

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 Part 15 Transmitters / Dummy Load

QUESTION: We are designing two Part 15 transmitters that operate below and above 30MHz. Under what conditions may we use a dummy load connected in place of the antenna when measuring AC power line conducted measurements?

ANSWER: The method used for AC power line conducted measurements with suitable dummy loads will differ whether it is a detachable or non- detachable antenna, and depending on whether the operating frequency is above or below 30 MHz.

A suitable dummy load is a radio frequency termination used in place of the antenna, which has the same electrical properties as the intended antenna without radiated emissions. A device with a suitable dummy load must supply identical signals to the dummy load, as it would if an antenna were connected. The test report shall note if a dummy load was used to obtain the results.

1. For a device with a Detachable Antenna: A device with a detachable antenna operating above 30 MHz must use Section 13.1.3.1 of ANSI C63.4- 2003 for AC line conducted emissions testing, using a suitable dummy load, and following the systematic procedures of C63.4 specified in Annex H, Paragraph H1.
2. For a device with a detachable antenna operating at or below 30 MHz, the Commission will accept measurements done with a suitable dummy load replacing the antenna under the following conditions:
 - Perform the AC line conducted tests with the antenna connected to determine compliance with Section 15.207 limits outside the transmitter's fundamental emission band.
 - Retest with a dummy load to determine compliance with Section 15.207 limits within the transmitter's fundamental emission band.
3. For a device with a Permanent Non- Detachable Antenna: For a device with a permanent antenna operating above 30 MHz, measurements must be done with the permanent antenna connected as specified in Annex H, Paragraph H1 of ANSI C63.4- 2003. For a device with a permanent antenna operating at or below 30 MHz, the FCC will accept measurements done with a suitable dummy load, in lieu of the permanent antenna under the following conditions:
 - Perform the AC line conducted tests with the permanent antenna to determine compliance with the Section 15.207 limits outside the transmitter's fundamental emission band.
 - Retest with a dummy load in lieu of the permanent antenna to determine compliance with the Section 15.207 limits within the transmitter's fundamental emission band.

FCC Rules for DFS as UNII

QUESTION: What additional Form 731 filing information, not specified in Section 8 (DFS Test Report Guidelines) in MO&O FCC 06-96 (DFS Order), is required in order for a DFS device to be approved as a UNII client device without radar detection capability operating in the 5.25 - 5.35 GHz and 5.45 - 5.725 GHz bands?

ANSWER: The following Form 731 Attachments are required, in addition to the test report required for a client device without radar detection, which is described in Section 8 (DFS Test Report Guidelines) in the DFS Order (FCC 06-96).

Statement of Conformity for the Client in Non-Associated mode: The Form 731 application must include a Cover Letter Attachment stating that the client software and associated drivers will not initiate any transmission on DFS frequencies. This includes transmissions for beacon ad-hoc peer-to-peer modes.

Test Report Attachment for the Client in Associated Mode: a) Test results demonstrating an associated client link is established with the master on a test frequency; b) The client and DFS-certified master device are associated, and the movie can be streamed as specified in the DFS Order for a non-occupancy period test; c) The device transmits one type of radar as specified in the DFS Order; d) The test frequency has been monitored to ensure no transmission of any type has occurred for 30 minutes; Note: If the client moves with the master, the device is considered compliant if nothing appears in the client non-occupancy period test. For devices that shut down (rather than moving channels), no beacons should appear; e) An analyzer plot that contains a single 30-minute sweep on the original test frequency

FCC Requirements for Satellite Receiver Systems

QUESTION: What are the equipment authorization requirements for satellite receiver systems?

ANSWER: A satellite receiver system consists of an outdoor dish antenna with one or more Low Noise Block-down converters, (LNB), connected to one or more indoor set-top receiver units. The dish antenna and each LNB receive about a 1.1 GHz block of frequencies typically assigned between 2 GHz to 12 GHz. The LNB translates the block into lower intermediate frequencies, typically between 950-2150 MHz, for transmission over a coaxial cable to the set-top receiver unit. The receiver unit usually connects to a TV, computer or other piece of equipment.

The set-top receiver unit is subject to DOC or Certification per 47 CFR 15.101(a), if it receives frequencies between 30-960 MHz. Its emissions should be tested based on the frequency range specified under Section 15.31(m), for the portion of the receiver that tunes below 960 MHz. If the receiver unit contains digital circuitry, the digital device portion of the receiver must be tested while the set-top receiver unit is tuned above 960 MHz. In the latter test, the receiver unit Local Oscillator (LO) emission and its harmonics may be ignored, but the remaining emissions are considered to be from the digital circuitry. Although a set-top receiver unit that only tunes into frequencies above 960 MHz may be exempt from the receiver requirements according to 15.101 (b), it may still need to be verified if it includes digital circuitry above 9 kHz. In most cases, additional authorization procedures and testing may likely be applicable in the following situations:

1. The set-top receiver unit has an RF modulator output (channel 3 or 4), that connects to the RF Input of the TV. This causes the receiver unit to be subject to DOC or Certification, plus the requirements of a TV Interface device (47 CFR 15.114).
2. The set-top receiver unit may be designed to connect to a Class B computer via a LAN, USB or Firewire (IEEE 1394) port. In this case, the set-top receiver unit is subject to DOC or Certification per Section 15.101(a) as a Class B computer peripheral.

FCC Part 15 & Part 18 Labeling Requirements

QUESTION: What are the labeling and user information requirements for Part 15 and Part 18 devices?

ANSWER: The FCC provides the following link regarding labeling and user Information for Part 15 and Part 18 devices. The guideline is "784748 D01 Labeling Part 15 18 Guidelines v06" [Link](#)

The FCC also provides 300 (ppi) artwork for Declaration of Conformity labels that are available from its website. [Link](#)

INTERNATIONAL UPDATE

EU: NEW CENELEC STANDARDS RELEASED THIS MONTH

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

- **EN 62320-2:2008** (5/28/2008) Maritime navigation and radiocommunication equipment and systems - Automatic identification system (AIS) - Part 2: AIS AtoN Stations - Operational and performance requirements, methods of testing and required test results
- **EN 60335-2-6:2003/A2:2008** (5/28/2008) Household and similar electrical appliances - Safety -- Part 2-6: Particular requirements for stationary cooking ranges, hobs, ovens and similar appliances
- **EN 60255-22-4:2008** (6/5/2008) Measuring relays and protection equipment -- Part 22-4: Electrical disturbance tests - Electrical fast transient/burst immunity test
- **EN 60255-22-2:2008** (6/5/2008) Measuring relays and protection equipment -- Part 22-2: Electrical disturbance tests - Electrostatic discharge tests
- **EN 60695-8-1:2008** (6/6/2008) Fire hazard testing -- Part 8-1: Heat release - General guidance
- **EN 60335-2-12:2003/A1:2008** (6/20/2008) Household and similar electrical appliances - Safety -- Part 2-12: Particular requirements for warming plates and similar appliances
- **EN 50475:2008** (6/20/2008) Basic standard for the calculation and the measurement of human exposure to electromagnetic fields from broadcasting service transmitters in the HF bands (3 MHz - 30 MHz)
- **EN 50476:2008** (6/20/2008) Product standard to demonstrate the compliance of broadcast station transmitters with the reference levels and the basic restrictions related to public exposure to radio frequency electromagnetic fields (3 MHz - 30 MHz)

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:

- **CISPR 14-2-am2** (5/27/2008) Amendment 2 - Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 2: Immunity - Product family standard
- **IEC 61000-4-7-am1** (6/11/2008) Amendment 1 - Electromagnetic compatibility (EMC) - Part 4-7: Testing and measurement techniques - General guide on harmonics and interharmonics measurements and instrumentation, for power supply systems and equipment connected thereto
- **IEC 62310-3** (6/11/2008) Static transfer systems (STS) - Part 3: Method for specifying performance and test requirements
- **IEC 62040-1** (6/11/2008) Uninterruptible power systems (UPS) - Part 1: General and safety requirements for UPS
- **IEC 61000-3-3** (6/23/2008) Electromagnetic compatibility (EMC) - Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current less than or equal to 16 A per phase and not subject to conditional connection
- **IEC 61967-6** (6/24/2008) Integrated circuits - Measurement of electromagnetic emissions, 150 kHz to 1 GHz - Part 6: Measurement of conducted emissions - Magnetic probe method
- **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

- **IEC 60730-2-9** (6/25/2008) Automatic electrical controls for household and similar use - Part 2-9: Particular requirements for temperature sensing controls
- **CISPR 16-SER** (6/25/2008) Specification for radio disturbance and immunity measuring apparatus and methods - ALL PARTS

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 EN 300 440-1 V1.4.1](#) (May 2008) Electromagnetic compatibility and Radio spectrum Matters (ERM); Short range devices; Radio equipment to be used in the 1 GHz to 40 GHz frequency range; Part 1: Technical characteristics and test methods
- [ETSI EN 300 440-2 V1.2.1](#) (May 2008) Electromagnetic compatibility and Radio spectrum Matters (ERM); Short range devices; Radio equipment to be used in the 1 GHz to 40 GHz frequency range; Part 2: Harmonized EN covering essential requirements of article 3.2 of the R&TTE Directive
- [ETSI TR 102 748 V1.1.1](#) (May 2008) Electromagnetic compatibility and Radio spectrum Matters (ERM); Impact of the trend towards flexibility in spectrum usage on the principles for drafting Harmonized Standards and the ETSI work programme for Harmonized Standards
- [ETSI TS 102 754 V1.1.1](#) (June 2008) Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Technical characteristics of Detect-And-Avoid (DAA) mitigation techniques for SRD equipment using Ultra Wideband (UWB) technology
- [ETSI TS 125 113 V8.2.0](#) (June 2008) Universal Mobile Telecommunications System (UMTS); Base station and repeater electromagnetic compatibility (EMC) (3GPP TS 25.113 version 8.2.0 Release 8)

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

FCC: COMMENTS REQUESTED ON PROPOSED AWS RULE CHANGES

On June, 20, 2008, the FCC released a notice of proposed rulemaking that proposes public access to free, nationwide, high-speed wireless broadband Internet services using a portion of the winning bidder's network in the 2.1 GHz Advanced Wireless Services (AWS) spectrum. The notice specifically seeks comment on proposed rules for the AWS spectrum in the 1915-1920 MHz, 1995-2000 MHz, and 2155-2180 MHz bands. [Link](#)

CANADA: NEW REVISION OF BETS-7

On June 20, 2008, Industry Canada released a new issue of the Broadcasting Equipment Technical Standard No. 7 (BETS-7). Modifications to the existing BETS-7 are as follows:

1. Standard Television Receiving Apparatus: The technical requirements include channel selection, noise figure and radiation emission limits.
2. Standard Cable Compatible Television Receiving Apparatus - Digital ATSC reception: The technical requirements include channel selection, cable input conducted emissions, radiation emission limits and analog NTSC reception.
3. Supplementary Television Receiving Apparatus: The technical requirements include channel selection and radiation emission limits.
4. Standard Cable Compatible Television Receiving Apparatus - Analog NTSC reception: The additional technical requirements include noise figure, adjacent channel interference, direct pick-up interference, impedance, receiver overload and image channel interference.

The new labeling requirements now focus on the three broad categories of television receiving apparatus: the Standard Television Receiving Apparatus (for digital or analog reception), the Cable Compatible Television Receiving Apparatus (digital or analog) and the Supplementary Television Receiving Apparatus (digital or analog). [Link](#)

SWITZERLAND: TELECOMMUNICATIONS EQUIPMENT

Beginning May 15, 2008, barriers will fall between the European Community and Switzerland for placing radiocommunications equipment on the market. Switzerland's OFCOM (Federal Office of Communication) has adopted the Frequency Management and Radiocommunications Licences Ordinance as well as the

Telecommunications Installations Ordinance. This action eliminates the final discrepancies between Swiss law and that of the European Community in these areas. [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.

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