



July 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](#).

FCC DoC and China Mainland Test Laboratories

QUESTION: We are a manufacturer of broadband devices and our Taiwanese laboratory (designated by BSMI) is able to perform FCC DOC testing. Can our China Mainland laboratory implement FCC DOC testing but issue a report in the name of Taiwanese lab?

ANSWER: Mainland China (PRC) does not have an MRA with the US. Therefore, absolutely NO Mainland China lab can perform testing for DoC to the FCC rules, regardless of who accredits them or what the ownership structure might be. For example, there are many labs accredited by A2LA and NVLAP in Mainland China, but NONE meet the FCC rules required for a qualified test lab performing DoC testing. So, while BSMI may, for their regulations and purposes define a Mainland lab as under control of a Taiwan home office and thus extend the ability of that Mainland lab to do work for BSMI purposes, the FCC is not bound by BSMI nor by Taiwan accreditation systems for dealing with PRC labs. Since the FCC only has an MRA with Taiwan and not Mainland, only those appropriately approved Taiwan Labs (i.e., located physically in Taiwan) are accepted for DoC.

The FCC under Part 2.948(e) states the following:

"(e) The accreditation of a laboratory located outside of the United States, or its possessions, will be acceptable only under one of the following conditions:

1. If the accredited laboratory has been designated by a foreign designating authority and recognized by the Commission under the terms of a government-to- government Mutual Recognition Agreement/Arrangement; or
2. If the laboratory has been recognized by the Commission as being accredited by an organization that has entered into an arrangement between accrediting organizations and the arrangement has been recognized by the Commission."

Under 2.948(e)(2) the FCC has not recognized any agreement between accrediting bodies where the accrediting body country does not have an MRA with the US. Therefore, it does not matter if A2LA or NVLAP has an agreement with other accrediting bodies. Currently the FCC has not recognized any such agreement between accrediting bodies from non- MRA partners. Consequently, any DoC done by such a lab is in violation of the rules and regulations and is not considered properly authorized. The FCC enforcement bureau is also beginning to address this issue and may make example of offenders at some point in time. This could be in the form of fines, denial of grantee codes, blocks placed on FRNs etc. Grantees should be aware of this issue since most of them are not aware that this is against the FCC rules.

FCC Part 15.231(a)(4) and "Safety of Life"

QUESTION: Our firm manufactures a 433 MHz transceiver worn by a dog while the owner maintains and controls the other half of the transceiver. Our test lab is planning to test the device to FCC Part 15.231. However, the device works such that if the dog runs away past a certain distance then the dog's transmitter goes into an alarm state. The alarm state transmits more frequently such that the police can track and find the dog. In the alarm state, the transmitter exceeds the FCC's Part 15.231 duty cycle requirements but we wish to use FCC Part 15.231(a)(4), "Intentional radiators which are employed for radio control purposes during emergencies involving fire, security, and safety of life, when activated to signal an alarm, may operate during the pendency of the alarm condition."

We believe that in a runaway situation, the dog's life is at risk and therefore FCC Part 15.231(a)(4) applies. Can you give us your opinion on this issue?

ANSWER: As animal lovers, we may want the FCC to put the life of a dog on equal footing as the life of a human being. However, this does not constitute a "safety of life" condition as defined in FCC Part 2.1, under Safety Service, "Any radiocommunication service used permanently or temporarily for the safeguarding of human life and property", hence, it is not permitted. However, you may want an official interpretation from the FCC directly.

FCC Part 95

QUESTION: We are a new manufacturer of Part 95 products and have the following questions:

1. Where can we find the requirement for the low pass audio filter (post limiter filter)?
2. Can we also have an external connector on a GMRS/MURS/FRS radios?
3. We certified a transmitter previously under Part 90. How do we reauthorize the same transmitter now under Part 95? The output power complies with the MURS power limits such that no modification to the original circuitry is required for use as an MURS device. Do we need to submit a new FCC application or a Class II Permissive Change application?
4. Can we have the end-user replace the crystal in a Part 95 remote control transmitter?

ANSWER: The following are answers to your questions:

1. The answer is $60 \cdot \log(f/3)$ between 3 kHz & 20 kHz for a low pass filter. FCC Part 95.637(b), states, "Each GMRS transmitter, except a mobile station transmitter with a power output of 2.5 W or less, must automatically prevent a greater than normal audio level from causing over-modulation. The transmitter also must include audio frequency low pass filtering, unless it complies with the applicable paragraphs of Part 95.631 (without filtering.) The filter must be between the modulation limiter and the modulated stage of the transmitter. At any frequency (f in kHz) between 3 and 20 kHz, the filter must have an attenuation of at least $60 \log(f/3)$ dB greater than the attenuation at 1 kHz. Above 20 kHz, it must have an attenuation of at least 50 dB greater than the attenuation at 1 kHz.
2. You can have external connectors for GMRS/MURS devices, but no external connectors for FRS devices.
3. You may file an application for a Class II Permissive Change in accordance with FCC Part 2.1043 to change an existing grant of certification. The application filing must include a statement of the requested change and the reason for the change. The application should also include test data and technical information to show continued compliance of the transmitter. For MURS equipment operating under FCC Part 95, Subpart J, in which you can use the same technical data in support of the original FCC Part 90 filing may be sufficient but you have to demonstrate that the data is not higher than for Part 90 transmitters. Also, be aware that a device certified under Part 90 may be changed to Part 95 MURS, but it would lose the part 90 certification since a device cannot have both Part 90 and Part 95 MURS certification.
4. No, the end-user cannot change the crystal. FCC Part 95.645(b) states the following: "An R/C transmitter which incorporates plug-in frequency determining modules which are changed by the user must be certificated with the modules. Each module must contain all of the frequency determining circuitry including the oscillator. Plug-in crystals are not considered modules and must not be accessible to the user." When different plug-in crystals are required, an OEM may be allowed to install them only if the approval for multiple crystals and frequencies under one FCC identifier was permitted and the original application must include test data for each configuration. A permissive change to amend other crystals and frequencies is permitted only if the added frequency(ies) is within the range of the original grant; a new FCC ID is needed for crystal frequencies outside the original range.

OEM Integrator Responsibilities

QUESTION: An applicant is creating an international 802.11a/b/g DFS-capable DTS + UNII mini-PCI card. The manufacturer has the following two questions:

1. Can the applicant require the OEM integrator to be responsible for ensuring this device meets the DTS channel 12-13 prohibition?
2. Can the applicant require the OEM integrator to be responsible for ensuring that, when the module is used in a DFS-required UNII band, a separate DFS equipment authorization is obtained?

The bottom line is, can the Applicant put the burden of compliance on the OEM integrator? In both the above instances, drivers are available freely to OEM integrators and can be easily downloaded into the device.

ANSWER: OEM's cannot take responsibility for the end-use of a product. The FCC ID Grantee is not permitted, except in an extremely limited way, to place burden for compliance on OEM integrator.

We assume that an OEM is other companies that would integrate the device as a module into a host and your question is 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:

1. The module is capable of operating world wide- on both US and non-US frequencies.
2. The module only has partial capabilities for compliance with 15 E DFS and TPC requirements.
3. The third party host system (OEM integrator) would need to provide the missing controls for compliance.
4. 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.

For DFS and TPC, the third party would obtain a new certification. Note: the question "can a separate DFS equipment authorization be obtained for DFS" is not relevant to the grant for the module since the OEM would have to obtain a new authorization. The module, in this case would be an uncertified sub- assembly and the OEM needs a new certification for the ensemble (host and sub-assembly).

The answers may be different depending if the device is client or a master.

A client module (as defined in 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 dependent on the host.

There may be other possibilities 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, this 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 OEM's end product is always ensured.

However, these conditions are definitely not in line with your question: "Can the Applicant put the burden of compliance on the OEM integrator." The bottom line to your question is NO: the applicant cannot put the burden of compliance on the OEM integrator.

INTERNATIONAL UPDATE

EU: NEW CENELEC STANDARDS RELEASED THIS MONTH

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

- **EN 61326-3-1:2008** (6/27/2008) 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
- **EN 61326-3-2:2008** (6/27/2008) 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
- **EN 60730-1:2000/A2:2008** (7/4/2008) Automatic electrical controls for household and similar use -- Part 1: General requirements
- **CLC/TR 50462:2008** (7/4/2008) Rules for the determination of uncertainties in the measurement of the losses on power transformers and reactors
- **EN 61996-1:2008** (7/16/2008) Maritime navigation and radiocommunication equipment and systems - Shipborne voyage data recorder (VDR) -- Part 1: Voyage data recorder (VDR) - Performance requirements, methods of testing and required test results
- **EN 61996-2:2008** (7/16/2008) Maritime navigation and radiocommunication equipment and systems - Shipborne voyage data recorder (VDR) -- Part 2: Simplified voyage data recorder (S-VDR) - Performance requirements, methods of testing and required test results
- **EN 50500:2008** (7/16/2008) Measurement procedures of magnetic field levels generated by electronic and electrical apparatus in the railway environment with respect to human exposure
- **EN 60432-3:2003/A2:2008** (7/17/2008) Incandescent lamps - Safety specifications -- Part 3: Tungsten-halogen lamps (non-vehicle)
- **CLC/TS 61949:2008** (7/18/2008) Ultrasonics - Field characterization - In situ exposure estimation in finite-amplitude ultrasonic beams
- **EN 60318-6:2008** (7/23/2008) Electroacoustics - Simulators of human head and ear -- Part 6: Mechanical coupler for the measurement of bone vibrators

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 61010-031** (6/24/2008) 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
- **CISPR 16-1-4-am2** (6/25/2008) Amendment 2 - Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-4: Radio disturbance and immunity measuring apparatus - Ancillary equipment - Radiated disturbances
- **CISPR 16-SER** (7/9/2008) Specification for radio disturbance and immunity measuring apparatus and methods - ALL PARTS
- **IEC 62431** (7/9/2008) Reflectivity of electromagnetic wave absorbers in millimetre wave frequency - Measurement methods
- **IEC/PAS 61169-40** (7/9/2008) Radio- frequency connectors - Part 40: Sectional specification for 2.4 series R.F connectors
- **CISPR 16-2-5** (7/9/2008) Specification for radio disturbance and immunity measuring apparatus and methods - Part 2- 5: In situ measurements for disturbing emissions produced by physically large equipment
- **IEC 60335-2-55** (7/15/2008) Household and similar electrical appliances - Safety - Part 2-55: Particular requirements for electrical appliances for use with aquariums and garden ponds
- **IEC 60335-2-56** (7/15/2008) Household and similar electrical appliances - Safety - Part 2-56: Particular requirements for projectors and similar appliances
- **CISPR 14-2** (7/17/2008) Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 2: Immunity - Product family standard
- **IEC 60695-1-30** (7/21/2008) Fire hazard testing - Part 1-30: Guidance for assessing the fire hazard of electrotechnical products - Preselection testing process - General guidelines

See [IEC](http://iec.ch) 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 302 248 V1.1.2](#) (June 2008) Electromagnetic compatibility and Radio spectrum Matters (ERM); Navigation radar for use on non- SOLAS vessels; Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive
- [ETSI EN 302 500-1 V1.2.1](#) (June 2008) Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD) using Ultra WideBand (UWB) technology; Location Tracking equipment operating in the frequency range from 6 GHz to 8,5 GHz; Part 1: Technical characteristics and test methods
- [ETSI EN 302 500-2 V1.2.1](#) (June 2008) Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD) using Ultra WideBand (UWB) technology; Location Tracking equipment operating in the frequency range from 6 GHz to 8,5 GHz; Part 2: Harmonized EN covering essential requirements of article 3.2 of the R&TTE Directive
- [ETSI TS 125 101 V6.17.0](#) (June 2008) Universal Mobile Telecommunications System (UMTS); User Equipment (UE) radio transmission and reception (FDD) (3GPP TS 25.101 version 6.17.0 Release 6)
- [ETSI TS 134 124 V8.2.0](#) (July 2008) Universal Mobile Telecommunications System (UMTS); Electromagnetic compatibility (EMC) requirements for mobile terminals and ancillary equipment (3GPP TS 34.124 version 8.2.0 Release 8)
- [ETSI EN 302 502 V1.2.1](#) (July 2008) Broadband Radio Access Networks (BRAN); 5,8 GHz fixed broadband data transmitting systems; Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive

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

CHINA: UWB OPERATION

China's Radio Spectrum Management and Monitoring (SRRC) recently published a draft regulation with respect to the technical parameters for UWB operation. Requirements such as maximum mean power spectral density and transmitter spurious emissions are included in the aforementioned draft regulation. The publication also established that UWB devices will be subject to Equipment Type Approval.

FCC: WSD FIELD TESTING

On July 14, 2008, the FCC began field testing the performance of prototype television white space devices (WSDs). The FCC is conducting tests of prototype white spaces devices as part of its rule making to consider authorizing the operation of new low power devices in the TV broadcast spectrum at locations where individual channels/frequencies are not being used for authorized services (TV white spaces). [Link](#)

EU: HARMONIZATION OF THE 2500-2690 MHz BAND

On June 13, 2008, the European Commission issued the document "Commission Decision on the harmonization of the 2500-2690 MHz frequency band for terrestrial systems capable of providing electronic communications services in the Community."

According to this publication, within the next six months, Member States must designate and make available, on a non-exclusive basis, the 2500-2690 MHz band for terrestrial systems capable of providing electronic communications services, in compliance with the essential technical parameters for ensuring coexistence.

Some of the technical parameters are as follows:

- The assigned blocks shall be in multiple of 5 MHz
- Within the band 2500-2690 MHz, the duplex spacing for FDD operation shall be 120 MHz with terminal station transmission (up link) located in the lower part of the band starting at 2500 MHz (extending to a maximum limit of 2570 MHz) and base station transmission (down link) located in the upper part of the band starting at 2620 MHz
- The sub-band 2570-2620 MHz can be used by TDD or other usage modes complying with the

Black Edge Masks defined in the decision. Outside of the sub-band 2570-2620 MHz such usage can be decided at national level and shall be in equal parts in both the upper part of the band starting at 2690 MHz (extending downwards) and the lower part of the band starting at 2570 MHz (extending downwards)

[Link](#)

CANADA: NEW ISSUE OF SRSP-301.4

On July 5, 2008, Industry Canada released "*Technical Requirements for Fixed Radio Systems Operating in the Bands 1427-1452 MHz and 1492-1518 MHz (SRSP-301.4, Issue 4)*." This Standard states the minimum technical requirements for the efficient use of the frequency bands 1427-1452 MHz and 1492- 1518 MHz by subscriber radio systems (SRS) and narrowband multipoint communication systems (N- MCS), including utility telemetry systems, in the fixed service. This standard replaces SRSP-301.4 Issue 3. [Link](#)

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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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