



February 2008

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](#).

Class II and III Permissive Changes

QUESTION: Our firm manufactures a mobile phone that has already been certified with an FCC ID. We would like to change the software in order to add GPRS/EDGE function. All the other hardware, circuit board, RF, etc. will remain the same. Can we use a Permissive Change for the upgrade and continue to use the original FCC ID? Furthermore, would the aforementioned change be subject to Class III Permissive Change?

ANSWER: If you already have an FCC approved GSM phone but just are adding GPRS functionality with no changes in hardware, then a Class II permissive change may be appropriate (the output power must remain the same).

If you are changing from another modulation format, such as from CDMA to GSM/GPRS, then a new FCC ID is required. Note that a Class III permissive change is applicable only to 'software defined radios' and can only be approved by the FCC.

Laboratory Equipment Calibration

QUESTION: If a laboratory is approved and certified as an ANTENNA and SAR probe calibration body, can they calibrate their own SAR probe? Alternatively, does a laboratory have to return equipment back to the original factory for the SAR probe and dipole antenna calibration?

ANSWER: There is nothing to prevent a capable laboratory from calibrating its own probes and dipoles as long as they are within the allowed tolerance of the reference standard. The calibration would have to meet the US requirement (not EU requirements for US use). The laboratory would still have to provide the actual calibration data, calibration certificate, and justify the calibration as being traceable to the acceptable standards organization.

While there may be no requirement from the FCC on who calibrates SAR probes, there will be requirements from the laboratory accreditation body to use an accredited calibration source for their equipment or to have an acceptable calibration method included in their QA system. If the laboratory is not accredited then the TCB must be confident in the source of equipment calibration as well as the testing capabilities of the lab doing the SAR.

ODM and FCC Compliance Responsibility

QUESTION: We are an Original Design Manufacturer (ODM) and plan to produce an international 802.11a/b/g DFS- capable DTS + UNII mini-PCI card.

1. Could we require that other companies, such as integrators, be responsible for insuring this device meets with the FCC's DTS channel 12-13 prohibition?
2. Could we require that other companies, such as integrators, be responsible for insuring that, when the module is used in a DFS-required UNII band, a separate DFS equipment authorization is obtained?

We would like to put the burden of compliance on the integrators. In both examples, drivers are available freely to OEM integrators and can be easily downloaded into the device.

ANSWER: If you are wondering whether OEM integrators and companies that would integrate the device as a module into a host and can an applicant apply for a modular grant under multiple rule parts 15 B (15.247) and 15 E (15.407) with the following conditions:

- The module is capable of operating world wide- on both US and non-US frequencies.
- The module only has partial capabilities for compliance with 15 E Dynamic Frequency Selection (DFS) and Transmitter Power Control (TPC) requirements.
- The third party host system (OEM integrators and other companies) would need to provide the missing controls for compliance.
- The third party would download US drivers commonly available on the internet and the third party would be responsible for operating only on US frequencies without further testing.

Then the answers are as follows:

For DFS and TPC capability, the third party, i.e. integrators and other companies, would have to obtain a new certification. Obtaining a separate DFS equipment authorization for DFS is not relevant to the grant for the module since third party and other companies would have to obtain a new FCC authorization. The module, in this case would be an uncertified sub-assembly and the OEM would need a new certification for the ensemble (host and sub-assembly).

On the other hand, if the device is client or a master, the answers may be different. A client module (as defined in FCC 15.202 rule part and definitions for a DFS client device) may be possible. The device cannot initiate any non-compliant transmissions or 802.11 probes. All transmissions must be under the control of a certified master.

As a master device, a standalone module approval is not possible since compliance is dependant on the host.

There may be possibilities to certify the product as a limited host specific module using BIOS protection and/or as a software defined radio with the grantee controlling the software and the security. However, such a grant would be tightly coupled with specific hosts and the grantee would be responsible and must state how control of the end product into which the module will be installed will be maintained such that full compliance of the integrators and other companies' end products are always ensured.

The aforementioned conditions may not be in line with your original question, but to answer your question, you cannot put the burden of compliance on integrators and other companies. Furthermore, specific host environments would require more elaborate details including software controls and grantee responsibility.

FCC 2.948 Test Site

QUESTION: If our lab has some test facilities but does not have an FCC 2.948 test site, which test parameters have to be tested in the listed site and which test parameters can be tested in a non-listed site within our facility? Alternatively, must every test parameter be completed in the listed site?

ANSWER: As long as the FCC 15.209/15.207 testing requirements are met at a listed site, it does not matter where the "bench tests" or RF conducted tests are performed. The Part 15 AC conducted test and Part 15 radiated test must be performed on a listed site. However, bench tests on the RF conducted parameters can be performed anywhere.

FCC and CE Requirements for MIMO Devices

QUESTION:What are the FCC and CE requirements for the test reports of Multiple-Input Multiple-Output (MIMO) and DFS test cases?

ANSWER:MIMO testing is straightforward. The only real differences have to do with how power out is tested because, in essence, you have two transmitters working in parallel with a lot of signal processing. TCBs can handle all MIMO certifications for the 2.4GHz band without any difficulties. DFS is different. In general, "full" DFS approval for a "master" station must be submitted to the FCC for testing. However, if you have a "client-only" DFS project with no "ad-hoc" capabilities (such as for notebook PC) then the TCB route is available to you. You should be mindful of RF exposure requirements. For 2.4GHz devices, SAR testing may be required for all RF category "portable" equipment if the power is above 60mW/f (GHz) and if the user can contact the antenna, or 120mW/f(GHz) if the antenna is 2.5cm away from the user. In accordance with the FCC rules and regulations, all 5 GHz 802.11a "portable" devices under FCC 15.407 must have SAR testing regardless of power output.

There is nothing new for the process within Europe; the same standards and processes for applying the CE Mark for MIMO devices still applies. For testing procedures, MIMO ("smart antenna") issues are addressed in the latest versions of both the standards, EN 300 328 (for 2.4 GHz devices) and EN 301 893 (for 5 GHz devices).

Both standards explain how the antenna ports should be configured for the power and emissions measurements. EN 301 893 explains how the receiver antenna paths should be configured for DFS with two extra lines of text in the standards addressing the MIMO and 802.11n issues.

INTERNATIONAL UPDATE

EU: NEW CENELEC STANDARDS RELEASED THIS MONTH

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

- **EN 62311:2008** (1/31/2008) Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz - 300 GHz)
- **EN 60601-2-37:2008** (1/31/2008) Medical electrical equipment -- Part 2-37: Particular requirements for the basic safety and essential performance of ultrasonic medical diagnostic and monitoring equipment
- **EN 60598-2-8:1997/A2:2008** (2/8/2008) Luminaires -- Part 2- 8: Particular requirements - Handlamps
- **EN 55016-1-4:2007/A1:2008** (2/8/2008) Specification for radio disturbance and immunity measuring apparatus and methods -- Part 1-4: Radio disturbance and immunity measuring apparatus - Ancillary equipment - Radiated disturbances
- **EN 55016-1-1:2007/A2:2008** (2/8/2008) Specification for radio disturbance and immunity measuring apparatus and methods -- Part 1-1: Radio disturbance and immunity measuring apparatus - Measuring apparatus
- **EN 61000-4-3:2006/A1:2008** (2/13/2008) Electromagnetic compatibility (EMC) -- Part 4-3: Testing and measurement techniques - Radiated, radio- frequency, electromagnetic field immunity test
- **EN 50444:2008** (2/13/2008) Basic standard for the evaluation of human exposure to electromagnetic fields from equipment for arc welding and allied processes
- **EN 60730-2-13:2008** (2/14/2008) Automatic electrical controls for household and similar use -- Part 2-13: Particular requirements for humidity sensing controls
- **EN 60730-2-11:2008** (2/14/2008) Automatic electrical controls for household and similar use -- Part 2-11: Particular requirements for energy regulators
- **EN 60255-22-1:2008** (2/22/2008) Measuring relays and protection equipment -- Part 22-1: Electrical disturbance tests - 1 MHz burst immunity tests

See www.cenelec.org 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 60730-2-15** (12/30/08) Automatic electrical controls for household and similar use - Part 2-15: Particular requirements for automatic electrical air flow, water flow and water level sensing controls
- **IEC 61326-3-1** (12/30/08) Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 3-1: Immunity requirements for safety-related systems and for equipment intended to perform safety- related functions (functional safety) - General industrial applications
- **IEC 61326-3-2** (12/30/08) Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 3-2: Immunity requirements for safety-related systems and for equipment intended to perform safety- related functions (functional safety) - Industrial applications with specified electromagnetic environment
- **IEC 61010-031-am1** (2/12/08) Amendment 1 - Safety requirements for electrical equipment for measurement, control and laboratory use - Part 031: Safety requirements for hand-held probe assemblies for electrical measurement and test
- **IEC 60695-1-20** (2/13/08) Fire hazard testing - Part 1-20: Guidance for assessing the fire hazard of electrotechnical products - Ignitability - General guidance
- **IEC 60335-2-95-am2** (2/22/08) Amendment 2 - Household and similar electrical appliances - Safety - Part 2- 95: Particular requirements for drives for vertically moving garage doors for residential use
- **IEC 61000-3-13** (2/22/08) 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 61000-3-6** (2/22/08) Electromagnetic compatibility (EMC) - Part 3-6: Limits - Assessment of emission limits for the connection of distorting installations to MV, HV and EHV power systems
- **IEC 61000-3-7** (2/22/08) Electromagnetic compatibility (EMC) - Part 3-7: Limits - Assessment of emission limits for the connection of fluctuating installations to MV, HV and EHV power systems
- **IEC 62046** (2/22/08) Safety of machinery - Application of protective equipment to detect the presence of persons

See [IEC](#) 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 TS 125 113 V8.0.0](#) (January 2008) Universal Mobile Telecommunications System (UMTS); Base station and repeater electromagnetic compatibility (EMC) (3GPP TS 25.113 version 8.0.0 Release 8)
- [ETSI TS 134 124 V8.0.0](#) (January 2008) Universal Mobile Telecommunications System (UMTS); Electromagnetic compatibility (EMC) requirements for mobile terminals and ancillary equipment (3GPP TS 34.124 version 8.0.0 Release 8)
- [ETSI EN 302 288-1 V1.3.1](#) (February 2008) Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices; Road Transport and Traffic Telematics (RTTT); Short range radar equipment operating in the 24 GHz range; Part 1: Technical requirements and methods of measurement
- [ETSI EN 302 288-2 V1.2.2](#) (February 2008) Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices; Road Transport and Traffic Telematics (RTTT); Short range radar equipment operating in the 24 GHz range; Part 2: Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive
- [ETSI EN 302 326-3 V1.3.1](#) (February 2008) Fixed Radio Systems; Multipoint Equipment and Antennas; Part 3: Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive for Multipoint Radio Antennas
- [ETSI ES 201 980 V2.3.1](#) (February 2008) Digital Radio Mondiale (DRM); System Specification
- [ETSI TR 102 436 V1.2.1](#) (February 2008) Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD) intended for operation in the band 865 MHz to 868 MHz; . Guidelines for the installation and commissioning of Radio Frequency Identification (RFID) equipment at UHF
- [ETSI EN 302 217-3 V1.2.1](#) (February 2008) Fixed Radio Systems; Characteristics and

- requirements for point-to-point equipment and antennas; Part 3: Harmonized EN covering essential requirements of article 3.2 of R&TTE Directive for equipment operating in frequency bands where simplified or no frequency co-ordination procedures are applied
- [ETSI EN 302 065 V1.1.1](#) (February 2008) Electromagnetic compatibility and Radio spectrum Matters (ERM); Ultra WideBand (UWB) technologies for communication purposes; Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive
 - [ETSI TR 102 495-3 V1.3.1](#) (February 2008) Electromagnetic compatibility and Radio spectrum Matters (ERM); System Reference Document; Short Range Devices (SRD); Technical Characteristics for SRD equipment using Ultra-Wideband Sensor Technology (UWB); Part 3: Location tracking applications type 1 operating in the frequency band from 6 GHz to 8,5 GHz for indoor, portable and mobile outdoor applications

See new [ETSI website](#) for additional information.

FCC: NEW TCB EXCLUSION LIST PUBLISHED

On February 19, 2008, the FCC released document "628591 D01 TCB Exclusion List v10" which identifies equipment excluded from being certified by a TCB. [Link](#)

LEBANON: NEW TYPE APPROVAL POLICY

Lebanon's Telecommunications Regulatory Authority published a draft of its expected new type approval regulation on January 29, 2008. The draft is under public consultation until March 13, 2008. The changes to be implemented include labeling requirements, label mark and different approval schemes dependent on equipment type, and limitations to the validity of future certificates. [Link](#)

TRINIDAD AND TOBAGO: TYPE APPROVAL GUIDELINES

The Telecommunications Authority of Trinidad and Tobago (TATT) published "Equipment Standardization and Certification Framework for the Telecommunications and Broadcasting Sectors of Trinidad and Tobago" on February 18, 2008. The publication provides guidance on TATT's approach to equipment certification. Please contact Rhein Tech for additional information.

CANADA: RELEASE OF NEW STANDARDS AND REVISIONS - SRSP-513, SRSP-514, RSS-112, RSS-139 AND AMENDMENT OF RSS-192, SRSP-510 AND RSS-133

On January 26 2008, Industry Canada released Issue 3 of [Radio Standards Specification 192 \(RSS-192\)](#), which sets out certification requirements for fixed wireless access systems, including point-to-point applications operating in the band 3450-3650 MHz.

On February 23, 2008, Industry Canada released the following new standards and amendments:

- [Standard Radio System Plan 513 \(SRSP-513\)](#), Issue 1: Technical Requirements for Advanced Wireless Services in the Bands 1710-1755 MHz and 2110-2155 MHz, which sets out the minimum technical requirements for the efficient utilization of these bands.
- [Standard Radio System Plan 514 \(SRSP-514\)](#), Issue 1: Technical Requirements for Land Mobile and Fixed Radio Services Operating in the Band 1670-1675 MHz, which sets out the minimum technical requirements for the efficient utilization of this band.
- [Radio Standards Specification 112 \(RSS-112\)](#), Issue 1: Land Mobile and Fixed Equipment Operating in the Band 1670-1675 MHz, which sets out certification requirements for radiocommunications systems for the land mobile and fixed services in this band.
- [Radio Standards Specification 139 \(RSS-139\)](#), Issue 1: Advanced Wireless Services Equipment Operating in the Bands 1710- 1755 MHz and 2110-2155 MHz, which sets out certification requirements for radiocommunications systems to provide Advanced Wireless Services (AWS) in these bands.
- [Standard Radio System Plan 510 \(SRSP-510\)](#), Issue 4: Technical Requirements for Personal Communications Services (PCS) in the Bands 1850-1915 MHz and 1930-1995 MHz, which sets out the minimum technical requirements for the efficient utilization of these bands.
- [Radio Standards Specification 133 \(RSS-133\)](#), Issue 4: 2 GHz Personal Communications Services, which sets out certification requirements for radiocommunications systems to provide Personal Communications Services (PCS) in the bands 1850-1915 MHz and 1930-1995 MHz.

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.

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