MultiPoint
A Rhein Tech EMC Regulatory Update

May 2010

RF/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 us at 703-689-0368 for your testing requirements. You can view archived issues of MultiPoint at our web site.

FCC Part 90 - New Frequency Plans

QUESTION: How will the FCC treat new applications and permissive change applications for wideband and narrowband equipment in the Part 90 re-farming bands?

ANSWER: In WT Docket 99-87 (FCC 03-34, FCC 04-292), the FCC adopted new frequency plans and transition provisions for transmitters under Part 90 of the FCC Rules. Under the new rules, equipment in the Part 90 re-farming (narrow-banding) frequency bands 150-174 and 421-512 MHz will no longer be certifiable with a 25 KHz emission designator. The new rules prohibit Equipment Authorization of devices with 25 KHz channel spacing after the transition date of 12/31/2010. The FCC released FCC DA-09-2589 on 12/11/2009 as a Public Notice reminder about the deadlines.

The FCC's current policy to address this timeline is as follows:

New Grants:
Applications for new equipment authorizations received before the transition date can be granted with a wideband (25 KHz) emission designator, as long as the equipment also has a narrowband (12.5 KHz and/or 6.25 KHz) emission designator. Applications for new equipment authorization received after the transition date with only a wideband emission designator will not be granted.

Permissive Changes:
A Class I permissive change may not be used to add a narrowband emission designator to a wideband device. Only the FCC or a TCB (within 30 days of grant) may modify the text on a grant, and for a Class I Permissive Change, no filing is submitted. Before the transition date, applications for a Class II permissive change may be submitted for any modification that meets the definition of a permissive change, and the wideband channel will remain listed on the grant.

A Class II permissive change may be submitted to add a narrowband emission designator to a wideband grant if no hardware changes are made to the device. If hardware changes are made to the device, a new FCC ID will be required. When a Class II permissive change is submitted to add a narrowband emission designator, only the permissive change grant will show the narrowband emission designator. The original grant will not be modified to show the new narrowband emission designator.

Applications for Class II permissive changes for wideband-only equipment will not be accepted after the transition date. Applications for Class II permissive changes for multimode equipment received after the transition date will

not be granted with a wideband emission designator.

If a permissive change with modifications unrelated to the emission designators is submitted for a device that was previously granted with wideband and narrowband emission designators, the permissive change will be granted without the wideband emission designator. Applications for devices with only narrowband emission designators will be processed as they are currently.

Permissive Change Example:
Prior to the transition date, equipment is approved for 25/12.5 KHz operation. After the transition date, a component unrelated to the power output or frequency-determining circuitry becomes unavailable and must be replaced with a similar component. The change meets the 2.1043 definition of a permissive change and the device is tested to determine if a Class I or Class II permissive change is appropriate. If the test results show that a Class I change is acceptable, then the process is complete and the new device may be marketed. If the test results show that a Class II permissive change is required, an application is then submitted to the FCC or a TCB. Because the transition date has passed, , the permissive change grant will only list the 12.5 KHz emissions, and will not include the original 25 KHz line entries.

Currently, when a permissive change is filed for 25/12.5 KHz equipment, the FCC does not require that the device show compliance with the 6.25 KHz requirements that will become effective on 1/1/2011 per 90.203(j)(5).

Software Change to remove emission:
When a software change is made to a device to remove an approved operating mode/emission designator, no permissive change is required, unless the device was approved as a Software Defined Radio. If the device was approved as a Software Defined Radio, a Class III permissive change must be filed with the FCC.

Please see link to this publication providing a series of questions and answers: 579009 D01 Q and A on Re-farming Part 90 freq v01

FCC Rules for Industrial Remote Controller

QUESTION: We manufacture a controller that is a remote controller for operating industrial cranes with toggle switch and joystick control under FCC Part 15.231. The toggle switch controls the transmission's on and off time; the time of transmission is greater than 5-seconds when the toggle switch is switched on. The joystick rotates the crane 360 degrees. Will the FCC allow such a device under FCC Part 15.231?

ANSWER: The FCC would not allow this device to operate under Part 15.231, but would allow it to operate under FCC 15.249, if the frequency and RF output meet the limits. The FCC may allow it to be a licensed device under Part 90 or under other rule parts that allow such a device to be license.

Extrapolation Factor for Part 18 Devices

QUESTION: What is the extrapolation factor that can be used for Part 18 devices when measuring radiated emissions below 30 MHz at a distance other than the limit distance? The publication in the FCC's Knowledge Database seems to indicate that only a 20 dB per decade factor is allowed for extrapolating radiated emissions below 30 MHz to the limit distance for a Part 18 device.

Should measurements otherwise be made at two different distances to determine any other factor that may be used? We seem to remember a statement made at one of the TCBC training sessions that a 40 dB/decade factor is acceptable because Part 15 rules allow it for radiated emissions below 30 MHz. What extrapolation factor is acceptable for a Part 18 device for radiated emissions below 30 MHz when it is not tested at the limit distance?

ANSWER: The FCC's rules and test procedures are unambiguous: For Part 15 devices, FCC Part 15.31(f)(2) is applicable for frequencies below 30 MHz for measurements closer than the specified distance; the extrapolation factor can either be determined, or can make use of 40dB/decade.

For Part 18 devices, Section 18.305 Note (2) requires 20 dB per decade, or you can determine the actual factor if a sufficient number of measurements are made at varying distances from the Equipment Under Test (EUT). The actual distance attenuation may be calculated, then that calculated factor may be applied to the level of the emission measured at a distance closer than that specified for the limit. Multiple measurements have the advantage of using a factor, which could be 50 and 60 dB per decade (at 23 kHz) rather than 20 db per decade for a single measurement. Obviously if the emission is compliant, assuming 20 dB per decade, then only the single 10 m measurement needs to be made.

The extrapolation factor for a Part 18 device for radiated emissions below (and above) 30 MHz when it is only measured at a fixed limit distance, is 20 dB/decade.

Cell Phones and Extended Frequency Range

QUESTION: We are a cell phone manufacturer and would like to know if a cell phone that extends the frequency range to the full band 1850 to 1915 MHz, versus 1850 to 1910 MHz, is certifiable under the FCC's rules and regulations.

ANSWER: The FCC's website lists several devices in this frequency band certified by TCBs. The 1910-1915 MHz band is permitted under Part 24, but its use is restricted based on FCC Part 24.229(c).

FCC Part 24.229(c) states the following: *The paired frequency blocks 1910-1915 MHz and 1990-1995 MHz are available for assignment in the 175 Economic Areas defined in §90.7 of the FCC's rules and regulations. The 1910-1915 MHz block shall be used for mobile/portable station transmissions while the 1990-1995 MHz block shall be used for base station transmissions.*

STANDARDS UPDATE

EU: NEW CENELEC STANDARDS RECENTLY RELEASED This is a shortened list of the CENELEC standards published during the past month:

- **EN 50527-1:2010** (4/23/2010) Procedure for the assessment of the exposure to electromagnetic fields of workers bearing active implantable medical devices -- Part 1: General
- **EN 50491-5-1:2010**(4/23/2010) General requirements for Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS) -- Part 5-1: EMC requirements, conditions and test set-up
- **EN 50491-5-2:2010**(4/23/2010) General requirements for Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS) -- Part 5-2: EMC requirements for HBES/BACS used in residential, commercial and light industry environment
- **CLC/TR 62271-208:2010** (4/23/2010) High-voltage switchgear and controlgear -- Part 208: Methods to quantify the steady state, power-frequency electromagnetic fields generated by HV switchgear assemblies and HV/LV prefabricated substations
- **EN 62489-1:2010** (4/23/2010) Electroacoustics - Audio-frequency induction loop systems for assisted hearing -- Part 1: Methods of measuring and specifying the performance of system components
- **EN 60704-2-2:2010**(4/30/2010) Household and similar appliances - Test code for the determination of airborne acoustical noise -- Part 2-2: Particular requirements for fan heaters
- **EN 60318-4:2010** (5/07/2010) Electroacoustics - Simulators of human head and ear - - Part 4: Occluded-ear simulator for the measurement of earphones coupled to the ear by means of ear inserts
- **EN 60601-2-28:2010** (5/07/2010) Medical electrical equipment -- Part 2-28: Particular requirements for the basic safety and essential performance of X-ray tube assemblies for medical diagnosis
- **EN 61340-5-3:2010** (5/07/2010) Electrostatics -- Part 5-3: Protection of electronic devices from electrostatic phenomena - Properties and requirements classifications for packaging intended for electrostatic discharge sensitive devices

See CENELEC 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 61000-4-18-am1** (4/22/2010) Amendment 1 - Electromagnetic compatibility (EMC) - Part 4-18: Testing and measurement techniques - Damped oscillatory wave immunity test
- **IEC 61000-3-13 Corr.1** (4/22/2010) Corrigendum 1 - Electromagnetic compatibility (EMC) - Part 3-13: Limits - Assessment of emission limits for the connection of unbalanced installations to MV, HV and EHV power systems
- **IEC 61000-4-3** (4/27/2010) Electromagnetic compatibility (EMC) - Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test
- **IEC 60601-1-11** (4/28/2010) Medical electrical equipment - Part 1-11: General requirements for basic safety and essential performance - Collateral Standard: Requirements for medical electrical equipment and medical electrical systems used in the home healthcare environment

- **IEC 61508-1** (4/30/2010) Functional safety of electrical/electronic/programmable electronic safety-related systems - Part 1: General requirements
- **IEC 60335-2-109** (5/11/2010) Household and similar electrical appliances - Safety - Part 2-109: Particular requirements for UV radiation water treatment appliances
- **IEC 61967-1-1** (5/11/2010) Integrated circuits - Measurement of electromagnetic emissions - Part 1- 1: General conditions and definitions - Near-field scan data exchange format
- **IEC 62153-4-1** (5/12/2010) Metallic communication cable test methods - Part 4-1: Electromagnetic compatibility (EMC) - Introduction to electromagnetic (EMC) screening measurements
- **IEC 60335-1** (5/12/2010) Household and similar electrical appliances - Safety - Part 1: General requirements

See IEC for additional information.

EU: NEW ETSI STANDARDS RECENTLY RELEASED This is a shortened list of the new ETSI standards published during the past month:

- ETSI EN 300 676-2 V1.4.1 (April 2010) Ground-based VHF hand-held, mobile and fixed radio transmitters, receivers and transceivers for the VHF aeronautical mobile service using amplitude modulation; Part 2: Harmonized EN covering essential requirements of article 3.2 of the R&TTE Directive
- ETSI TR 102 664 V1.2.1 (April 2010) Electromagnetic compatibility and Radio spectrum Matters (ERM); Road Transport and Traffic Telematics (RTTT); Short range radar to be used in the 24 GHz to 27,5 GHz band; System Reference document

See ETSI website for additional information.

FCC: AMENDMENT OF PART 15 OF THE FCC'S RULES REGARDING UNLICENSED PERSONAL COMMUNICATIONS SERVICE DEVICES IN THE 1920-1930 MHZ BAND On May 6, 2010, the FCC released **ET Docket No. 10-97**, Notice of Proposed Rulemaking, whereby the FCC proposed changes to Part 15 of the Rules to enable Unlicensed Personal Communications Service (UPCS) devices operating in the 1920-1930 MHz band (known as the UPCS band) to make more efficient use of this spectrum.

The FCC took this action in response to a Petition for Rulemaking filed by the Digital Enhanced Cordless Telecommunications Forum (DECT), an association that promotes digital cordless radio technology for short-distance voice and data applications. Current FCC rules prevent UPCS devices from accessing channels where a certain level of radio noise is detected, even though those channels remain usable. The proposed rule changes would adjust the radio noise level at which a channel would be deemed usable.

The FCC specifically proposes to revise Section 15.323 of the Rules to increase the least interfered channel threshold that a UPCS device must monitor to determine whether there is a channel available on which to transmit (henceforth referred to as the least- interfered channel access method). The FCC also proposes to reduce from 40 to 20 channels the number of duplex system access channels that a UPCS device must monitor and use under the least interfered channel access method. The proposed changes would increase the number of channels that could be used by UPCS devices, particularly those devices designed to transmit on wider bandwidth channels, and thus facilitate the introduction of unlicensed devices capable of providing access to broadband services in the 1920 1930 MHz band. The FCC is currently requesting comment on the proposed rule changes. Link

IC: NEW ISSUES OF SRSP-511 AND RSS-119 On April 24, 2010, Industry Canada released the following documents:

- Standard Radio System Plan 511(SRSP-511), Issue 2: Technical Requirements for Land Mobile and Radio Services Operating in the Bands 768-776 MHz and 798-806 MHz, which sets out the minimum technical requirements for the efficient utilization of these bands; and
- Radio Standards Specification 119 (RSS-119), Issue 10: Land Mobile and Fixed Radio Transmitters and Receivers Operating in the Frequency Range 27.41- 960 MHz,which sets out the 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.

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Rhein Tech Laboratories' worldwide homologation services offer the best strategy for gaining product approval in a large number of target countries. In addition, we reduce the number of emissions, immunity, and product safety tests required by defining the minimum subset of regulatory standards at the onset, thus reducing the time and cost to enter multiple target countries. We offer research and approvals in over 50 countries.

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.

A special thank you to those who have recommended and contributed articles for our newsletter. Please continue to forward new and interesting material to our attention: multipoint@rheintech.com. We respect the privacy of our customers and colleagues. If you would like to cancel your MultiPoint updates, please follow the instructions at the end of this email. The information in the MultiPoint update is subject to change without notice.

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