PUBLIC NOTICE

Federal Communications Commission
445 12th St., S.W.
Washington, D.C. 20554

News Media Information 202 / 418-0500
Internet: http://www.fcc.gov
TTY: 1-888-835-5322

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FCC Clarifies Equipment Certification Procedures for

"Learned Mode" or "Trainable" Transmitters

This Public Notice is intended to clarify the information that should be provided in an application for certification of "Learned Mode" or "Trainable" transmitters.

"Learned Mode" or "Trainable" transmitters are typically sold as universal replacements or duplicates for garage door opener controls, keyless entry systems, security alarm systems, remote switches, and similar types of radio controlled devices. These transmitters are designed to recognize and replicate the operating frequency, duty cycle and coding scheme of the targeted radio system. They accomplish this only when operated in very close proximity to a system's receiver in order to prevent use for theft. These devices are subject to certification to ensure compliance with the technical requirements in Part 15 of the FCC Rules (47 CFR Part 15).

A significant number of the applications for certification of "Learned Mode" or "Trainable" transmitters have been incomplete or incorrect. For example, applicants did not properly specify the range of operating frequencies. In some cases the devices were found to be capable of transmitting in restricted frequency bands in violation of 47 CFR 15.205, which could potentially cause interference to radio services used for public safety. Applicants often did not determine the duty cycle properly, or apply it correctly when calculating the maximum field strength.

The following guidance is provided to ensure that future applications for certification of such equipment are complete and correct:

1. The application for certification must include a complete description of the operation of the devices, including the process it uses to learn and replicate the characteristics of the target system. The application should state how the learning process is constrained so as to minimize any potential for abuse. The statement must be consistent with the user manual instructions on replicating the frequencies and code of the target transmitter. In addition, it must provide assurances that there are no means (either software or hardware) for the end user to change the operating parameters from those reported in the application. A statement should also be included in the application that the Commission

will be notified, in writing, of any changes in the software or programming of the device that could affect the device's RF characteristics.

2. The test report must clearly state the specific frequencies or range of frequencies over which the transmitter is intended to operate. Test results must show that the transmitter operates only on the intended frequencies and is incapable of operating in the restricted frequency bands, as required by 47 CFR 15.205 and 15.209. If the device is designed to learn over a range of frequencies, the test report must include measurements that verify that the device does not exceed the field strength limits set forth in Section 15.231 with a source transmitter or equivalent signal generator operating on a low, medium and high frequency within the intended range (*see* Section 15.31(m)). The test report must include measurements that verify that the device's emissions do not exceed the limits in Section 15.231(b) for that specific frequency (or frequencies). Operating frequencies that have harmonics that fall in a restricted band below 1 GHz should also be tested. These harmonics must show compliance with 15.205. Below 1000 MHz measurements must be made with a CISPR Quasi-peak detector and above 1000 MHz with an average detector.

3. The test report must provide sufficient information to determine how the average value of the emission was determined for all operating conditions of the transmitter. The carrier of transmitters operating under 47 CFR 15.231 is typically pulsed. Peak levels of emissions are measured, then the average levels are obtained by subtracting the duty cycle factor from the peak levels. Section 15.35 (c) of the rules provides a procedure for calculating the duty cycle and average value. A procedure for calculating the duty cycle is also provided in Section 13.1.4.2 of the America National Standard identified as ANSI Standard, C63.4 -2001. Unless a trainable transmitter is capable of only learning over a range of duty cycles, compliance should be based on the worst case duty cycle. The test report must include measurements that demonstrate compliance for the worst case duty cycle for all "targeted transmitters". That is, the highest duty cycle factor must be calculated and used for determining compliance. If the trainable transmitter is capable of learning only over a specific range of duty cycles, compliance should be based on measurements using low, middle and high (worst case) duty cycles within the range.

Questions regarding this Public Notice may be addressed to Mr. Raymond LaForge at 1-301-362-3031 or rlaforge@fcc.gov.