FCC Rules & Procedures

Roy Uggerud, Nemko Norway
25th January 2018
Nearly every country requires certification before import and sale of the product.

Certification requirement

FCC RULES & PROCEDURES

Nemko
There are not many harmonized frequency bands around the world
Technical requirements vary from region to region
Legal and bureaucratic barriers

There are many bureaucratic barriers that must be navigated
Shipping test samples

Shipping uncertified test samples to an in-country lab can be risky
Configuration of test samples

It is important to properly configure test samples to avoid delays in the test lab

- Test code
- Support equipment
- Drivers
- RF interface
Some countries require Electromagnetic Compatibility testing of radio devices
Using a pre-certified radio module does not mean that all tests and certifications can be avoided
Using a radio module

Advantages:
- Module may be pre-certified
- Designed for compliance

Problems:
- A certified module is not allowed in all countries
- Compliance evaluated stand-alone
Wireless products need approvals

- N - EU
- CE
- FCC
- K
- ANATEL
- Nemko
EXTRA: Worldwide testing

The world can be divided in three clusters:

1. Countries will accept **EU** test reports/certification (for example Australia/New Zealand, India)

2. Countries will accept **FCC** test reports/certification (for example South American countries)

3. Countries will require **in-country** testing (for example Argentina, Brazil, Malaysia, Mexico, Taiwan, Ukraine)
EXTRA: Local Legal Representative

For example:

- Australia – Registered Supplier required
- Argentina – Local Legal Representative required
- Brazil – Local Legal and Technical Representative required
- China – **No** Local Representative required
- Korea – Local Legal Representative required
- Taiwan – **No** Local Legal Representative required
- USA – **No** Local Legal Representative required
- Canada – Local Legal Representative required
EXTRA: Label & Marking

- Each country has their own specific label and marking requirements.
- In case we have a product (for example, USB dongle) that has extremely limited space for this:
  1. We will need to make a case for putting some of the markings in the user documentation and on the packaging instead of on the product. This is a special case and must be approved by the certification body or regulator;
  2. This means we need extra time to get these approvals.
The CB Scheme is the starting point for the access of products in international markets.

Based on IEC Standards. It can also be used for the CE Marking.

It is also known as the TYPE TEST CERTIFICATES: the samples are tested, but there is no CB CERTIFICATION MARK.

A complete test report is issued with the certificate CB. The main objective of the scheme is to facilitate international trade through the harmonization of national standards.

Mutual recognition of test results by the certification bodies (NCBs).

CB REPORT is the international passport for the product. Ensures compliance with IEC standards for the selling of products outside the EU.
CB scheme members

Members country:

http://members.ieceee.org/
RED vs FCC
<table>
<thead>
<tr>
<th>Regulations</th>
<th>U.S. Code (Common Law) (U.S. Congress)</th>
<th>UE Treaty - Constitution (EU Members)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>State Laws (Local governments)</td>
<td>National Codes (EU Member Governments)</td>
</tr>
<tr>
<td></td>
<td>Sentences on similar cases (Great importance)</td>
<td>Sentences on similar cases (Minor importance)</td>
</tr>
</tbody>
</table>
## Structure of CFR 47

<table>
<thead>
<tr>
<th>Title</th>
<th>Volume</th>
<th>Chapter</th>
<th>Browse Parts</th>
<th>Regulatory Entity</th>
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<tr>
<td>Title 47 Telecommunication</td>
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<td>I</td>
<td>0-19</td>
<td>FEDERAL COMMUNICATIONS COMMISSION</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>20-39</td>
<td></td>
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<tr>
<td></td>
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<td></td>
<td>40-69</td>
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<td></td>
<td>70-79</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>80-199</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>II</td>
<td>200-299</td>
<td>OFFICE OF SCIENCE AND TECHNOLOGY POLICY AND NATIONAL SECURITY COUNCIL</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>III</td>
<td>300-399</td>
<td>NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION, DEPARTMENT OF COMMERCE</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>IV</td>
<td>400-499</td>
<td>NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION, DEPARTMENT OF COMMERCE, AND NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION, DEPARTMENT OF TRANSPORTATION</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>V</td>
<td>500-599</td>
<td>THE FIRST RESPONDER NETWORK AUTHORITY (Parts 500-599)</td>
</tr>
</tbody>
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<th>Table of Contents</th>
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<tbody>
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<td>0</td>
<td>0.1 to 0.701</td>
<td>COMMISSION ORGANIZATION</td>
</tr>
<tr>
<td>1</td>
<td>1.1 to 1.40001</td>
<td>PRACTICE AND PROCEDURE</td>
</tr>
<tr>
<td>2</td>
<td>2.1 to 2.1400</td>
<td>FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS</td>
</tr>
<tr>
<td>3</td>
<td>3.1 to 3.76</td>
<td>AUTHORIZATION AND ADMINISTRATION OF ACCOUNTING AUTHORITIES IN MARITIME AND MARITIME MOBILE-SATELLITE RADIO SERVICES</td>
</tr>
<tr>
<td>4</td>
<td>4.1 to 4.15</td>
<td>DISRUPTIONS TO COMMUNICATIONS</td>
</tr>
<tr>
<td>5</td>
<td>5.1 to 5.602</td>
<td>EXPERIMENTAL RADIO SERVICE</td>
</tr>
</tbody>
</table>
Technical Specifications

**CFR 47**

- Part of the Law
- Compulsory application
- No changes

**EN Standards**

- External specifications
- Voluntary application
- Updates
Determine if device is a Radio Frequency (RF) device subject to the FCC rules.

Determine all applicable technical and administrative rules that apply to the device requiring an equipment authorization.

The technical requirements are generally specified in the applicable FCC rule parts and the administrative rules are specified in Part 2, Subpart J.

<table>
<thead>
<tr>
<th>Requirement</th>
<th>RED</th>
<th>FCC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety</td>
<td>✓</td>
<td>✘ - OSHA (NRTL)</td>
</tr>
<tr>
<td>EMC</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Radio</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
If a device is subject to FCC rules, determine the specific type of equipment authorization that applies to the device. Become familiar with all the basic marketing, equipment authorization, and importation rules. In some instances, a device may have different functions resulting in the device being subject to more than one type of approval procedure.

<table>
<thead>
<tr>
<th><strong>Certification</strong></th>
<th><strong>EU Declaration of Conformity</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>(by Certification Bodies)</td>
<td>(for some products it has to be substantiated by Notified Bodies)</td>
</tr>
<tr>
<td><strong>Declaration of Conformity</strong></td>
<td><strong>CE certification</strong></td>
</tr>
<tr>
<td>(by Manufacturer)</td>
<td></td>
</tr>
<tr>
<td><strong>Verification</strong></td>
<td></td>
</tr>
<tr>
<td>(Label data must be substantiated)</td>
<td></td>
</tr>
</tbody>
</table>
Declaration of Conformity: Equipment approved using the DoC procedure is required to be tested by an FCC Recognized Accredited Testing Laboratory. The Commission maintains a list of the FCC Recognized Accredited Testing Laboratories.

Certification: Equipment approved under the Certification procedure is required to be tested by an FCC Recognized Testing Laboratory as follows:

- Prior to July 13, 2017, either a Section 2.948 Listed Laboratory or an FCC Recognized Accredited Testing Laboratory.

- After July 13, 2017, all types of equipment approved under the Certification procedure are required to be tested by an FCC Recognized Accredited Testing Laboratory.
TCB Documentation Requirements

- RF, EMC and Safety reports as appropriate
- Block Diagram
- Schematic Diagrams
- Photographs showing the external and internal construction of the product
- User Manual
- Operating Description
- Power of Attorney
- In country representative details (required for some countries)
Mobile and Portable Devices
Safety Requirements

> 20 cm from the user body

**Mobile**
No SAR requirements

< 20 cm from the user body

**Portable**
SAR requirements
## FCC-ID vs EU Type Certificate

<table>
<thead>
<tr>
<th>FCC</th>
<th>CE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grantee Code (Company Registration)</td>
<td></td>
</tr>
<tr>
<td>FCC Registration Number (Device Registration)</td>
<td></td>
</tr>
<tr>
<td>TCB Application</td>
<td>NB Application</td>
</tr>
<tr>
<td>TCB Grant</td>
<td>EU Type Certificate</td>
</tr>
<tr>
<td>FCC Equipment Electronic Filing System (public)</td>
<td>EU Member Database (Private)</td>
</tr>
<tr>
<td>FCC-ID Number on device</td>
<td></td>
</tr>
</tbody>
</table>
Self-approval procedures

July 2017

Declaration of Conformity (DoC) and Verification, have been combined into one procedure called Supplier’s Declaration of Conformity (SDoC).

No requirements for laboratory accreditation

FCC logo on the products is voluntary

Unintentional radiators (digital circuitry)

Equipment which does not contain a radio transmitter

The responsible party must be located in the United States.
## Labels

<table>
<thead>
<tr>
<th>Type</th>
<th>Information</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>FCC ID</td>
<td>Equipment displaying this label should be in FCC database</td>
<td>XXXABC123</td>
</tr>
<tr>
<td>FCC DoC Declaration of Conformity</td>
<td>Equipment displaying this label would not be in FCC database. The FCC would not have any record of this equipment. It is declared to comply with FCC regulations by the manufacturer or importer.</td>
<td><img src="image" alt="FCC DoC Example" /></td>
</tr>
</tbody>
</table>
| FCC Reg. # Registration Number | Equipment displaying this label would only be in FCC database if it also has an FCC ID: label. (e.g. older modems) The FCC Registration Number itself would never appear in this database. | FCC ID XZZYYNNNNNN
- Grantee Code if (X is Numeric) Grantee code is XZZYY
- Equipment Product Code NNNNNN |
Modular Approval
Certified Transmitter Modules

Certified transmitter modules (CTM) are distinctive assemblies containing a transmitter that can be installed inside a host device (i.e. computer, wireless security controller, etc.).

When a certified modular is used inside a host, the host equipment can take advantage of the certification already granted to the module. The host containing a certified modular (for example a laptop with WiFi) may only require testing for DoC or Certification as a Class B computer, and possibly a subset of additional tests associated with the transmitter.

Any additional testing, conditions of use and limitations associated with the certified module must be provided in the module instruction manual by the manufacturer of the module, to the Other Equipment Manufacturer (OEM) marketing the host.

A certified modular has the option to use a permanently affixed label, or an electronic label. All modules without an integrated display on the module must be labelled with a module’s FCC ID - Section 2.926.
FCC-ID on CTM’s

FCC-ID xxxxxxxxxxxx
Modular Approval

**Single-modular transmitter:**

A complete RF transmission sub-assembly, designed to be incorporated into another device, that must demonstrate compliance with FCC rules and policies independent of any host;

**Limited single-modular transmitter:**

A single-modular transmitter that complies with the § 15.212 modular rules, only when constrained to specific operating host(s) and/or associated grants condition(s);

**Split-modular transmitter:**

An RF transmission system that complies with the requirements for a single modular transmitter, that is separated into a radio front-end section and a control-element section, and can demonstrate compliance for a range of similar type hosts;

**Limited split-modular transmitter:**

A split-modular transmitter that complies with the definition and technical rules for split modules only when constrained to specific operating host(s), and/or associated grant condition(s).
Authorization options for host manufacturers

<table>
<thead>
<tr>
<th>Host Manufacturer Procedure Options</th>
<th>Grantee Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verification Evaluation Approach</td>
<td></td>
</tr>
<tr>
<td>Change in ID &amp; Class II Permissive Change</td>
<td></td>
</tr>
<tr>
<td>NEW FCC ID</td>
<td></td>
</tr>
<tr>
<td>A RF exposure evaluation required</td>
<td>Permissive Change</td>
</tr>
<tr>
<td>B Limited Module</td>
<td>Permissive Change</td>
</tr>
<tr>
<td>C Simultaneous Transmission</td>
<td>Permissive Change</td>
</tr>
<tr>
<td>If no additional filing is required, Host Mfr. can use an evaluation see C below.</td>
<td>For situations to address RF exposure or when additional filing is required.</td>
</tr>
</tbody>
</table>
Thank you!

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/nemko.com