MultiPoint
A Rhein Tech EMC Regulatory Update

February 2010

RF/EMC Regulatory Update
for the United States, Canada & European Union

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 15 Rule Parts

QUESTION: We are a manufacturer of Part 15 wireless devices and we would like to know where in the FCC rules the 3 meter test distance requirement is stated. Can you provide guidance?

ANSWER: The FCC Part 15 rules are device- specific, and each rule has a section that defines the particular radiated emission requirements for a particular device.

First, let us look at the general radiated emission requirements for a transmitter operating under §15.209 of the FCC rules. The table in paragraph (a) gives the distance at which the limits apply. Paragraphs (d) and (e) give the detector function used for these limits. Note that most devices above 30 MHz have a 3 meter limit distance in §15.209. Most 125 kHz transmitters are approved under this rule section with the limit given at 300 meters.

Next, let us look at the restricted band radiated emission requirements in §15.205. Paragraph (b) refers to the limits in §15.209, the 3 meter limit distance above 30 MHz. The exceptions to these 15.205 requirements are spelled out in paragraphs (d) and (e).

The radiated emission requirements in §15.231 include a table of limits in paragraph (b), while note 1 below the table shows the limit distance.

Finally, §15.31(f) of the FCC rules deals with measurements performed at limit distances other than those specified in the device-appropriate rule section, and provides the extrapolation factors that can be used both below and above 30 MHz.

Like transmitters, digital devices and other unintentional radiators must comply with radiated emission limits in §15.109 of the FCCs rules and regulations. Paragraph (a) gives the limit distance as 3 meters for all unintentional radiators except Class A digital devices, whose limit distance instead is 10 meters, as shown in paragraph (b).

FCC Rules for Wireless Inductive Charging Devices

QUESTION: We manufacture wireless inductive charging devices. Which FCC rules govern these devices?

ANSWER: The FCC has posted Draft Publication - RF Exposure Considerations for Wireless Charging Applications, (click on link below) which is the current FCC position regarding wireless battery chargers and wireless power pads. The Commission is seeking comments by February 26, 2010 from the public regarding this draft publication.

https://fjallfoss.fcc.gov/oetcf/kdb/r eports/PublishedDocumentList.cfm

Wireless battery chargers and wireless power pads operating at frequencies above 9 kHz are intentional radiators and are subject to FCC rules §15 and/or §18. The specific applicable rule part depends on how the device operates, and if there is communication between the charger and the device being charged.

Devices specifically intended for use for wireless power transfer or inductive charging require FCC guidance for RF hazard exposure review. This includes §18 devices. The FCC requires that the responsible party or manufacturer seek guidance by submitting an inquiry at www.fcc.gov/labhelp .

The initial inquiry shall include the following:

1. "Subject" line: Seeking guidance for wireless chargers
2. Complete product description
3. Rule part(s) the device will operate in and the reasoning for rule part(s)
4. Planned equipment authorization procedure
5. Drawings, illustrations
6. Frequencies
7. Radiated power
8. Operating configurations
9. Conditions for human exposure
10. Operating configurations for different charging devices

Furthermore, intentional radiators transmitting information generally require equipment certification under the appropriate §15 rules, except for special types of devices meeting 15.201 requirements which are subject to verification. A charger may operate in two different modes: charging and communications. It is possible for the device to be approved under §18 for the charging mode and §15 for the communications mode, if it can be shown to comply with the relevant rule parts, and that the two functions are independent.

§18 consumer devices can either be certified, or approved under Declaration of Conformity (DoC), only after the required Specific Absorption Rate (SAR) guidance has been received from the FCC as a result of the required inquiry submission explained earlier in this response, and the necessary test requirements have been completed.

Finally, it is possible that the power charging function could be approved under §15 rather than §18, if the device meets all of the requirements of the appropriate §15 rule.

FCC Chipset and Modular Approvals

QUESTION: We are a manufacturer of chipsets used in cellular phones, producing an integrated single-chip radio transceiver for combined 3G for HSDPA and GSM-EDGE (HEDGE) applications. Our questions are:

1. Can a chipset be approved without being in a final product?
2. Does the FCC allow modular approval, where the chipset could be approved and then multiple devices utilizing the chipset would be automatically approved (providing they had no other approvable technology inside of them)?

ANSWER: The FCCs current policy regarding licensed modular transmitters is inserted below. Most importantly, licensed modular transmitter devices cannot be approved by the FCC under the portable category, only under the mobile or fixed transmitter category. Furthermore, the device can only be approved by the FCC, not a Telecommunication Certification Body (TCB). If the chipsets are self-contained "transmitter chipsets" that include frequency generating circuits, such as Voltage Controlled Oscillators (VCOs) that produce Local Oscillators (LOs), internal RF circuits such as Mixers to produce Intermediate Frequencies (Ifs), Power Amplifiers (PAs), Onboard modulation circuit or an Input modulation port that includes modulation limiting, as well as a fixed antenna or an output port for antenna connection, then it may qualify under the Commissions licensed modular approval.

Licensed Modular Transmitters

Licensed transmitters may be approved as modules for installation into the, final devices provided the following criteria are met:

- The final device is designed for mobile or fixed operation (Portable is not permitted – Reference TCB Exclusion List (17 July 2002) II(g)).
- The maximum antenna gain to allow compliance with RF exposure requirements is listed on the Grant of Certification for the module
- The licensed module must have a FCC ID label on the module itself. That FCC ID label must be visible through a window on the final device or it must be visible when an access panel, door or cover is easily removed. If not, a second label must be placed on the outside of the final device that contains the following text:
  "Contains FCC ID: xxxyyyzzz"
- The Grant should include the following words in the device description or grant notes:
  "modular transmitter" or "transmitter module"

  Today's Date: December 3, 2002

  Effective Date: Immediately

FCC Template for HAC User Information

QUESTION: We are a mobile phone manufacturer; does the FCC have a template for HAC information to the user?

ANSWER: To our knowledge the FCC has not provided a standard template for HAC information for end users. The FCC simply cited that user information must explain the ratings and any other HAC- related information in an easy-to-understand manner. You can review the FCCs public website for approvals for similar products to obtain guidance and sample language to include.

Please note, §20.19(f) contains a description of the information the manual should include, but the FCC does NOT provide sample templates for this information. Also note there is the additional requirement for handset packaging to clearly display the U-rating, as defined in 20.19(b)(1). An explanation of the ANSI C63.192001 U-rating system must also be included in the owner's manual or as an insert in the packaging material for the handset.

Here is a sample of what many manufacturers typically include in a users manual:

When wireless phones are used near hearing devices (hearing aids and cochlear implants), users may detect a buzzing, humming, or whining noise with some particular phones/hearing aid devices. Some hearing devices are more immune than others to this interference noise, and phones vary considerably in the level of interference they generate.

The wireless telephone industry has developed ratings for some of their mobile phones, to assist hearing-device users in finding phones that may be compatible with their hearing devices. Not all phones are rated; phones that have been rated will have on the packing box a label with the rating. These ratings are not guarantees. Results will vary, depending on the level of immunity of your hearing device and the degree of your hearing loss. If your hearing device happens to be vulnerable to interference, you may not be able to use a rated phone successfully. Trying out the phone with your hearing device is the best way to evaluate it for your personal needs.

M-Ratings: Phones rated M3 or M4 meet FCC requirements, and are likely to generate less interference with hearing devices than phones that are not labeled. M4 is the better/higher of the two ratings.

T-Ratings: Phones rated T3 or T4 meet FCC requirements, and are likely to be more usable with a hearing devices telecoil (T Switch or Telephone Switch) than unrated phones. T4 is the better/higher of the two ratings. Note that not all hearing devices contain telecoils.

Hearing devices may also be measured for immunity to this type of interference. Your hearing device manufacturer or hearing health professional may be able to help you choose an appropriate phone for your hearing device. The more immune your hearing aid, the less likely you are to experience interference noise from wireless devices.

STANDARDS UPDATE

EU: NEW CENELEC STANDARDS RECENTLY RELEASED

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

- **EN 50065-1:2001/A1:2010** (01/15/2010) Signalling on low- voltage electrical installations in the frequency range 3 kHz to 148,5 kHz -- Part 1: General requirements, frequency bands and electromagnetic disturbances
- **EN 60255-1:2010** (01/22/2010) Measuring relays and protection equipment -- Part 1: Common requirements
- **EN 60335-2-102:2006/A1:2010** (01/22/2010) Household and similar electrical appliances - Safety -- Part 2-102: Particular requirements for gas, oil and solid-fuel burning appliances having electrical connections
- **EN 60335-2-7:2010** (01/22/2010) Household and similar electrical appliances - Safety -- Part 2-7: Particular requirements for washing machines
- **EN 60335-2-60:2003/A11:2010** (01/22/2010) Household and similar electrical appliances - Safety -- Part 2-60: Particular requirements for whirlpool baths and whirlpool spas
- **EN 60335-2-97:2006/A2:2010** (01/22/2010) Household and similar electrical appliances - Safety -- Part 2-97: Particular requirements for drives for rolling shutters, awnings, blinds and similar equipment
- **EN 60255-11:2010** (01/22/2010) Measuring relays and protection equipment -- Part 11: Voltage dips, short interruptions, variations and ripple on auxiliary power supply port
- **EN 60335-2-75:2004/A12:2010** (01/22/2010) Household and similar electrical appliances - Safety -- Part 2-75: Particular requirements for commercial dispensing appliances and vending machines
- **EN 50364:2010** (02/05/2010) Limitation of human exposure to electromagnetic fields from devices operating in the frequency range 0 Hz to 300 GHz, used in Electronic Article Surveillance (EAS), Radio Frequency Identification (RFID) and similar applications
- **HD 60364-5-551:2010** (02/05/2010) Low-voltage electrical installations -- Part 5-55: Selection and erection of electrical equipment - Other equipment -- Clause 551: Low-voltage generating sets

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 80601-2-30 Corr.1** (01/14/2010) Corrigendum 1 - Medical electrical equipment - Part 2-30: Particular requirements for the basic safety and essential performance of automated non-invasive sphygmomanometers
- **IEC 62368-1** (01/21/2010) Audio/video, information and communication technology equipment - Part 1: Safety requirements
- **IEC 60728-2** (01/21/2010) Cable networks for television signals, sound signals and interactive services - Part 2: Electromagnetic compatibility for equipment
- **IEC 61000-4-4-am1** (01/27/2010) Amendment 1 - Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test
- **IEC 60601-1-6** (01/27/2010) Medical electrical equipment - Part 1-6: General requirements for basic safety and essential performance - Collateral standard: Usability
- **CISPR 16-SER** (01/28/2010) Specification for radio disturbance and immunity measuring apparatus and methods - ALL PARTS
- **CISPR 16-1-1** (01/28/2010) Specification for radio disturbance and immunity measuring apparatus and methods - Part 1- 1: Radio disturbance and immunity measuring apparatus - Measuring apparatus

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 TS 125 113 V8.5.0 (February 2010) Universal Mobile Telecommunications System (UMTS); Base station and repeater electromagnetic compatibility (EMC) (3GPP TS 25.113 version 8.5.0 Release 8)
- ETSI TS 125 113 V9.1.0 (February 2010) Universal Mobile Telecommunications System (UMTS); Base station and repeater electromagnetic compatibility (EMC) (3GPP TS 25.113 version 9.1.0 Release 9)
- ETSI TS 134 124 V8.4.0 (February 2010) Universal Mobile Telecommunications System (UMTS); LTE; Electromagnetic compatibility (EMC) requirements for mobile terminals and ancillary equipment (3GPP TS 34.124 version 8.4.0 Release 8)
- ETSI TS 134 124 V9.1.0 (February 2010) Universal Mobile Telecommunications System (UMTS); LTE; Electromagnetic compatibility (EMC) requirements for mobile terminals and ancillary equipment (3GPP TS 34.124 version 9.1.0 Release 9)
- ETSI TR 134 926 V9.0.0 (Februay 2010) Universal Mobile Telecommunications System (UMTS); LTE; Electromagnetic compatibility (EMC); Table of international requirements for mobile terminals and ancillary equipment (3GPP TR 34.926 version 9.0.0 Release 9)
- ETSI TS 136 113 V8.2.0 (February 2010) LTE; Evolved Universal Terrestrial Radio Access (E-UTRA); Base Station (BS) and repeater ElectroMagnetic Compatibility (EMC) (3GPP TS 36.113 version 8.2.0 Release 8)
- ETSI TS 136 113 V9.1.0 (February 2010) LTE; Evolved Universal Terrestrial Radio Access (E-UTRA); Base Station (BS) and repeater ElectroMagnetic Compatibility (EMC) (3GPP TS 36.113 version 9.1.0 Release 9)
- ETSI TS 136 124 V8.1.0 (February 2010) LTE; Evolved Universal Terrestrial Radio Access (E-UTRA); Electromagnetic compatibility (EMC) requirements for mobile terminals and ancillary equipment (3GPP TS 36.124 version 8.1.0 Release 8)
- ETSI TS 136 124 V9.1.0 (February 2010) LTE; Evolved Universal Terrestrial Radio Access (E-UTRA); Electromagnetic compatibility (EMC) requirements for mobile terminals and ancillary equipment (3GPP TS 36.124 version 9.1.0 Release 9)

See new ETSI website for additional information.

FCC: AMENDMENT OF RULE PARTS 25, 74, 78 AND 101 On January 20, 2010, the FCC released ET Docket No. 03-254, an Amendment of Parts 25, 74, 78 and 101 of the Rules regarding Coordination between the Non-Geostationary and Geostationary Satellite Orbit Fixed-Satellite Service and Fixed, Broadcast Auxiliary and Cable Television Relay Services in the 7 GHz, 10 GHz and 13 GHz Frequency Bands.

ET Docket No. 03-254 specifies rules and procedures to be used for frequency coordination between terrestrial Broadcast Auxiliary Service and Cable Television Relay Service (BAS/CARS) operations and geostationary satellite orbit (GSO) or non- geostationary satellite orbit (NGSO) fixed-satellite service (FSS) operations in the 6875 7075 MHz (7 GHz) and 12750-13250 MHz (13 GHz) bands.

An example of some changes are as follows:

- Apply the existing Parts 25 and 101 "notice and response" coordination rules for coordination of new FSS (both NGSO and GSO) earth stations with mobile BAS/CARS operations in the 6875 7075 MHz (7 GHz) and 12750-13250 MHz (13 GHz) bands, and consider whether any additions or modifications to the rules are needed to address the operating characteristics of mobile services;
- Allow either the Parts 74 and 78 informal ad hoc coordination rules or the Part 101 "notice and response" coordination rules to be used for the coordination of mobile BAS/CARS operations with FSS (both NGSO and GSO) earth stations, in the 7 GHz and 13 GHz bands, and consider whether any additions or modifications of these rules are needed; and,
- Apply the existing Parts 25 and 101 "notice and response" coordination rules for sharing between new NGSO FSS earth stations and fixed BAS/CARS operations in the 7 GHz and 13 GHz bands.

The FCC's intent with the amendment is to facilitate the introduction of new satellite and terrestrial services while promoting interference protection among the various users in these bands. Link

IC: RELEASE OF RSS-199 AND GL-07 On January 30, 2010, Industry Canada released the following two documents:

- Radio Standards Specification 199 (RSS-199), Issue 1: Broadband Radio Service (BRS) Equipment Operating in the Band 2500- 2690 MHz, which sets certification requirements for BRS radio transmitters and receivers in the BRS in the band 2500-2690 MHz; and
- Guideline 07 (GL-07), Issue 1: Interim Technical Guidelines for the Operation of the Broadband Radio Service (BRS) in the Band 2500- 2690 MHz, which sets out the minimum technical requirements for the efficient utilization of this band. These Interim Technical Guidelines are being published instead of a Standard Radio System Plan (SRSP) since the final 2500-2690 MHz band plan is expected to be determined following a public consultation in 2010. An SRSP will be subsequently published and implemented to reflect the technical requirements governing the final 2500-2690 MHz BRS band plan resulting from the consultation.

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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.

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