



FCC Rules and Millimeter Wave Emissions Measurements

Radio frequency devices may not be legally sold in the United States until the manufacturer, distributor or importer demonstrates that products being offered for sale have met the FCC's equipment authorization requirements. Equipment authorization is a procedure involving the testing, labeling, and (where the Rules require) the certification of a radio frequency device. The equipment authorization procedures are found in the FCC Rules, CFR47, beginning at paragraph 2.901.

Millimeter wave transmitters must meet the Certification requirements of the equipment authorization program. Certification involves testing to the applicable product requirement, and submission to the FCC of test data, processing fees, schematics, user manuals, product ID labeling and other product information. Upon completion of a satisfactory review, the FCC issues a Grant of Certification for the equipment. Application for certification is done over the internet via FCC's website.

Prior to 1998, the term "type acceptance" was the name of the equipment authorization for licensed transmitters, and "certification" the term used for unlicensed transmitters operating under Part 15 of the Rules. As of October 1998, "certification" is the term which applies to both licensed and unlicensed transmitters.

Certification applies to unlicensed transmitters, as well as to transmitters requiring an operator's license. Some of the microwave devices regulated under the certification program:

The Rules specify the frequency range of measurements for transmitters, depending on their operating frequency. Paragraph 2.997 covers requirements for licensed transmitters and paragraph 15.33(a) covers requirements for unlicensed transmitters. The requirements for both are identical:

Device or Service	Authorized Frequency Range	Rule Section/Paragraph	License Requirement
Field Disturbance Sensor	5785-5815 MHz 10.500 - 10.550 GHz 24.075 - 24.175 GHz	15.245	Unlicensed
Spread Spectrum radios	5725 - 5850 MHz	15.247	Unlicensed
General Purpose RF	5725-5875 MHz 24.0 - 24.25 GHz	15.249	Unlicensed
U-NII	5.15 - 5.35 GHz 5.725 - 5.825 GHz	15.401	Unlicensed
Vehicle radar system	46.7 - 46.9 GHz 76.0 - 77.0 GHz	15.253	Unlicensed
Fixed operation	59.0 - 64.0 GHz	15.255	Unlicensed
Maritime Services	9.2 - 9.5 GHz	80.1075	Licensed
Aeronautical radars and Radionavigation	Various bands between 5.0 - 33.4 GHz	87.169	Licensed
Private Land Mobile Radio Services	8.40- 8.5 GHz 10.550 - 10.68 GHz	90.63 90 Subpart B Note	Licensed
Fixed Microwave Services	Various bands between 5.925 - 40.0 GHz 27.5 - 31.3 GHz (LMDS)	101.101	Licensed

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<u>Operating frequency, Equipment Under Test</u>	<u>Frequency Range to be Investigated</u>
below 10 GHz	to lower of 10th harmonic or 40 GHz
10 - 30 GHz	to lower of 5th harmonic or 100 GHz
above 30 GHz	to lower of 5th harmonic or 200 GHz

NOTE: Several sections of the FCC Rules were revised in 1998 in order to streamline equipment authorization procedures and paragraph numbers were changed for a number of rules pertaining to certification. The paragraph numbers listed above are in the 1997 published version of the Rules; the 1998 version will be available starting March 1999.

Part 2 Paragraph Changes

Deleted paragraphs 2.971, 2.973, 2.975, 2.977, 2.981, 2.983, 2.999, 2.1001, 2.1005

Renumbered paragraphs: 2.985 to 2.1046
2.987 to 2.1047
2.989 to 2.1049
2.991 to 2.1051
2.993 to 2.1053
2.995 to 2.1055
2.997 to 2.1057

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