MultiPoint
A Rhein Tech EMC Regulatory Update

August 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 Testing of UNII Devices

QUESTION: We manufacture UNII devices and want to know the requirement for test sites above 1 GHz. Can we use a site that is constructed with absorber material for above 1 GHz measurements to perform 1 GHz radiated emissions measurements?

ANSWER: ANSI C63.4-2009[1] includes measurement procedures and site validation requirements for site compliance testing for unlicensed unintentional and intentional radiators. Presently, the procedures in both C63.4-2003[2] and C63.9-2009 are considered acceptable to demonstrate compliance with the site validation requirements for radiated emission measurements. FCC rules change however, and site attenuation validity must be performed every three years. C63.4-2009 provides two options for test facilities used to make radiated emission measurements above 1 GHz, and states that the use of RF absorbers on the top of the ground plane is permitted.[3]

Facilities suitable for measurements in the frequency range 30 MHz to 1000 MHz are considered suitable for measurement in the 1 GHz to 40 GHz frequency range with RF absorbing material covering the ground plane such that either:

- the site validation criterion called out in CISPR 16-1-4:2007 is met;
- or a minimum area of the ground plane is covered, i.e., 2.4 m by 2.4 m (for a 3 m test distance), between the antenna and the Equipment Under Test (EUT) using RF absorbing material with a minimum-rated attenuation of 20 dB (for normal incidence) up to 18 GHz.

Conversely, C63.4-2003 does not have site validation requirements for test facilities used to measure radiated emissions above 1 GHz. It does state that facilities that are suitable for measurements in the frequency range 30 MHz to 1000 MHz are considered suitable for measurement in the frequency range 1 GHz to 40 GHz, including the presence of a reference ground plane.[4]

[1] See Public Notice DA 09-2478. The Commission indicated therein that pending a future rulemaking to update the rules, it will accept test data for radiated emissions and normalized site attenuation (NSA) performed using the procedures in ANSI C63.4-2009.
[2] See 47 C.F.R. Section 2.948(b)(8) regarding the site attenuation validation requirements. The FCC rules were updated to reference C63.4-2003 under ET Docket No. 03-201 (FCC 04-165). The continued reference to ANSI C63.4-2001 in Section 2.948(b)(8) was an oversight when the rules were updated and the correct reference is C63.4-2003.
[3] See ANSI C63.4-2009, clause 5.5 for the specific requirements for test facilities used to perform radiated emission measurements above 1 GHz.
[4] See ANSI C63.4-2003, clause 5.5.

FCC - RF Exposure Rules for Part 90 WiMax Device

QUESTION: We manufacture a Part 90(z) licensed WiMAX device and would like to know whether we can classify our equipment as "fixed equipment" from an RF exposure perspective. Our product looks like a WLAN device that might appear on the wall of an office or in a home. However, it is a Customer Premise Equipment (CPE) device that sits in a fixed location and is not moved, and it operates on the basis of the Base Station site license.

ANSWER: The higher power limit allowed for fixed base stations does not apply to CPE. Furthermore, in this context, the term "fixed equipment" means that the device is physically secured at one location and is not easily moved to another location. Transmitting devices such as wireless devices associated with a personal computer that are designed to be used by consumers or workers and can easily be relocated, are considered to be "mobile" devices if they meet the FCC's 20 cm minimum separation distance requirement.

Generally, CPEs used by a consumer or a worker can easily be moved to alternate locations within a building or on-premise; there is nothing preventing him from doing so, and in fact, this is done all the time in the telecommunications field. Furthermore, RF Exposure is typically not addressed at the time of site licensing, since the site license is issued for the base station, and the license holder does not install the CPE device.

Of course, the CPE will only transmit when instructed by the base station, but the base station does not know if the CPE is bolted to a wall or just sitting under a desk. It is true that the device would most likely be bolted to a wall, but it could just as easily sit under a desk or be moved about.

In summary, if one can walk up to a CPE, disconnect it and easily move it to a different location, then it does NOT qualify for the "fixed equipment" category. CPE's are generally classified as "mobile", since the grantee can neither guarantee a fixed location for the CPE, nor prevent it from being moved around.

FCC - SAR Requirements for Point of Sale Terminal

QUESTION: We manufacture a small, non-voice, handheld Point of Sale terminal (POS) that we consider a cell phone accessory. According to IEEE 1528, OET Bulletin 65 C specification and the FCC's Knowledge Database, it does not appear that there is a specified standard or procedure to determine the requirement for our product. Nonetheless, we need to do SAR (Specific Absorption Rate) measurements, and would like to know the SAR requirements.

ANSWER: Body-worn accessory SAR test information contained in IEEE Standard 1528-2003, OET Bulletin 65 Supplement C-0101 is based on products like cell phones. Cell phones have evolved substantially in form, factor, and capabilities over the last few years and industry practices for providing accessories have changed. Most phones also have Bluetooth options that allow the use of various body- worn accessories. In general, when body-worn accessories are not supplied with a cell phone, SAR compliance should be tested using a conservative separation distance representative of the types of third-party, off-the-shelf, body-worn accessories available in the marketplace for the specific phone and other expected user operating configurations.

A test distance of 1.5 cm has generally been applied for cell phones, however it is the manufacturer's responsibility to determine the appropriate body-worn test separation distance to ensure SAR compliance for its products. There has to be a reasonable justification to use a distance greater than 1.5 cm, including a demonstration of how the distance will be maintained under normal use. For a handheld POS terminal, user instructions must be available that clearly state how the device must be operated to ensure compliance. A handheld POS terminal is typically tested with the back of the body-mount (accessory) against a flat phantom (body parameters) in all positions; that is, you need to use 0 cm separation distance to do SAR testing, the worst-case SAR value should be found.

Please also note that the FCC's KDB 388624 D02 Permit But Ask List v08 states the following for non-standard or irregular phantoms:

"devices requiring or tested with phantoms, or test configurations that are not specified in IEEE Standard 1528-2003, OET Bulletin 65 Supplement C-0101 or the specific FCC test procedures. For example, standard phantoms have not been established for testing extremity SAR in hands, wrists, feet or ankles."

As a result, it is important to send an inquiry to the FCC about the required test configurations and procedures.

FCC and Class II Permissive Changes for Repeaters

QUESTION: We manufacture a repeater device and have reduced the power by 2 dB without modifying the repeater. We would like to certify the device again so the grant will show the lower power. Can we submit a Class II Permissive Change? Please consider in your response that transmitters employing Transmitter Power Control (TPC) transmit power at lower levels than the maximum power listed on the grant.

ANSWER: Typically, the FCC does not perform a power change, be it increase or decrease, via a Class II Permissive Change. As long as the difference in power between the original device and the new device is less than 0.5 dBm conducted or 3 dBm radiated, the reported power shown on the original grant will not be changed. If the power difference between the original device and the new device is greater than these margins, a new FCC certification (FCC ID) is required. Keep in mind, the FCC is the final arbiter of its rules, regulations and policies, so it would be prudent to submit a detailed inquiry through the FCC's Knowledge Database. We have heard of rare instances where the FCC has allowed a reduction of 1 dB difference in conducted power for Class II Permissive Changes, but all decisions are made on a case-by-case basis. In general however, if you are seeking a grant that reflects a different power level (lower or higher) for a previously certified device, it will require a new FCC Identifier obtained via the certification process.

One could argue that your circumstance is similar to devices with Transmit Power Control (TPC) that transmit power at lower power levels than the power listed on the grant. The difference in this case is that with a TPC-capable transmitter, testing is performed, and data is reported, for high, medium, and low power settings, even though the grant notes may not list all the power levels, and may only include the highest power. Nonetheless, the certification application includes all power settings, which is not the case with your device.

STANDARDS UPDATE

EU: NEW CENELEC STANDARDS RECENTLY RELEASED

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

- **EN 60603-7-4:2010**(7/23/2010) Connectors for electronic equipment -- Part 7-4: Detail specification for 8-way, unshielded, free and fixed connectors, for data transmissions with frequencies up to 250 MHz
- **EN 60603-7-5:2010** (7/23/2010) Connectors for electronic equipment -- Part 7-5: Detail specification for 8-way, shielded, free and fixed connectors, for data transmissions with frequencies up to 250 MHz
- **EN 61076-3-118:2010** (7/23/2010) Connectors for electronic equipment - Product requirements -- Part 3-118: Rectangular connectors - Detail specification for a 4 pole + PE power connector with push-pull coupling
- **EN 50160:2010** (7/30/2010) Voltage characteristics of electricity supplied by public electricity networks
- **EN 61558-2-3:2010** (8/13/2010) Safety of transformers, reactors, power supply units and combinations thereof -- Part 2-3: Particular requirements and tests for ignition transformers for gas and oil burners

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:

- **CISPR 16-2-1-am1** (7/28/2010) Amendment 1 - Specification for radio disturbance and immunity measuring apparatus and methods - Part 2-1: Methods of measurement of disturbances and immunity - Conducted disturbance measurements
- **IEC 60065-am2** (7/28/2010) Amendment 2 - Audio, video and similar electronic apparatus - Safety requirements
- **IEC 60335-1 Corr.1** (7/28/2010) Corrigendum 1 - Household and similar electrical appliances - Safety - Part 1: General requirements
- **CISPR 16-2-2** (7/28/2010) Specification for radio disturbance and immunity measuring apparatus

and methods - Part 2-2: Methods of measurement of disturbances and immunity - Measurement of disturbance power
- **IEC 60939-1** (7/29/2010) Passive filter units for electromagnetic interference suppression - Part 1: Generic specification
- **ISO/IEC 24791-1** (8/6/2010) Information technology -- Radio frequency identification (RFID) for item management -- Software system infrastructure -- Part 1: Architecture
- **CISPR 16-SER** (8/10/2010) Specification for radio disturbance and immunity measuring apparatus and methods - ALL PARTS
- **CISPR 16-3** (8/10/2010) Specification for radio disturbance and immunity measuring apparatus and methods - Part 3: CISPR technical reports
- **IEC 60601-2-50 Corr.1** (8/10/2010) Corrigendum 1 - Medical electrical equipment - Part 2-50: Particular requirements for the basic safety and essential performance of infant phototherapy equipment

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 300 676-1 V1.5.1 (July 2010) Ground-based VHF hand-held, mobile and fixed radio transmitters, receivers and transceivers for the VHF aeronautical mobile service using amplitude modulation; Part 1: Technical characteristics and methods of measurement
- ETSI TR 103 054 V1.1.1 (July 2010) Electromagnetic compatibility and Radio spectrum Matters (ERM); System Reference Document; Broadband Direct-Air-to-Ground Communications operating in part of the frequency range from 790 MHz to 5 150 MHz
- ETSI TS 102 490 V1.6.1 (August 2010) Electromagnetic compatibility and Radio spectrum Matters (ERM); Peer-to-Peer Digital Private Mobile Radio using FDMA with a channel spacing of 6,25 kHz with e.r.p. of up to 500 mW
- ETSI TR 102 628 V1.1.1 (August 2010) Electromagnetic compatibility and Radio spectrum Matters (ERM); System reference document; Land Mobile Service; Additional spectrum requirements for future Public Safety and Security (PSS) wireless communication systems in the UHF frequency range
- ETSI TR 102 837 V1.1.1 (August 2010) Electromagnetic compatibility and Radio spectrum Matters (ERM); System Reference Document; Broadband Wireless Systems in the 2 300 MHz to 2 400 MHz Range

See ETSI website for additional information.

US: FCC AND FDA SIGN MEMORANDUM OF UNDERSTANDING

On July 27th, 2010, the Federal Communications Commission and the Food & Drug Association signed a memorandum of understanding (MOU) that each agency would work with the other to create an efficient regulatory structure for wireless-enabled medical devices and services. The agreement has a five-year sunset provision built into it.

The MOU is intended to promote collaboration and improve the efficiency of the regulatory processes applicable to broadband and wireless enabled medical devices.

The FCC and FDA have decided on the following four key goals for the collaboration:

1. Further enhance information sharing efforts in order to further ensure the safety and efficacy of medical devices.
2. Improve the efficiency of the agencies' regulatory processes in areas where their jurisdiction overlaps, such as with respect to various medical devices that utilize broadband and wireless technology.
3. Promote efficient utilization of tools and expertise for product analysis, validation, and risk identification.
4. Build infrastructure and processes that meet the common needs for evaluating broadband and wireless enabled medical devices. Link to MOU

CANADA: RELEASE OF SMBR-002-10-BPR-10

On August 21, 2010, Industry Canada released Notice No. SMBR-002-10 - BPR-10, Issue 1, Application Procedures and Rules for Digital Television (DTV) Undertakings.

In August 2009, the Department released a provisional issue of BPR-10 to provide the application procedures and the operational requirements for DTV undertakings. This document has been updated and finalized to reflect the revised status of analog television, as well as the status of television channels 52 to 69 after August 31, 2011, as per the new Broadcasting Regulatory Policy (CRTC 2010-167): "A group-based approach to the licensing of private television services," published by the Canadian Radio-television and Telecommunications Commission (CRTC) on March 22, 2010. Issue 1 of BPR-10 also reflects comments received in response to the publication of the provisional issue of the document.

EU: UPDATED STANDARDS LIST FOR R&TTE DIRECTIVE

On August 10, 2010, the EU Commission published an updated list of standards used to demonstrate conformity with the essential requirements of the R&TTE Directive (1999/5/EC). Link

CONTACT RHEIN TECH FOR YOUR INTERNATIONAL REGULATORY APPROVALS

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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