - Part 73: Radio broadcast services
 - Part 74: Auxiliary 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 radio 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 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>



Equipment Authorization Program

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

Maximum



Certification
(Approved by FCC or TCB)

DoC
(Self-approval using an accredited lab)

SDoC (Part 68)
(Self-approval Database by ACTA)

Minimum

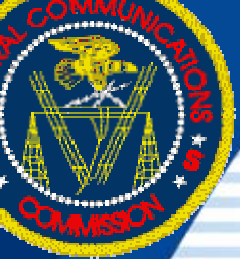
Verification
(Self-approval)



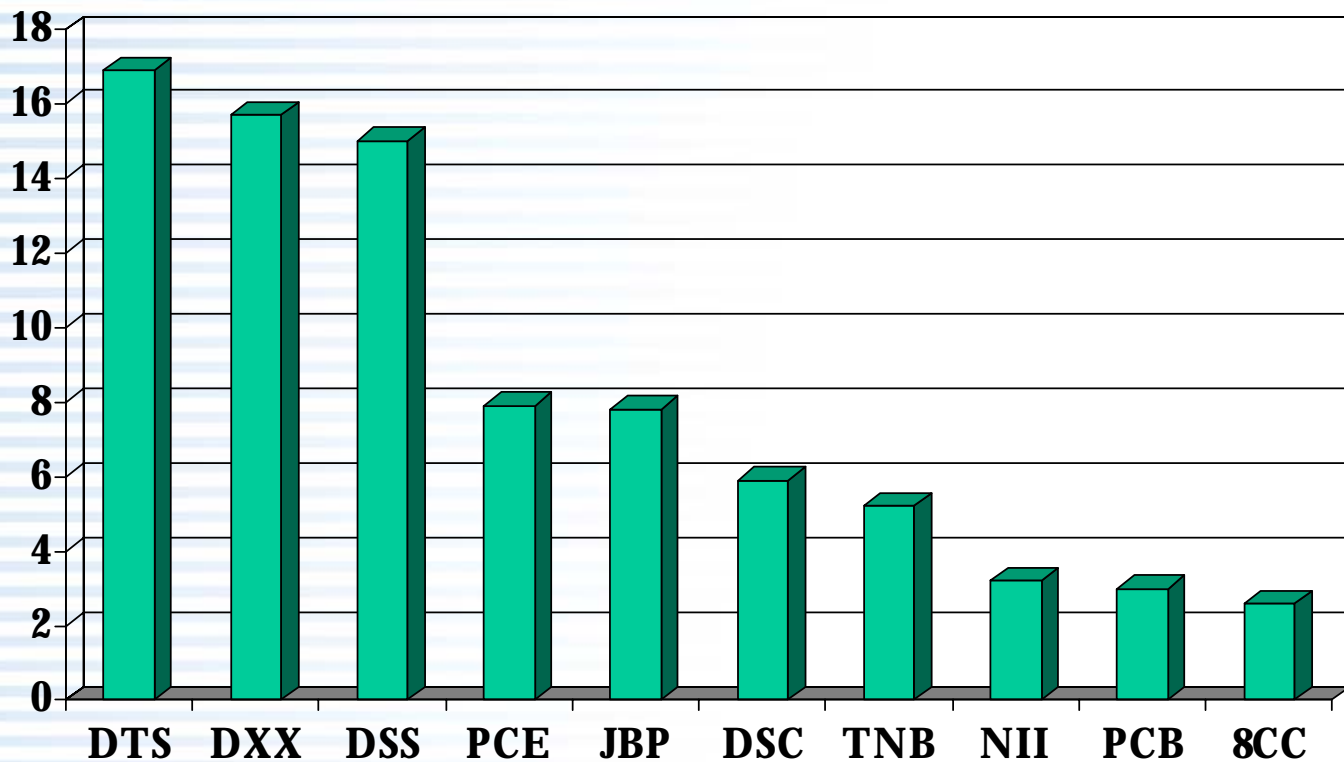
FCC Authorization Requirements

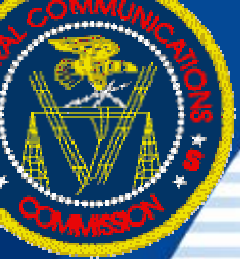
Verification	SDoC	DoC	Certification
Most ISM Equipment		Cable System Term. Device	
TV & FM Receivers		PC's & Peripherals	<i>PC's & Peripherals¹</i>
All Other Digital Devices		Most Receivers	Most Receivers
Pt-to-Pt Microwave		TV Interface Devices	TV Interface Devices
Broadcast Transmitters		Consumer ISM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

(1) The FCC Lab no longer certifies this equipment. However, this equipment may be certified by a TCB.



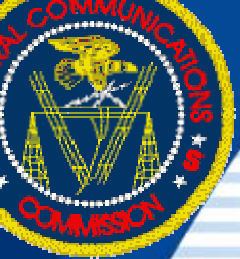
Equipment Authorization Top Ten Equipment Classifications





Equipment Authorization Classifications

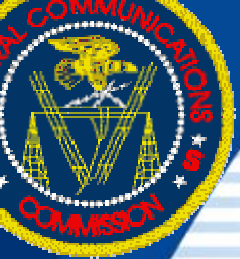
Category	Description	Percent	Rules
DTS	Digital Transmission System	16.9	15C
DXX	Part 15 Low Power Communication Device Transmitter	15.7	15C
DSS	Part 15 Spread Spectrum Transmitter	15.0	15C
JBP	Part 15 Class B Computing Device Peripheral	7.9	15B
PCE	PCS Licensed Transmitter held to ear	7.8	Licensed 24
DSC	Part 15 Security/Remote Control Transmitter	5.9	15C
TNB	Licensed Non-Broadcast Station Transmitter	5.2	Licensed 22
PCB	PCS Licensed Transmitter	3.2	Licensed 24
NII	Unlicensed National Information Infrastructure TX	3.0	15E
8CC	Part 18 Consumer Device	2.6	18
	Total	83.2	



General Equipment Types

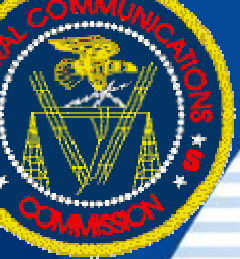
- License Exempt Devices – Parts 15 & 18
 - Incidental Radiator
 - Parts 15.13 & 15.5(b)
 - Unintentional Radiator
 - Part 15 Subpart B
 - Intentional Radiator
 - Part 15 Subpart C

- Licensed Transmitters – Other Rule Parts



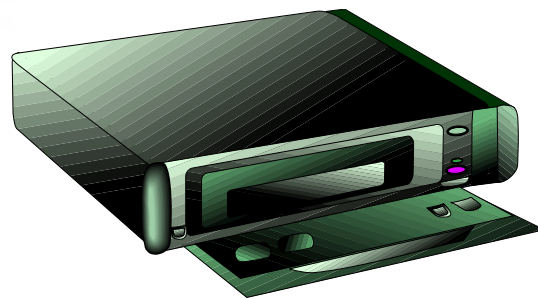
License Exempt Incidental Radiators

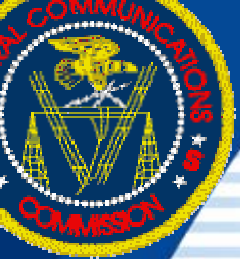
- Generate radio frequency energy during the course of its operation although the device is not intentionally designed to generate or emit radio frequency energy. (§ 15.13)
- Manufacturers of these devices must employ good engineering practices to minimize the risk of harmful interference.
- Examples:
 - DC motors
 - Mechanical light switches



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 30-890 MHz
 - TV interface devices (VCRs, cable terminal devices, etc.)





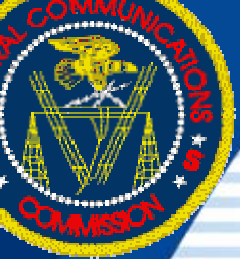
License Exempt Intentional Radiators

- 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)

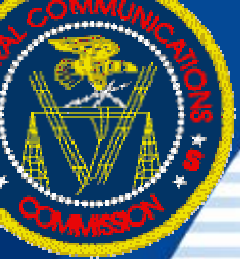




Licensed Radio Services



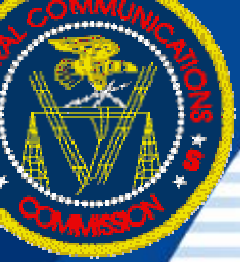
- Transmitters that require either an individual license or a blanket authorization are subject to requirements of a specific radio service.
 - General Mobile Radio Services (non-cellular)
 - Personal Mobile Services
 - Broadcast Radio Services
 - Microwave Radio Services
 - Maritime and Aviation Radio Services



Telephone Terminal Regulations

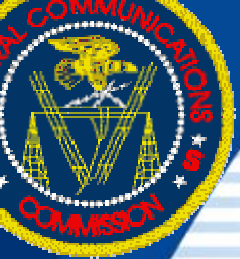


- **47 CFR Part 68 – Telephone Terminal Equipment (TTE)**
 - Public Switched Telephone Network (PSTN)
 - Private Line Interfaces
 - Analog Interfaces
 - Digital Interfaces
 - www.part68.org



Equipment Authorization Processes

- Declaration of Conformity
 - Approval using an accredited test lab
 - MRA Phase I
- Certification
 - Approved by FCC or TCB
 - MRA Phase II



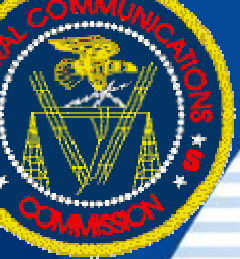
Application for Certification Information

● 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/TCB Certification Process Comparison

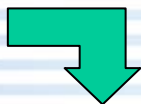
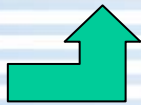


Product is Tested



Manufacturer's Product

Pay for TCB Services



Completes Form 731



Product is entered into the FCC Database through Form 731



Support Information is uploaded



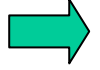
Grant is Issued



Product is entered into the FCC Database



Processing



Grant is Issued



FCC Fees



Examiner Review



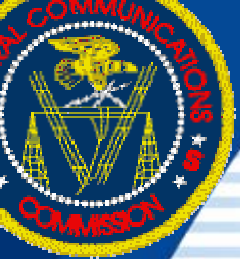
Engineer Review

If no problems are found a Grant is issued.

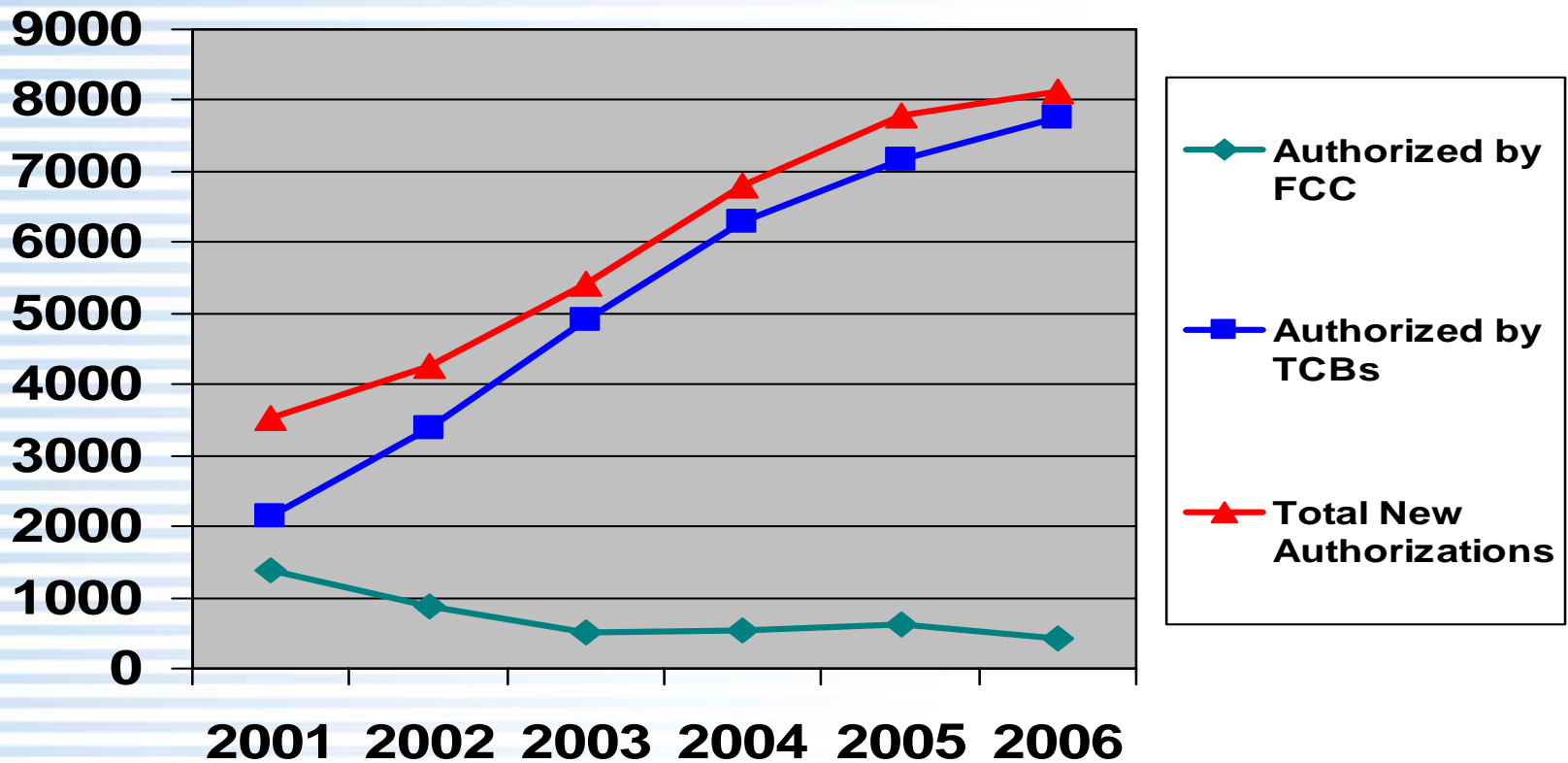
The review process is between 30 – 45 days

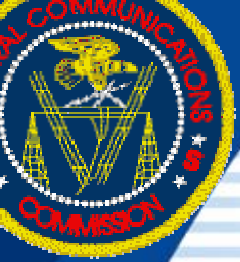
Questions and Answers

E-mail



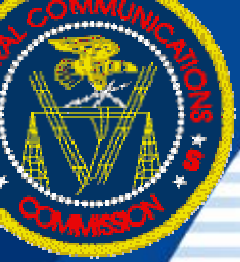
Equipment Authorization Certification Process Trends





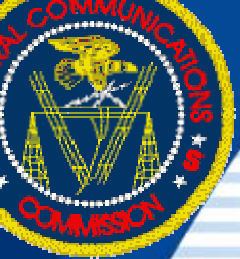
Why Use the Private Sector?

- 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



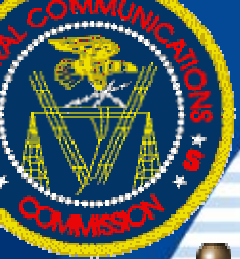
What is a TCB?

- A Telecommunication Certification Body is a Certification Body that has been accredited to ISO/IEC Guide 65 and ISO/IEC Standard 17025 by a recognized Accrediting Organization and designated by the FCC to approve equipment subject to certification.
- A TCB has certain rights and responsibilities (equitable treatment of applicants, audit through sampling of equipment on market)
- Foreign entities may become a TCB in accordance with the terms of a government-to-government Mutual Recognition Agreement/Arrangement.



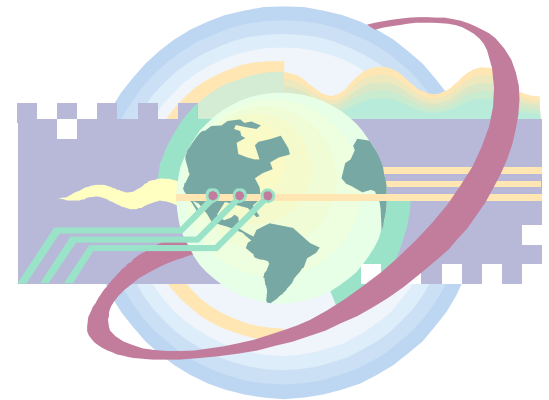
TCB Scope of Responsibility

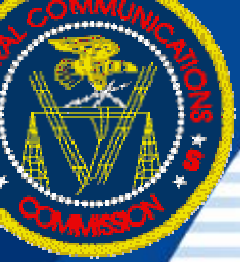
- TCB (see § 2.962 (e) and Public Notice, DA 99-1640)
 - Is empowered to certify products in accordance with the FCC rules
 - Must provide fair and equitable treatment
 - Must accept test data from any source, subject to subcontracting clause in ISO Guide 65 and shall not unnecessarily repeat tests
 - May assess fees for processing applications
 - May rescind grant within 30 days



MRA Introduction

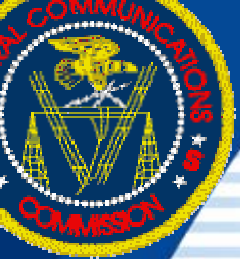
- Purpose of MRA -- To facilitate trade by allowing Conformity Assessment Bodies (CAB) in one economy to test (Phase I) and/or certify (Phase II) products to the Technical Regulations of another economy.
- Participation in a MRA is voluntary -- however, if a economy agrees to participate in either Phase I and/or Phase II certain rights and obligations in accordance with the terms of the MRA apply.
- Government to Government
- Use of harmonized technical standards is not part of an MRA





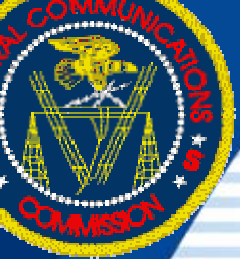
Benefits of MRAs

- Products May be shipped directly to foreign countries without any further requirements for testing and/or certification thereby reduced costs and time to market
- Facilitates trade by promoting market access and competition
- Reduces and minimizes non-tariff trade barriers
- Shortens time for manufacturers to introduce their products into the importing countries



Identification of US Players

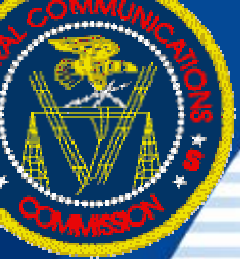
Regulatory Authority (RA)	Federal Communications Commission (FCC)	www.fcc.gov
Designating Authority (DA)	National Institute of Standards and Technology (NIST)	www.nist.gov
Accreditation Body (Phase 1)	National Voluntary Lab Accreditation Program (NVLAP) & American Association of Lab Accreditation (A2LA)	www.nist.gov www.a2la.org
AB (Phase 2)	American National Standards Institute (ANSI)	www.ansi.org



United States and MRAs

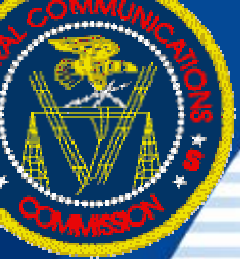
The US Government has agreed to participate in three separate MRAs for conformity assessment:

- European Union MRA
- Asian Pacific Economic Co-operation Tel MRA (APEC)
- Inter-American Commission for Telecommunications (CITEL MRA)



MRA Implementation Process

- Basic Requirements:
 - Regulatory Authority
 - Designating Authority
 - CAB Accrediting Body
- Modify laws to allow if necessary
 - Laws must allow private sector testing and approval.
- Establish:
 - Procedures for recognizing foreign CABs
 - Procedures for designating CABs



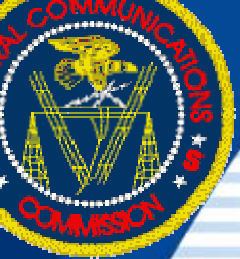
Accreditation Requirements

● MRA Phase I

- Regulatory Authority
- Designating Authority
- Accrediting Body
 - ISO17011
- CAB
 - ISO 17025

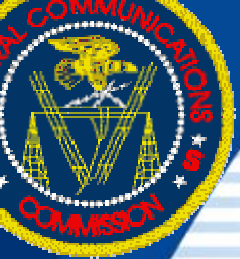
● MRA Phase II

- Regulatory Authority
- Designating Authority
- Accrediting Body
 - ISO17011
- CAB
 - ISO 65
 - ISO 17025



MRA Phase I - Accreditation of Test Laboratories

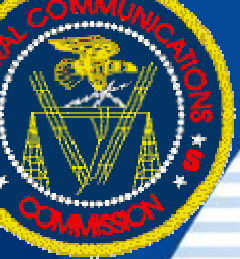
- Laboratories outside the United States will be recognized by the FCC if one of the following two conditions are met:
 - the laboratory has been designated by a foreign authority and recognized by the Commission under the terms of a government-to-government Mutual Recognition Agreement or Arrangement; or
 - the laboratory has been accredited by an organization whose accreditations are recognized by the Commission.



MRA Status – Phase I

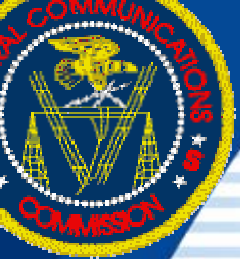
- Phase I (mutual acceptance of test data) is operational with the following countries:
 - Australia
 - Canada
 - Chinese Taipei
 - European Union
 - Hong Kong, China
 - Korea
 - Singapore

Region	Number of Labs
North America	88
Europe	57
Asia	72
Middle East	3
Total	220



MRA Status – Phase II

- Phase II (mutual acceptance of approvals) is operational with the following countries:
 - Canada
 - European Union
 - Hong Kong, China (pending development of procedures)
 - Singapore
- A total of 30 Telecommunication Certification Bodies (TCBs) have been recognized by the FCC.
 - 16 domestic TCBs
 - 14 foreign TCBs



Post Grant Surveillance

● FCC

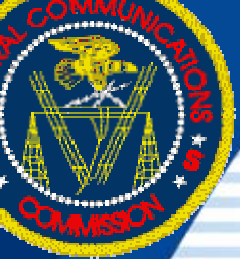
- Reviews ~ 20 % TCB Grants
- Requests Samples from Grantees and TCB's
- Purchases Samples
- Focused sampling projects

● TCB

- FCC requires each TCB to audit 2 % of products they authorized annually
 - 1 % RF Exposure if applicable
 - www.fcc.gov/labhelp KDB 610077
 - https://gullfoss2.fcc.gov/prod/oet/forms/blobs/IDBretrieve.cgi?attachment_id=20025

● Other

- General public complaints/testing
- Competitors complaints/testing



Post Grant Audit Issues

● FCC Actions

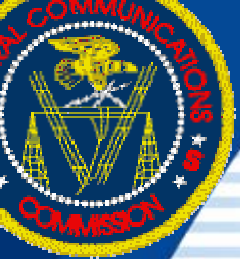
- Non compliance issues:
 - Require explanation
 - Monetary fines
 - Confiscate equipment
 - Fix equipment

● TCB Responsibilities

- Required to report issues to FCC & Grantee

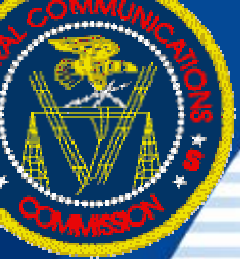
● Applicant Issues

- Non response
 - Grantee code deferral



Summary

- FCC
 - Overview
 - Regulations
 - Equipment Authorization Process
- TCB
 - Requirements & responsibilities
- MRA
 - Overview
 - Statistics
- Post Grant Surveillance
- Information sources



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.)**

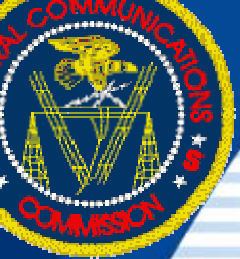
- <http://www.fcc.gov/oet/info/>

● **FCC Rules and Regulations:**

- <http://www.fcc.gov/oet/info/rules>

● **General FCC Information:**

- <http://www.fcc.gov>



Questions and Answers

Thanks!