



October 2006

EMC Regulatory Update

Dear Colleague,

We have provided typical questions and answers that represent in most cases technical opinions with justification in FCC and CE requirements. The particulars of the product for certification must be considered with respect to the applicability of these questions and answers. We hope you find our update valuable and welcome your feedback if you have any special needs or questions. Call at 703-689-0368 or view archived issues of MultiPoint at our [web site](#).

FCC Frequency Stability Tests

QUESTION: Our client manufactures Part 15 unlicensed intentional radiators requiring frequency stability tests. Do we follow FCC Part 2.1055 or the frequency stability test methods of ANSI C63.4?

ANSWER: Generally, temperature and voltage stability as a function of frequency requirements of FCC Part 2.1055 apply. There are significant differences between ANSI C63.4 (frequency stability test methods for Part 15 devices) and FCC Part 2.1055. Specifically, ANSI C63.4 states temperature setting only need be made at ambient, low, and high temperatures, while FCC Part 2.1055 states that temperature measurements are to be made every 10 degrees.

FCC Rules for In-Situ Testing

Question: Can a Grantee ever perform its own in-situ testing of a FCC Part 15 unlicensed wireless device? If so, where can I find the corresponding FCC rule parts?

Answer: The FCC only allows in-situ testing for a few device types for certification purposes. These devices fall under FCC Rule Parts 15 and 18 and are as follows: Access BPL – under Section 15G, Tunnel Radio- under Section 15.211, Large Industrial Equipment under Part 18, and any large equipment not capable of being operated on a test site is allowed in ANSI C63.4.

FCC Conducted Power Measurements

QUESTION: Our company manufactures mobile radios. We would like to know, from the FCC perspective, the allowed tolerance between actual conducted power measured and rated wanted conducted power (for mobile radios in the LMR UHF band).

ANSWER: The FCC allows the actual output power measured to be de-rated by 20% to rated wanted power for Part 90 type devices. For example, if the actual measured power is 104 Watts, the rated wanted power can be listed as 100 Watts rated on the grant. The rate wanted power is referred to as P_{nominal} by the FCC. Furthermore, all other documents pertaining to the application filing such as EMC report, User's manual, Operational Description, Exhibits, and FCC Form 731 should contain P_{nominal} value. If RF exposure evaluation is applicable, it should contain P_{nominal} +20% unless the application filing contains a manufacturer's attestation that the radio would not produce the P_{nominal} +20% value. However, the maximum actual output power measured should be used for the RF exposure evaluation measurement.

FCC Policy For "Snap On" Ferrites

QUESTION: What is the current FCC policy regarding "snap on" ferrites, particularly when they are pre-installed for the user? Further to this policy, it has been our understanding that the manufacturer cannot simply provide a cable (i.e. DC cable) with a "snap on" ferrite already attached. In the past, we have seen the FCC requiring a permanent configuration.

ANSWER: The FCC's policy has not changed. Ferrite cores must be permanently attached. The only exception to this policy is for video cables used with computer video cards. Large screen televisions have many connections and user configurations, therefore, interface cables are not often supplied with the large screen television.

Section 10.1.9, General and special conditions from ANSI C63.4, states the following:

If an alternative test method was used, the test report shall identify and describe that method, provide justification for its use, and describe how the results obtained through its use correlate with, or are equivalent to, the methods specified by the standard to which the EUT was tested. Instrumentation, instrument attenuator and bandwidth settings, detector function, EUT arrangement, and all other pertinent details of the test method shall be provided so that the alternative test method could be replicated.

The above excerpt allows some deviation. If a ferrite kit is provided with the television and the television verification report provides justification for deviation from the general operating conditions permitted in ANSI C63.4, then the use of a ferrite kit can be viewed as a modification of the exception for computer video cables. Furthermore, the User's Manual must provide specific details regarding ferrite installation. The FCC recognizes this issue and is currently reviewing its policy.

Clarification: FCC FHSS Test Procedures

Inquiry: We have received additional questions regarding the August MultiPoint question/answer for "FCC Test Procedure for FHSS." Our original answer from the August MultiPoint is posted below:

ANSWER: *The FCC's FHSS procedure (Guide DA 00 705A1) on radiated spurious harmonic emission states that the hopping function must be disabled for radiated spurious harmonic emissions measurements. For compliance with the band-edges, the measurement must be made with the hopping function enabled and disabled.*

Clarification: While this answer is still correct and is the preferred method, the FCC has recently reviewed its policy and stated that if the test setup involving the use of digital analyzers that are fast fourier transform (FFT) based can accurately resolve specific modulated signals for a specific test, then testing can be performed with the hop enabled. Digital analyzers are able to capture all spectral components more or less simultaneously and are not as reliant on sweep time as non-digital analyzers such the older Hewlett Packard 8560 swept tuned series used at the time when the FCC created the test methods in DA000705A1.

Further to this issue, with hopping disabled, complex modulation such as 8DPSK, which produces higher data rates in some FHSS devices, would not give a clear picture of the emissions. It is believed that this higher data rate mode is the worst case mode when hopping is enabled. With newer digital analyzers, the Resolution Bandwidth (RBW) determines the FFT bin size; i.e. the smallest frequency that can be resolved. In older swept-tuned non-digital spectrum analyzers, the IF filter determines the RBW and selectivity. This requires that for wide sweeps, a wider RBW is required to shorten capture times. For narrow sweeps, a narrow filter is used to improve frequency resolution. In digital spectrum analyzers, the RBW is inversely proportional to the number of samples acquired. By taking more samples in the time domain, or making the acquisition time longer while keeping the sampling rate the same, the RBW will be lowered. This produces more bins in the same span. The technological advances and improvements made over the last few years on digital analyzers allow using these analyzers to capture wide band digital signals from FHSS devices with hopping enabled.

INTERNATIONAL UPDATE

EU: NEW CENELEC STANDARDS RELEASED THIS MONTH

This is a shortened list of the CENELEC standards published during the past month:

- **EN 61326-2-5:2006** (Oct. 6, 2006) Electrical equipment for measurement, control and laboratory use - EMC requirements -- Part 2-5: Particular requirements - Test configurations, operational conditions and performance criteria for field devices with interfaces according to IEC 61784- 1.
- **EN 55022:2006** (Sept. 29, 2006) Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement.
- **EN 60335-2-102:2006** (Sept. 29, 2006) Household and similar electrical appliances - Safety -- Part 2-102: Particular requirements for gas, oil and solid-fuel burning appliances having electrical connections.
- **EN 60335-2-14:2006** (Sept. 29, 2006) Household and similar electrical appliances - Safety - - Part 2-14: Particular requirements for kitchen machines.
- **EN 60318-5:2006** (Sept. 29, 2006) Electroacoustics - Simulators of human head and ear - - Part 5: 2 cm³ coupler for the measurement of hearing aids and earphones coupled to the ear by means of ear inserts.
- **EN 60335-2-25:2002 / A2:2006** (Sept. 29, 2006) Household and similar electrical appliances - Safety -- Part 2-25: Particular requirements for microwave ovens, including combination microwave ovens.
- **EN 62384:2006** (Sept. 27, 2006) DC or AC supplied electronic control gear for LED modules - Performance requirements.
- **EN 62395-1:2006** (Sept. 22, 2006) Electrical resistance trace heating systems for industrial and commercial applications -- Part 1: General and testing requirements.

See www.cenelec.org for additional information.

EU: NEW IEC STANDARDS RECENTLY RELEASED

This is a shortened list of the new IEC standards published during the past month:

- **IEC 60335-1** (Sept. 21, 2006) Household and similar electrical appliances - Safety - Part 1: General requirements.
- **IEC 60335-2-25** (Sept. 25, 2006) Household and similar electrical appliances - Safety - Part 2-25: Particular requirements for microwave ovens, including combination microwave ovens.
- **IEC 60598-1** (Sept. 27, 2006) Luminaires - Part 1: General requirements and tests.
- **IEC 60730-2-13** (Oct. 11, 2006) Automatic electrical controls for household and similar use - Part 2-13: Particular requirements for humidity sensing controls.
- **IEC 60730-2-11** (Oct. 11, 2006) Automatic electrical controls for household and similar use - Part 2-11: Particular requirements for energy regulators.
- **IEC 60730-2-3** (Oct. 11, 2006) Automatic electrical controls for household and similar use - Part 2-3: Particular requirements for thermal protectors for ballasts for tubular fluorescent lamps.
- **CISPR 16-4-3-am1** (Oct. 17, 2006) Amendment 1 - Specification for radio disturbance and immunity measuring apparatus and methods - Part 4-3: Uncertainties, statistics and limit modelling - Statistical considerations in the determination of EMC compliance of mass-produced products.

See [IEC](http://iec.ch) for additional information.

EU: NEW ETSI STANDARDS RELEASED THIS MONTH

This is a shortened list of the new ETSI standards published during the past month:

- [ETSI EN 302 426 V1.1.1](#) (Sept. 2006) Electromagnetic compatibility and Radio spectrum Matters (ERM); Harmonized EN for CDMA spread spectrum Repeaters operating in the 450 MHz cellular band (CDMA450) and the 410 MHz, 450 MHz and 870 MHz PAMR bands (CDMA-PAMR) covering essential requirements of article 3.2 of the R&TTE Directive.
- [ETSI TS 102 361-1 V1.3.1](#) (Sept. 2006) Electromagnetic compatibility and Radio spectrum Matters (ERM); Digital Mobile Radio (DMR) Systems; Part 1: DMR Air Interface (AI) protocol.
- [ETSI TS 102 361-2 V1.2.3](#) (Sept. 2006) Electromagnetic compatibility and Radio spectrum Matters (ERM); Digital Mobile Radio (DMR) Systems; Part 2: DMR voice and generic services and facilities.
- [ETSI TS 102 361-3 V1.1.3](#) (Sept. 2006) Electromagnetic compatibility and Radio spectrum Matters (ERM); Digital Mobile Radio (DMR) Systems; Part 3: DMR data protocol.
- [ETSI TS 102 361-4 V1.2.1](#) (Sept. 2006) Electromagnetic compatibility and Radio spectrum Matters (ERM); Digital Mobile Radio (DMR) Systems; Part 4: DMR trunking protocol.

**Note, this list is from September. No new ETSI EMC test standards have been introduced in October, as of 10/17/06) / See [ETSI](#) for additional information.*

AUSTRALIA: PREPARATION FOR DIGITAL RADIO MONDIALE

On September 28, 2006, the Australian Communications and Media Authority (ACMA) released notice MR 103/2006 announcing the embargo of spectrum that could be used for future Digital Radio Mondiale (DRM) services. DRM is a digital broadcasting technology that is under trial internationally and is of interest in Australia. ACMA will not permit any new frequency assignments in the 5950-6200, 7100-7300, 9500-9900, 11650-12050, 13600-13800, 15100-15600, 17550-17900, 21450-21850 and 25670-26100 kHz bands as a result of the embargo. Applications for DRM trials on those frequencies will be accepted. [Link to ACMA](#)

EU: FUTURE RFID HARMONIZATION

On October 4, 2006, the EU Radio Spectrum Committee expressed a positive opinion on the proposed Commission Decision on harmonizing Spectrum in Europe for RFIDs in the UHF band. The draft decision is expected to be formally adopted by the end of 2006. Possible further spectrum needs beyond this frequency band may be addressed in the future after the assessment of the needs actually arising from RFID applications.

In addition, several parts of the EU ERC Recommendation 70-03 (relating to the use of short range devices) were recently adopted by the Frequency Management, Regulatory Affairs and Spectrum Engineering Working Groups in October 2006. ERC Recommendation 70-03 is an informative document providing technical parameters and the frequency implementation status of EU countries for SRDs. Specifically, Annex 9, Annex 10, Annex 12, Appendix 1 and Appendix 2 of ERC Recommendation 70-03 were modified in October 2006. [Link to ERC Recommendation 70-03](#)

CANADA: NEW STANDARD INTRODUCED (SRSP-511)

In mid-September, Industry Canada released the following new standard: Standard Radio System Plan 511, Issue 1, Technical Requirements for Land Mobile Radio Services Operating in the Bands 764-770 MHz and 794-800 MHz.

SRSP-511 states the minimum technical requirements for the purpose of efficient spectrum utilization for land mobile and fixed point-to-point systems operating in the public safety bands 764-770 MHz and 794-800 MHz.

[Link to SRSP-511](#)

CANADA: STANDARD AMENDED (RSS-119)

In mid-September 2006, Industry Canada also amended Radio Standards Specification 119, Issue 8, Land Mobile and Fixed Radio Transmitters and Receivers Operating in the Frequency Range 27.41-960 MHz.

RSS-119 is the standard which sets out requirements for radio transmitters and receivers for the land mobile and fixed services in bands allocated within the 27.41 MHz to 960 MHz range.

RSS-119 was updated to include requirements for land mobile equipment operating in the same bands. The main changes are as follows: 1) emission mask D is no longer applicable to equipment in the bands 896- 901 MHz and 935-940 MHz and 2) the requirements for land mobile equipment operating in the frequency ranges 764-770 MHz and 794-800 MHz used for public safety purposes have been added.

[RSS- 119 Link](#)

ABOUT US

RTL has provided EMC compliance engineering & testing services since 1988 and has a superior reputation with both the Federal Communications Commission and others in the industry. RTL provides testing services to meet the emissions, immunity, and safety requirements of the European EMC Directive and the EU R&TTE Directive, all FCC rules and regulations, VCCI (Japan), ACMA (Australia), and other international standards.

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WIRELESS SEMINAR (Rescheduled)

The two day wireless seminar (previously scheduled from Sept 18-19, 2006) has been rescheduled to March 22nd - 23rd, 2007. The seminar is being presented by Rhein Tech Laboratories, Inc, American TCB, and WLL. The seminar is geared towards designers, developers and testers of wireless products. More information to come!

Registration Fee: \$675

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