MultiPoint
A Rhein Tech EMC Regulatory Update

December 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's "Permit but Ask" Policy

QUESTION: Our TCB recently informed us that they are waiting for a response from the FCC regarding a new "Permit but Ask" policy. Can you explain this new policy from the FCC?

ANSWER: The FCC recently instituted the "Permit but Ask" policy for devices that it wishes TCBs to ask permission for before issuing a grant of equipment authorization. The policy extends the types of devices a TCB can grant while allowing the FCC to maintain its oversight. This process is ideal for devices that the FCC considers not sufficiently technically "mature" for TCB approval. TCBs may approve devices on the "Permit but Ask" list below but they must obtain FCC guidance prior to approval.

- FM band modulators / transmitters operating under 15.239 of the FCC rules
- Devices that have modes not defined in '3G' guidance in the FCC's Knowledge Data Base KDB Publication #865664
- All '4G' devices
- WiMax and 802.16 devices operating in the various bands
- New devices proposed to operate under the various Part 27 rules, e.g. Advance Wireless Services (AWS), Broadband Radio service (BRS) formerly know as the Multipoint Distribution Service, Educational Broadband Service (EBS), formerly known as the Instructional Television Fixed Service (EBS), etc. These bands are located in the 2.5 GHz band
- Devices that require SAR and have normal-use only at hands, wrists, feet, or ankles, and do not have other body-worn or held-to-ear use

The procedure governing "Permit but Ask" is available at the following link: Link

Rack-Mounted Transmitter Equipment

QUESTION: Our company manufactures rack-mounted transmitter equipment. Our rack-mounted system can be equipped to accommodate a transmitter with one to N amplifier modules. We would like to approve our system using only one FCC identifier. Is this approach possible?

ANSWER: The FCC will grant a rack-mounted transmitter system with stacked amplifier modules FCC approval using one FCC identifier if the following conditions are satisfied:

- The amplifier modules must be identical in design.
- The addition or deletion of the modules only changes the output power. For each output power version, the grant should list a separate radio specification line item. For example, each combination (i.e. 1, 2, or 3 identical "stacked" power amplifiers would have 3 line items).
- The frequency range of different models with different modules is identical. There are no changes in the frequency operational range or determining circuitry between the different models with different installed modules.
- For certification submittals, each rack is to be tested with the maximum number of modules installed. While only the full rack is tested and submitted, the grantee is responsible for compliance for all configurations.

Additionally, please note the following information:
Section 2.1043 of the FCC's rules does not allow a change in maximum output power, therefore a Class 2 Permissive Change (C2PC) would not be permitted, adding modules to increase the output power beyond the configuration in the original application.
In addition, Section 2.1403 of the FCC's rules does not permit a change in the frequency determining or output power circuitry, therefore non-identical plug-in modules other than the original module cannot be added with a C2PC.

FCC 802.11 Devices and Ad Hoc Mode

QUESTION: Recently, our independent test laboratory told us that their TCB requires our device to be compliant in an "Ad Hoc" mode. Can you elaborate on this new policy by the FCC?

ANSWER: The FCC recently informed TCBs that when reviewing 802.11 applications for certification, TCBs should check for compliance of the device operating in Ad Hoc mode. IEEE 802.11 Ad Hoc mode occurs when devices or stations communicate directly with each other without the use of an access point (AP). Ad Hoc mode is also referred to as peer-to-peer mode; useful for establishing a network where wireless infrastructure does not exist or where services are not required. The FCC's policy states that devices in this mode must continue to be compliant if a device operates under the definition of a client in section 15.202 of the FCC's rule. Ad Hoc capabilities on non-US frequencies are not permitted. Furthermore, UNII devices with Ad Hoc capabilities on DFS frequencies (5.25-5.35 GHz and 5.47-5.725 GHz) must have radar detection capabilities and must meet the appropriate DFS requirements. TCBs are advised to review the user manual and operational description of applications reviewed for Ad Hoc capabilities. Additionally, the FCC would like to have the application to include an attestation from the Grantee verifying that the device does not have Ad Hoc capabilities on non-US frequencies and on DFS frequencies.

FCC Part 15.231 Test Requirements

QUESTION: We are designing a security device (alarm system), which falls under FCC Part 15.231. This particular device transmits all information twice - once at 315 MHz and again at 345 MHz. The design is to ensure emissions are not easily jammed or duplicated for its security application. Note that the entire transmission train for both frequencies (Time for F1 + Time for F2) meets the timing requirements under Part 15.231 (i.e. < 5 seconds for alarm condition, < 2 sec per hour for supervision transmissions). Additionally, the transmissions are not simultaneous but are sequential as they occur one after the other. Regarding the aforementioned device, we note that last year that the FCC released aggregated 20dB bandwidth information regarding frequency-hopper type devices under 15.231 (c). Please respond to the following questions:

1. Please confirm if the 20 dB bandwidths of 315 MHz and 345 MHz must be added to obtain the aggregate bandwidth or not. It is uncertain why aggregate bandwidths would need to be considered since the transmissions do not occur at the same time. In order for us to better understand the FCC regulations, we would appreciate further explanation as to why aggregate bandwidth must be considered if operating frequencies were not on at the same time.
2. For consideration of aggregate bandwidth, we assumed that this is the sum of the 20 dB bandwidths. If we are considering aggregate bandwidths, is the aggregate bandwidth limit the worse case of the various channels under section 15.231? (in this case, 787.5 kHz, the largest allowable of the various channels 862.5 kHz, or is the limit also the sum of the various limits under section 15.231? (787.5 + 862.5 kHz = 1650 kHz) Please explain.
3. If the aggregate bandwidth does apply, please explain the acceptable resolution bandwidth (RBW) that should be used. It has been the FCC's policy over the years to cite a > 1 % RBW except where its rules state otherwise. The newest revision of ANSI C63.4 section 13.1.7 for occupied bandwidth measurements states for this frequency range, a minimum of 10 kHz and > 5 % RBW. Please confirm if >1 % is acceptable.

ANSWER: Please see the following response:

1. The FCC's policy would be to use the aggregated sum of the 20 dB bandwidths, that is the sum of both bandwidths. The aggregate bandwidth must be used even though transmissions are not conducted at the same time to prevent fast hoppers acting like spread spectrum devices.
2. The FCC considers the worst case channel bandwidth to be 787.5 kHz in this case.
3. The FCC would cite setting a > 1 % RBW.

INTERNATIONAL UPDATE

EU: NEW CENELEC STANDARDS RELEASED THIS MONTH

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

- **EN 55016-2-3:2006** (12/15/06) Specification for radio disturbance and immunity measuring apparatus and methods -- Part 2- 3: Methods of measurement of disturbances and immunity - Radiated disturbance measurements
- **EN 55014-1:2006** (12/15/06) Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus -- Part 1: Emission
- **EN 55015:2006** (12/15/06) Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment
- **EN 55016-1-2:2004/A2:2006** (12/14/06) Specification for radio disturbance and immunity measuring apparatus and methods -- Part 1- 2: Radio disturbance and immunity measuring apparatus - Ancillary equipment - Conducted disturbances
- **EN 61000-4-12:2006** (12/08/06) Electromagnetic compatibility (EMC) -- Part 4-12: Testing and measurement techniques - Ring wave immunity test
- **EN 60118-4:2006** (12/08/06) Electroacoustics - Hearing aids -- Part 4: Induction loop systems for hearing aid purposes - Magnetic field strength

- **EN 61326-2-4:2006** (12/06/06) Electrical equipment for measurement, control and laboratory use - EMC requirements -- Part 2-4: Particular requirements - Test configurations, operational conditions and performance criteria for insulation monitoring devices according to IEC 61557-8 and for equipment for insulation fault location according to IEC 61557-9
- **EN 55016-1-3:2006** (11/30/06) Specification for radio disturbance and immunity measuring apparatus and methods -- Part 1- 3: Radio disturbance and immunity measuring apparatus - Ancillary equipment - Disturbance power
- **EN 50270:2006** (11/24/06) Electromagnetic compatibility - Electrical apparatus for the detection and measurement of combustible gases, toxic gases or oxygen

See www.cenelec.org 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 301 842-1 V1.3.1 (November 2006) Electromagnetic compatibility and Radio spectrum Matters (ERM); VHF air-ground Digital Link (VDL) Mode 4 radio equipment; Technical characteristics and methods of measurement for ground-based equipment; Part 1: EN for ground equipment
- ETSI EN 301 842-2 V1.5.1 (November 2006) Electromagnetic compatibility and Radio spectrum Matters (ERM); VHF air-ground Digital Link (VDL) Mode 4 radio equipment; Technical characteristics and methods of measurement for ground-based equipment; Part 2: General description and data link layer
- ETSI EN 301 842-3 V1.2.1 (November 2006) Electromagnetic compatibility and Radio spectrum Matters (ERM); VHF air-ground Digital Link (VDL) Mode 4 radio equipment; Technical characteristics and methods of measurement for ground-based equipment; Part 3: Additional broadcast aspects
- ETSI EN 300 162-2 V1.2.1 (December 2006) Electromagnetic compatibility and Radio spectrum Matters (ERM); Radiotelephone transmitters and receivers for the maritime mobile service operating in VHF bands; Part 2: Harmonized EN covering essential requirements of article 3.2 of the R&TTE Directive
- ETSI EN 300 162-3 V1.2.1 (December 2006) Electromagnetic compatibility and Radio spectrum Matters (ERM); Radiotelephone transmitters and receivers for the maritime mobile service operating in VHF bands; Part 3: Harmonized EN covering essential requirements of article 3.3 (e) of the R&TTE Directive
- ETSI EN 301 925 V1.2.1 (December 2006) Electromagnetic compatibility and Radio spectrum Matters (ERM); Radiotelephone transmitters and receivers for the maritime mobile service operating in VHF bands; Technical characteristics and methods of measurement
- ETSI EN 302 842-1 V1.2.1 (December 2006) Electromagnetic compatibility and Radio spectrum Matters (ERM); VHF air-ground and air-air Digital Link (VDL) Mode 4 radio equipment; Technical characteristics and methods of measurement for aeronautical mobile (airborne) equipment; Part 1: Physical layer
- ETSI EN 302 842-2 V1.2.1 (December 2006) Electromagnetic compatibility and Radio spectrum Matters (ERM); VHF air-ground and air-air Digital Link (VDL) Mode 4 radio equipment; Technical characteristics and methods of measurement for aeronautical mobile (airborne) equipment; Part 2: General description and data link layer
- ETSI TS 102 361-1 V1.4.1 (December 2006) Electromagnetic compatibility and Radio spectrum Matters (ERM); Digital Mobile Radio (DMR) Systems; Part 1: DMR Air Interface (AI) protocol
- ETSI TR 102 522 V1.1.1 (December 2006) Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Equipment for Detecting Movement; Radio equipment operating in the frequency range 17,1 GHz to 17,3 GHz; System Reference Document for Ground Based Synthetic Aperture Radar (GBSAR)

See ETSI 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 61340-3-2** (12/13/06) Electrostatics - Part 3-2: Methods for simulation of electrostatic effects - Machine model (MM) electrostatic discharge test waveforms
- **IEC 61000-2-14** (12/13/06) Electromagnetic compatibility (EMC) - Part 2-14: Environment - Overvoltages on public electricity distribution networks
- **IEC 60601-1 Corr.1** (12/12/06) Corrigendum 1 - Medical electrical equipment - Part 1: General requirements for basic safety and essential performance
- **IEC 60601-1-6** (12/08/06) Medical electrical equipment - Part 1-6: General requirements for basic safety and essential performance - Collateral standard: Usability
- **IEC 60571** (12/08/06) Electronic equipment used on rail vehicles
- **CISPR 16-1-1** (11/29/06) Specification for radio disturbance and immunity measuring apparatus and methods - Part 1- 1: Radio disturbance and immunity measuring apparatus - Measuring apparatus
- **IEC 60335-2-35** (11/28/06) Household and similar electrical appliances - Safety - Part 2-35: Particular requirements for instantaneous water heaters
- **CISPR 20** (11/27/06) Sound and television broadcast receivers and associated equipment - Immunity characteristics - Limits and methods of measurement
- **IEC 60335-2-24** (11/22/06) Household and similar electrical appliances - Safety - Part 2-24: Particular requirements for refrigerating appliances, ice-cream appliances and ice-makers
- **IEC 61000-4-20-am1** (11/15/06) Electromagnetic compatibility (EMC) - Part 4-20: Testing and measurement techniques - Emission and immunity testing in transverse electromagnetic (TEM) waveguides

See IEC for additional information.

UK PUBLISHES WEEE RULES

This week, the UK's Department of Trade and Industry (DTI) detailed the implementation of the WEEE (Waste Electrical and Electronic Equipment) Directive. Beginning on July 1, 2007, manufacturers of electrical goods will be required to meet the environmental costs of dealing with waste products the regulations. The Directive does not place any obligations on end consumers and they will not be prohibited from throwing WEEE away with general domestic rubbish.

The DTI said that "it will however encourage more WEEE to be reused or recycled by ensuring that there is a network of facilities in place where householders can return their used equipment free of charge." By March 15, 2007 manufacturers must join an approved producer compliance scheme to ensure that they are able to comply with the Directive from July 1, 2007.

The main goals of the regulations are to 1) Enable consumers to dispose of their electrical waste free of charge at accessible and appropriate places, 2) Give distributors the choice of how to meet their obligations under the Directive by either joining the Distributor Take-back Scheme (DTS) or by offering customers in-store take-back, 3) Allow existing relationships currently managing electrical waste to continue, 4) Enable any operator of a designated collection facility (DCF) to arrange with a producer compliance scheme (PCS) to have the electrical waste deposited at their site taken away for treatment and recycling by that PCS, free of charge, and 5) Allow for and encourage the re-use of equipment after it has been discarded where possible.

The regulations will also make provision for exemptions from waste management licensing for recovery operations involving WEEE. The regulations will be supported by guidance on best available treatment recovery and recycling techniques and treatment of WEEE which can be found a the following link: WEEE Guidance

AUSTRALIA: ADDITIONAL WIRELESS SPECTRUM

The Australian Communications and Media Authority has identified additional spectrum that could potentially be used to support future wireless access services in Australia. The potential spectrum has been identified after consideration of stakeholder input to the February discussion paper. Link
The identified bands are:

- Short term: 1785-1805 MHz in regional and remote areas
- Medium term: 2500-2690 MHz and 3575-3710 MHz
- Longer term: 520-820 MHz

AUSTRALIA: SAR AMENDMENT

The ACA is considering amending its existing SAR regulations to follow EN 62209-1 in order to align Australia with international developments as global mobile phone manufacturers have commenced using this test method. EN 62209-1 is the European SAR test standard for hand held-held devices used in close proximity to the human ear. Link

US: FCC RULE REVISION OR ELIMINATION OF RULES

The FCC announced a plan for the review of rules adopted by the agency in calendar year 1996 which have, or might have, a significant economic impact on a substantial number of small entities. The purpose of the review is to determine whether such rules should be continued without change, or should be amended or rescinded, consistent with the stated objectives to minimize any significant economic impact of such rules upon a substantial number of small entities. The FCC will consider the following factors:

- the continued need for the rule
- the nature of complaints or comments received concerning the rule from the public
- the complexity of the rule
- the extent to which the rule overlaps, duplicates, or conflicts with other Federal rules and, to the extent feasible, with State and local governmental rules
- the length of time since the rule has been evaluated or the degree to which technology, economic conditions, or other factors have changed in the area affected by the rule

The FCC is inviting public comment on these rules. Link

CANADA: REVISED STANDARDS

In December 2006, Industry Canada released the following five revised Standard Radio System Plans:

- SRSP-303.7, Issue 3, Technical Requirements for Fixed Line-of-Sight Radio Systems Operating in the Band 3700-4200 MHz (replacing Issue 2, April 2005)
- SRSP-305.9, Issue 5, Technical Requirements for Fixed Line-of-Sight Radio Systems Operating in the Band 5925-6425 MHz (replacing Issue 4, April 2005)
- SRSP-306.4, Issue 6, Technical Requirements for Fixed Line-of-Sight Radio Systems Operating in the Band 6425-6930 MHz (replacing Issue 5, April 2005)
- SRSP-307.7, Issue 6, Technical Requirements for Fixed Line-of-Sight Radio Systems Operating in the Band 7725-8275 MHz (replacing Issue 5, April 2005)
- SRSP-317.8, Issue 2, Technical Requirements for Fixed Line of-Sight Radio Systems Operating in the Bands 17.8-18.3 GHz and 19.3-19.7 GHz (replacing Issue 1, July 2005)

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.

Learn More

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

email: multipoint@rheintech.com
phone: 703-689-0368
web: http://www.rheintech.com

Last revised: December 15, 2006