MultiPoint
A Rhein Tech EMC Regulatory Update

Issue 19 / September 2004

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 send email to multipoint@rheintech.com.

See our website at www.rheintech.com for MultiPoint archives, a facility virtual tour, and other helpful information.

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RF Lighting Devices under FCC Part 18:

Question:

According to FCC 18.203(a), "Consumer ISM equipment, unless otherwise specified, must be authorized under either the Declaration of Conformity or Certification procedure prior to use or marketing." Is there any table or information that classifies types of equipment under DoC or Certification? If not, can you tell me what types of devices fall under certification? Under what circumstances can radiated emission testing be omitted?

Response:

This response strictly relates to RF lighting devices under FCC Part 18. Section 18.203(a) means all consumer-based (home use) equipment approved under Part 18 must be approved by either a DoC or Certification authorization. If the lighting device is strictly intended for industrial (non-consumer) use, it may be subject to Verification. Note that the manufacturer and/or lab may choose which authorization to use (DoC or Certification) for consumer RF lighting devices. Each route requires different labeling, but the route to compliance may be decided by the manufacturer. Note that if the device only requires Verification, particular labeling requirements for this device must be followed, and the DoC or Certification requirements should not be followed. Radiated tests may be omitted

when the operational frequencies of the RF lighting device are less than 1.705 MHz, based on table FCC 18.309. This is due to the fact that RF lighting devices only require radiated measurements greater than 30 MHz, and the table FCC 18.309 does not require measurements of radiated emissions if the frequencies are less than 1.705 MHz.

Combined RF Devices with Multiple Frequencies:

Question:

1. We have an applicant who has asked that we confirm if this requirement will apply to their transmitter, regardless of power levels. The device combines a 900 MHz device (FCC 15.247) with a low frequency (approximately 8 MHz) tag transmitter (FCC 15.209). Will the device still require simultaneous transmitter testing?
2. If the device is a combination of an FCC 15.249 and an FCC 15.209 device, will simultaneous TX still be required in this case as well?

Response:

The 20 cm separation distance rule is used to establish whether or not co-located (simultaneously emitting/transmitting or co-transmitting) transmitters need RF exposure evaluation in mobile and portable devices.

However, multiple transmitters within a single product (e.g., desktop, handheld, notebook, access point) do need co-transmitting radiated EMC evaluation even if they are spaced more than 20 cm apart within the product. See the February 2004 TCB training notes for co-transmitting EMC evaluation guidelines.

Even if the FCC is not concerned with RF exposure evaluation, it is concerned about inter-modulation products from co-transmitting emitters. These effects must be tested and a Class I Permissive Change or Class II Permissive Change is required. Currently, TCBs cannot evaluate co-transmitting emitters for RF safety because there have been no guidelines established. To determine if a Class I or Class II Permissive Change needs to be performed, use the guidelines currently in place for permissive changes. (Class I changes are those that do not degrade the emission levels originally reported to the FCC. Class II changes are those that do degrade the emission levels originally reported to the FCC.)

TCB Approval of Devices with SAR Data:

Question:

1. We have a Personal Display Assistant (PDA) with an internal 802.11a/b/g wireless transmitter; this device includes a 5 GHz SAR report for FCC and Canadian approval. Can a TCB/FCB approve 5 GHz SAR devices for both FCC and Canada?
2. For FCC approval, we must test using specific host equipment for the RF module when applying for Limited Module Approval (LMA). What is the Canadian rule for such a device, and do we need to test using specific host equipment as is the case with the FCC?

If the answer for question (2) is yes, can we file a Class II Permissive Change for additional portable host equipment for an already pre-certified mobile 802.11a/b/g module?

Response:

TCBs cannot approve 5 GHz portable wireless transmitters with SAR reports at the moment; all applications must be sent to the FCC. The FCC requires host-specific equipment testing for SAR evaluation since RF exposure cannot adequately be evaluated without the host that the device is intended for. FCBs can evaluate 5 GHz devices for Industry Canada with the same host-specific requirements as the FCC's. Furthermore, a Class II Permissive Change for additional portable host equipment for an already pre-certified mobile 802.11a/b/g module under the FCC rule can be granted.

FCC 15.247 DTS Class II Permissive Change Rules:

Question:

We have a situation whereby a manufacturer has an access point already approved as a composite device for the following:

1. 2412 - 2462 MHz for 802.11 b/g such as DTS
2. 5150 – 5350 MHz, and 5725-5825 MHz for 802.11a such as UNII

If the end-user only needs to turn on software for operation in the 5825 - 5850 MHz under FCC 15.247 DTS rules, would this be allowed as a Permissive Change since the device is already approved for one band under the aforementioned rule?

Response:

Per recent FCC policy, the answer is yes: adding the DTS 5825 - 5850 MHz band is allowed as a Class II Permissive Change since the DTS equipment class is already established on the original certification.

Worldwide updates:

US Update

FCC RECEIVES REQUEST FOR WAIVER REGARDING UWB DEVICES

On August 26, 2004, the Multi-band OFDM Alliance Special Interest Group (MBOA-SIG" filed a request for a waiver of Part 15 of the FCC's rules regarding ultra-wideband (UWB) systems that employ multi-band orthogonal frequency division multiplexed (MB-OFDM) modulation techniques. MBOA-SIG requests that the average emission levels from UWB MB-OFDM transmitters, which are sequenced between three frequency bands "according to one of four deterministic and fixed hopping patterns," be measured under normal operating conditions instead of with the band sequencing stopped.

In the UWB 1st Report and Order, ET Docket No. 98-153, the FCC stated that measurements of frequency hopping systems must be performed with the hopping stopped. MBOA-SIG argues that its modulation technique is not frequency hopping, and that the FCC's reasons for requiring measurements to be performed with the hopping stopped was to determine that the system met the minimum bandwidth requirement for consideration as a UWB device. MBOA-SIG also argues that the requirement in Section 15.521(d) of the rules to disable output gating was not intended to apply to MB-OFDM systems, and that MB-OFDM systems pose no greater threat of harmful interference than pulsed UWB devices.

The FCC's Office of Engineering and Technology (OET) is reviewing the waiver request. OET has concluded that in order to develop a complete record on the complex issues presented by this request, this proceeding will be treated, for *ex parte* purposes, as a "permit-but-disclose" proceeding, in accordance with Section 1.1200(a) of the FCC's rules, and is subject to the requirements under Section 1.1206(b) of the rules.

Pursuant to Sections 1.415 and 1.419 of the FCC's rules, 47 C.F.R. §§ 1.415, 1.419, interested parties may file comments on or before September 29, 2004, and reply to comments on or before October 14, 2004. **ET Docket No. 04-352, See link:** http://hraunfoss.fcc.gov/edocs_public/attachmatch/DA-04-2793A1.doc

MIDDLE EAST Update

SAUDI ARABIA ISSUES REGULATION FOR WLAN PRODUCTS

During August 2004, the Communications and Information Technology Commission (CITC) of Saudi Arabia, issued a regulation covering (WLAN) products that regulates the import and use of WLAN equipment and the provision of Internet service through intra-building WLANs. The following information has been extracted from the CITC website at http://www.citc.gov.sa/CITC/EN/Licensing/LicensesGuide/WLAN_REGULATION_INTRO.htm?sm=8.

Key Information to be applied when using Wireless Local Area Networks:

1. The frequency bands used by WLANs are allocated in accordance with the International Radio Regulations for the primary use by a number of fixed and mobile wireless telecommunication services. Operation of WLANs in these frequency bands is allowed as a secondary use. The user of a WLAN has no right to claim protection against the primary use of these bands, shall not cause any interference to any of these primary uses, and shall stop using any equipment that causes interference to the primary services in these frequency bands.
2. Due to the minimal security level provided by these networks, the owner shall be familiar with the method of operation and the suitable locations for installation, with special emphasis on boosting the security level in order to protect the network and prevent unauthorized access and misuse. The owner of the network is fully liable for any use of his network.
3. This equipment is permitted for use only inside buildings.

   The following frequency bands can be used only for WLANs inside the buildings:

   - (2.400 – 2.4835 Giga Hertz), provided that the max. Mean E.I.R.P. shall not exceed 100 mW.
   - (5.150 – 5.350 Giga Hertz), (5.725 – 5.825 Giga Hertz) provided that the max. Mean E.I.R.P. shall not exceed 200 mW.

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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), ACA (Australia), and other international standards.

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A special thank you to those who have recommended and contributed articles to our newsletter. Please continue to forward new and interesting material to our attention. multipoint@rheintech.com