



November 2007

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](#).

Part 18 and Part 15 Device

QUESTION: We manufacture a device that uses radio frequency energy to cancel the magnetic fields of computer monitors. Does our device require FCC approval?

ANSWER: If your device uses RF energy above 9 kHz to perform work such as canceling a magnetic field, then it is regulated by the FCC under Part 18, Industrial Scientific Medical (ISM) Equipment. The device must be tested, labelled and documented according to the equipment authorization procedures specified under Part 18, Subpart B before it can be marketed.

There are different applicable procedures and technical limits, depending on the type of device and the application for which it is marketed (see Part 18 Subpart C). In general, if this type of device is intended for consumer use, the equipment authorization procedure is Declaration of Conformity or Certification. The procedure for non- consumer equipment is Verification under Part 2, Subpart J - Marketing of Radio Equipment.

If the Part 18 function is integrated into a computer monitor, it will also be subject to Part 15 regulations as an unintentional radiator under Section 15.101. A computer monitor is classified as a Class B, Personal Computer Peripheral, subject to the Declaration of Conformity or Certification equipment authorization procedure. In general, testing for compliance to different regulations is accomplished by disabling the Part 18 transmitter function to determine if the unit meets the Part 15 requirements. Test reports and documentation of compliance must be clearly segmented to identify the procedure used to determine compliance to both rule parts. Labeling requirements will depend on the combination of equipment authorization procedures. If both are Verification or Declaration of Conformity (DoC), then the labeling requirements for a Part 15 device is applicable. If one is Verification and the other is DoC, then the DoC label is applicable. For a Certification procedure the Certification's FCC ID or IDs (for separate Certifications) must be on the device in addition to any applicable DoC label.

FCC Part 27 Measurement Procedure

QUESTION: Can you clarify the procedures for measuring the emissions limit in FCC 47 CFR 27.53 of the FCC rules for devices operating under Part 27 in the frequency bands 746-764 MHz and 776-794 MHz? Specifically, can you clarify the following?

a) 47 CFR 27.53(b)(3) states that emissions on all frequencies between 764 to 776 MHz and 794 to 806 MHz shall be attenuated below the transmitter power by a factor not less than $76 + 10 \log(P)$ dB in a 6.25 kHz segment.

Does this mean that all emissions shall be measured in 6.25 kHz segment and compared to the total transmitted power in a licensee's frequency band? If this is true, if a licensee occupies a 5 MHz band and transmits a wide-band signal with equal power across the band, then relative to a 6.25 kHz segment in-band (on a per Hz basis), the emissions must be attenuated by $76 + 10 \log(P) - 10 \log(5 \text{ MHz}/6.25 \text{ kHz}) = 47 + 10 \log(P)$ dB.

b) 47 CFR 27.53(b)(5) states that measurement instrumentation for measuring emissions outside the licensee's band should employ resolution of 100 kHz or greater, except 30 kHz should be employed within the nearest 100 kHz. Suppose that emissions are being measured in 100 kHz or 30 kHz segments and are being compared to the total power inside the licensee's band. Is it correct that for the above example of a 5 MHz wide signal on a per Hz basis the required attenuation is $43 + 10 \log(P) - 10 \log(5 \text{ MHz}/100 \text{ kHz}) = 26 + 10 \log(P)$ dB?

ANSWER: a) Yes, the term P as used in the attenuation formula $76 + 10 \log(P)$ is the total power of the transmitter. The net effect of the above-cited formula is that the levels (in dB) of the undesired emissions relative to the level of the desired emissions are less than the dB figure given in the above-cited formula. On a spectrum analyzer, the levels of the desired emissions for a modulated signal with uniform spectral distribution appear in proportion to the ratio of the occupied bandwidth of the modulated spectrum to the spectrum analyzer resolution bandwidth (RBW) used. Several factors will affect the reading - including the measurement RBW used, the actual shape of the modulated signal and the modulation method used. The actual specification remains as written: $76 + 10 \log(P)$ for emissions in a 6.25 kHz band segment.

b) The response in question a also applies to question b. Compliance with the emissions limit at the frequency block edges are a function of the placement of the desired emission with respect to the frequency block edge. The FCC Grant of Certification lists the highest and lowest operating (center) frequency that will enable compliance with the emissions limit at the frequency block edges. All readings of emissions are to be adjusted by the ratio of the specified measurement band (width) or segment to the actual RBW used.

Cellular Phone Blocking Devices

QUESTION: Our firm plans to import cellular phone blockers for sale in the United States. Will the FCC allow the operation of such a device?

ANSWER: No, cellular phone blockers are illegal and may not be imported into the USA or installed in the USA. These devices jam the operation of a cellular telephone and are considered harmful interference to a licensed radio service (47 CFR Part 2.803).

FCC Approval for HF SSB Combo

QUESTION: We have a High Frequency (HF) Single Side Band (SSB) transmitter that we have combined with a Part 80 radio. We plan to present the Part 80 application to our TCB or the FCC for approval. It may not be obvious that our transmitter/radio can be also be marketed for amateur work. Does the FCC allow such combos?

ANSWER: Part 80/97 combo devices are prohibited by the FCC. Please see the list below and note the only exceptions.

Any device that applies for an equipment authorization to operate under multiple radio services is referred to as a combo; the Wireless Telecommunications Bureau (WTB) approves combinations. The list below released by the FCC is a guide for combinations that have been either approved or rejected as of 11/09/2007.

All Part 15 devices are generally not included in this definition and are prohibited unless allowed by the FCC, for example, specific combinations such as Part 15 and Part 101 devices at 92-95 GHz.

Combination Radio Guide list approved by the FCC as of 11/09/2007:

- FRS/GMRS combo - approved
- Part 95G/Part 22/24/90 combos - approved
- Part 80 VHF (156-163 MHz)/FRS combo - approve
- Part 80 UHF (456-468 MHz)/ FRS, GMRS, or FRS/GMRS combos - prohibited
- MURS (Part 95J) combos - prohibited
- Amateur (Part 97) combos - prohibited
- Part 15 /Part 101 at 92-95 GHz - prohibited

Amateur (Part 97) combo transceivers are not permitted. The one exception is that Part 97 (Amateur)/Part 87 (Aviation VHF 118- 136.975 MHz) combo transceivers are permitted provided that marketing conditions are met. The FCC may issue Grant condition that states the following: *"This device is for a combination amateur (Part 97) and Aviation (Part 87) device."* The holder of this certificate will market this radio only to the aviation community including licensed pilots, aircraft owners, other Aeronautical Radio licensees, and other legitimate members of the aviation industry, and to vendors for such customers, through aeronautical marketing and distribution outlets such as websites, magazines and catalogues intended primarily for such audience.

Part 97/87 Combo transceivers must be approved by the FAA Spectrum Engineering Division as specified in 47 CFR Section 87.147(d). Furthermore, the FAA approval letter must be included in the application as a letter exhibit. All combo devices must meet RF exposure requirements and all other FCC Rules. In addition there may be additional requirements or restrictions enforced by WTB.

Questions about specific combinations may be submitted to the FCC at <http://www.fcc.gov/labhelp> - use the link "[Submit an Inquiry](#)" to access the form to submit a question.

INTERNATIONAL UPDATE

EU: NEW CENELEC STANDARDS RELEASED THIS MONTH

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

- **EN 61558-2-7:2007** (10/30/2007) Safety of power transformers, power supplies, reactors and similar products -- Part 2-7: Particular requirements and tests for transformers and power supplies for toys
- **EN 61023:2007** (10/31/2007) Maritime navigation and radiocommunication equipment and systems - Marine speed and distance measuring equipment (SDME) - Performance requirements, methods of testing and required test results
- **EN 55022:2006/A1:2007** (10/31/2007) Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement
- **EN 61557-6:2007** (11/7/2007) Electrical safety in low voltage distribution systems up to 1 000 V a.c. and 1 500 V d.c. - Equipment for testing, measuring or monitoring of protective measures -- Part 6: Effectiveness of residual current devices (RCD) in TT, TN and IT systems
- **EN 62379-1:2007** (11/9/2007) Common control interface for networked digital audio and video products -- Part 1: General
- **EN 60335-2-9:2003/A12:2007** (11/9/2007) Household and similar electrical appliances - Safety -- Part 2- 9: Particular requirements for grills, toasters and similar portable cooking appliances
- **EN 60086-4:2007** (11/16/2007) Primary batteries -- Part 4: Safety of lithium batteries
- **EN 61193-2:2007** (11/22/2007) Quality assessment systems -- Part 2: Selection and use of sampling plans for inspection of electronic components and packages

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 60335-2-30** (11/7/2007) Household and similar electrical appliances - Safety - Part 2-30: Particular requirements for room heaters
- **IEC 61000-4-3-am1** (11/7/2007) Amendment 1 - Electromagnetic compatibility (EMC) - Part 4-3: Testing and measurement techniques - Radiated, radio- frequency, electromagnetic field immunity test
- **IEC 61326-2-2 Corr.1** (11/14/2007) Corrigendum 1 - Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 2-2: Particular requirements - Test configurations, operational conditions and performance criteria for portable test, measuring and monitoring equipment used in low-voltage distribution systems
- **IEC 62153-4-0** (11/14/2007) Metallic communication cable test methods - Part 4-0: Electromagnetic compatibility (EMC) - Relationship between surface transfer impedance and screening attenuation, recommended limits
- **IEC 60730-2-17** (11/21/2007) Automatic electrical controls for household and similar use - Part 2-17: Particular requirements for electrically operated gas valves, including mechanical requirements
- **IEC 60601-1-10** (11/21/2007) Medical electrical equipment - Part 1-10: General requirements for basic safety and essential performance - Collateral Standard: Requirements for the development of physiologic closed-loop controllers
- **IEC 62153-4-1** (11/21/2007) Metallic communication cable test methods - Part 4-1: Electromagnetic compatibility (EMC) - Introduction to electromagnetic (EMC) screening measurements
- **IEC 60884-2-4** (11/21/2007) Plugs and socket-outlets for household and similar purposes - Part 2-4: Particular requirements for plugs and socket- outlets for SELV
- **IEC 61892-3** (11/21/2007) Mobile and fixed offshore units - Electrical installations - Part 3: Equipment
- **IEC 60601-1-SER** (11/21/2007) Medical electrical equipment - ALL PARTS

See [IEC](http://www.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 300 132-2 V2.2.2](#) (October 2007) Environmental Engineering (EE); Power supply interface at the input to telecommunications equipment; Part 2: Operated by direct current (dc)
- [ETSI EN 302 217-4-1 V1.2.1](#) (October 2007) Fixed Radio Systems; Characteristics and requirements for point-to-point equipment and antennas; Part 4-1: System-dependent requirements for antennas
- [ETSI EN 302 217-4-2 V1.3.1](#) (October 2007) Fixed Radio Systems; Characteristics and requirements for point-to-point equipment and antennas; Part 4-2: Harmonized EN covering essential requirements of Article 3.2 of R&TTE Directive for antennas
- [ETSI EN 300 720-2 V1.2.1](#) (November 2007) Electromagnetic compatibility and Radio spectrum Matters (ERM); Ultra-High Frequency (UHF) on-board vessels communications systems and equipment; Part 2: Harmonized EN under article 3.2 of the R&TTE Directive
- [ETSI EN 302 536-1 V1.1.1](#) (November 2007) Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Radio equipment in the frequency range 315 kHz to 600 kHz; Part 1: Technical characteristics and test methods
- [ETSI EN 302 536-2 V1.1.1](#) (November 2007) Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Radio equipment in the frequency range 315 kHz to 600 kHz; Part 2: Harmonized EN covering essential requirements of article 3.2 of the R&TTE Directive
- [ETSI EN 300 394-1 V3.1.1](#) (November 2007) Terrestrial Trunked Radio (TETRA); Conformance testing specification; Part 1: Radio

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

FCC: PERMISSIVE CHANGE POLICY CLARIFICATION

FCC Permissive change rules are located in Section 2.1043. These rules indicate the types of changes allowed to be made without filing for a new authorization. Changes to the basic frequency determining and stabilizing circuitry (including clock and data rates), frequency multiplication stages, basic modulator circuit or maximum power or field strength ratings require a new FCC ID to be obtained. These rules also indicate what types of Permissive changes exist and when a Permissive Change filing is required. Section 2.1043 provides general Permissive change policies and more specific policies can be found in FCC interpretation documents.

On November 13, 2007, the FCC issued an interpretation document which clarifies the following:

- Antenna changes
- PCB and Hardware changes
- Enclosure changes
- Software changes
- Miscellaneous changes such as non- modular to modular approval, change from SDR to non-SDR (or vice versa), addition of new modulation, and change in modulation [Link](#)

MALAYSIA: NEW TECHNICAL SPECIFICATIONS ISSUED

On November 19, 2007, the Malaysian Communications and Multimedia Commission issued notice of new technical specifications for the testing and certification of fixed line and wireless communication equipments used or sold in Malaysia. These specifications will supersede the previously issued specifications in accordance to section 275 of the Communications and Multimedia Act 1998 (CMA 98) of Jabatan Telekom Malaysia. The new technical specifications come into full effect on 4/16/2008 (6 months transition period). [Link](#)

AUSTRALIA: ACMA PROPOSES RADIO LAW CHANGES

On November 2, 2007, ACMA issued a statement proposing to modify the Radiocommunications (Low Interference Potential Devices) Class License 2000 (the LIPD Class License) and revoke the Radiocommunications (Infrared Devices) Class License 2002 (the Infrared Class Licence). The LIPD Class License contains the license conditions, operating requirements and technical parameters associated with the operation of a wide range of low power radiocommunications devices operating in various segments of the radiofrequency spectrum. The Infrared Class License authorizes the operation of devices that transmit infrared energy for radiocommunications purposes over short ranges. ACMA proposes to vary the LIPD Class by adding the following three new items:

- Infrared transmitters in the 187.5-420 THz band
- Short-range low power transmitters using analogue modulation techniques in the 5.8 GHz band for Industrial, Scientific and Medical applications
- WPAN in indoor environments in the 57- 66 GHz band

ACMA is also proposing to extend the arrangements for the following existing items in the LIPD Class License:

- Short range broadband wireless communications services used outdoors in the 59-63 GHz band
- Wireless audio transmitters to include datacasting stations
- Biomedical telemetry transmitters
- Transmitters used for underground communications
- Radiodetermination transmitters operated in radiofrequency-shielded enclosures
- 5 GHz band for RLAN access and insert a monitoring requirement in the limitations
- Medical implant communications transmitters
- Medical implant telemetry transmitters

Under section 136 of the ACMA Radiocommunications Act 1992, the proposed changes are subject to one month public comment/review and comments may be sent in writing to the ACMA. [Link](#)

EU: UPDATED STANDARDS LIST FOR EMC AND R&TTE DIRECTIVES

The EU Commission recently published an updated list of standards used to demonstrate conformity with the essential requirements of the EMC Directive (89/336/EEC). The list was published in the September 25th issue of the Official Journal of the European Union and replaces all previously published standards list for the directive. [Link](#) The EU Commission also published an updated list of standards used to demonstrate conformity with the essential requirements of the R&TTE Directive (1999/5/EC). This list was also published on September 25th and replaces all previously published lists for the R&TTE Directive. [Link](#)

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. A special thank you to those who have recommended and contributed articles for our newsletter. Please continue to forward new and interesting material to our attention: multipt@rheintech.com. We respect the privacy of our customers and colleagues. If you would like to cancel your MultiPoint updates, please follow the instructions at the end of this email. The information in the MultiPoint update is subject to change without notice.

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