



March 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](#).

FCC Rules for VSB Translators

QUESTION: Our firm manufactures 8-VSB translators used in Digital TV. What are the FCC's rules and regulations governing these translators?

ANSWER: 8-VSB is the RF modulation format utilized by the DTV (ATSC) digital television standard to transmit digital bits over the airwaves to the home viewer. Terrestrial TV systems must overcome numerous channel impairments such as ghosts, noise bursts, signal fades, and interference in order to reach the home viewer. The 8-VSB format is the cornerstone upon which the DTV standard is based. An 8-VSB translator is a device that receives off-air Digital TV signals (ATSC receiver), either translates down-convert/up-convert, or translates, and trans-modulates to Quadrature Amplitude Modulation (QAM) for further distribution over a Cable, Master Antenna, or Satellite Master Antenna Television (SMATV) cable television system.

The 8-VSB translator must be compliant with the FCC's requirements in following three areas:

1. As a Part 15 receiver and a Class A or a Class B Digital Device
2. As a Part 73 Digital Broadcast Television Re-distribution Control
3. As a Part 76 Multi-channel Video and Cable Distribution System

You may wish to market this device differently, that is, from a device that is only used in Head-End Cable Systems to in-building Master Antenna Systems. You must therefore understand the FCC's rules and apply them to the different market target of your choice.

8-VSB (ATSC) receivers must comply with the following requirements:

1. FCC Part 15, Subpart A
2. General FCC Part 15, Subpart B - Unintentional Radiators
3. FCC Part 73, Subpart L - Digital Broadcast Television Redistribution Control (Section 73.8000 of the FCC's rules)
4. FCC Part 76, Subpart D - Carriage of Television Signals
5. FCC Part 76, Subpart K – Technical Standards

RF Exposure and Health Risks

QUESTION: In the US, what agencies recommend the safe levels of RF exposure?

ANSWER: The FCC regulates the recommended safe levels of radio frequency exposure from towers, as well as other radio frequency devices such as cell phones. The links below provide an overview of radio frequency exposure regulations and health effects. Additionally, the EPA, FDA, National Institute for Occupational Safety and Health (NIOSH) and the Occupational Safety and Health Administration (OSHA) are also involved in monitoring and investigating issues related to RF exposure. See recommended websites for more information.

- [FCC \(OET\) Bulletin Number 56 Biological Effect](#)
- [FCC \(OET\) Bulletin No. 65 Exposure to Radiofrequency Electromagnetic Fields](#)
- [FCC Radio Frequency Safety](#)
- [FDA Cell Phone Facts](#)
- [World Health Organization](#)
- [Additional Federal Agencies](#)

FCC Rules for IEEE802-16e WiMAX Devices

QUESTION: Our firm has manufactured a WiMAX device in accordance with the IEEE 802.16e contention based protocol operating in the 3650-3700 MHz band. What FCC rule part and procedure addresses operations and authorization in this band?

ANSWER: The Table of Frequency Allocations in 47 CFR 2.106 found at (<http://www.access.gpo.gov/cgi-bin/cfrassemble.cgi?title=200547>) shows the various FCC Rule Parts applicable to particular frequency bands. For the 3650 MHz – 3700 MHz band, Part 25 (Satellite Communications), Part 90 (Private Land Mobile Radio Service), including various qualifying footnotes is applicable. In 2005, the FCC adopted new rules for operation in the 3650 – 3700 MHz band (see 47 CFR 90 Subpart Z Wireless Broadband Services in the 3650-3700 MHz Band). There are presently several petitions for reconsideration of the order. One petitioned item is the request to review technical requirements for the use of contention-based protocol for equipment to operate in this band (see 47 CFR 90.7, 90.203, 90.1305 and 90.1321). Presently, the FCC may delay any application for equipment authorizations under 47 CFR 90 subpart Z until proper resolution of this issue. The FCC's technical rules do not reference any specific technologies or protocols, such as WiMAX, IEEE 802.16, or IEEE 802.16e.

Industry Canada Requirements for a Booster Amplifier

QUESTION: Our company manufactures a dual band, bi-directional booster amplifier device for use with mobile cellular phones. The device is a bi- directional booster amplifier for up-link and downlink transmission. Does Industry Canada allow the certification of this type of device?

ANSWER: Yes, Industry Canada will allow certifying a dual band, bi-directional booster amplifier device for use with mobile cellular phones under the RSS-131 standard. Furthermore, RSS-131 also sets out band translators standards (i.e. a zone enhancer with a frequency band change) for the land mobile service, excluding those for the broadcasting service. Typical uses for enhancers are to compensate for transmission line losses in distributed antenna systems or to enhance the signal strength in shadowed areas, such as in cellular, paging and other land mobile applications.

FCC Rules for Personal Locator Beacons

QUESTION: We manufacture a Personal Locator Beacon (PLB) with homing frequency at 121 MHz and Digital Selective Calling alerts at 156.525 MHz. What FCC test procedure applies to this device?

ANSWER: The FCC measurement procedure for testing PLB transmitters with a homing frequency at 121 MHz is located in Part 2(N) and is online at this [link](#).

The DSC standards are contained in an International Telecommunications Union (ITU) document cited in Section 80.359(b) of the FCC rules. It appears that budget and staff constraints at the Wireless Telecommunications Bureau (WTB) of the FCC have contributed to the Marine standards for the FCC being out dated or surpassed by the international regulations. In most cases, the FCC follows the international regulations but also allows the DSC test procedures for the 156.525 MHz transmitter contained in RTCM Recommended Standards for Maritime Survivor Locating Devices (MSLD) Version 1.0 developed by Radio Technical Committee on Marine Services (RTCM) Special Committee number 119. This standard, RTCM Paper 240-2004/SC119- STD - RTCM Recommended Standards for Maritime Survivor Locating Devices (MSLD) version 1 DEC 10 can be obtained by telephone at 703-527-2000 from the RTCM.

INTERNATIONAL UPDATE

EU: NEW CENELEC STANDARDS RELEASED THIS MONTH

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

- **EN 60601-2-13:2006 / A1:2007** (3/16/07) Medical electrical equipment -- Part 2-13: Particular requirements for the safety and essential performance of anaesthetic systems
- **EN 50272-4:2007** (3/16/07) Safety requirements for secondary batteries and battery installations - - Part 4: Batteries for use in portable appliances
- **EN 62320-1:2007** (3/14/07) Maritime navigation and radiocommunication equipment and systems - Automatic Identification Systems (AIS) -- Part 1: AIS Base Stations - Minimum operational and performance requirements, methods of testing and required test results
- **EN 60335-2-81:2003 / A1:2007** (3/9/07) Household and similar electrical appliances - Safety -- Part 2- 81: Particular requirements for foot warmers and heating mats
- **EN 61340-3-2:2007** (3/9/07) Electrostatics -- Part 3-2: Methods for simulation of electrostatic effects - Machine model (MM) electrostatic discharge test waveforms
- **EN 60335-2-24:2003 / A2:2007** (3/9/07) Household and similar electrical appliances - Safety -- Part 2- 24: Particular requirements for refrigerating appliances, ice-cream appliances and ice- makers
- **EN 60335-2-53:2003 / A1:2007** (3/9/07) Household and similar electrical appliances - Safety -- Part 2-53: Particular requirements for sauna heating appliances
- **EN 61000-4-1:2007** (3/2/07) Electromagnetic compatibility (EMC) -- Part 4-1: Testing and measurement techniques - Overview of IEC 61000-4 series
- **EN 50478:2007** (2/21/07) Functional receiver specification of satellite digital interactive television with a low data rate return channel via satellite - Modem layer specification
- **EN 62310-2:2007** (2/21/07) Static transfer systems (STS) -- Part 2: Electromagnetic compatibility (EMC) requirements

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 60068-2-1** (3/13/07) Environmental testing - Part 2-1: Tests - Test A: Cold
- **IEC 62272-2** (3/13/07) Digital radio mondiale (DRM) - Part 2: Digital radio in the bands below 30 MHz - Methods of measurement for DRM transmitters
- **IEC 60068-3-12** (3/12/07) Environmental testing - Part 3- 12: Supporting documentation and guidance - Method to evaluate a possible lead-free solder reflow temperature profile
- **IEC 60335-2-87-am1** (3/07/07) Amendment 1 - Household and similar electrical appliances - Safety - Part 2- 87: Particular requirements for electrical animal-stunning equipment
- **IEC 60335-2-27-am2** (3/07/07) Amendment 2 - Household and similar electrical appliances - Safety - Part 2- 27: Particular requirements for appliances for skin exposure to ultraviolet and infrared radiation
- **IEC 60335-2-30-am2** (03/07/07) Amendment 2 - Household and similar electrical appliances - Safety - Part 2- 30: Particular requirements for room heaters
- **IEC 60034-9-am1** (03/07/07) Amendment 1 - Rotating electrical machines - Part 9: Noise limits
- **IEC 60335-2-106** (2/23/07) Household and similar electrical appliances - Safety - Part 2- 106: Particular requirements for heated carpets and for heating units for room heating installed under removable floor coverings
- **CISPR 16-1-4** (2/20/07) Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-4: Radio disturbance and immunity measuring apparatus - Ancillary equipment - Radiated disturbances
- **IEC 62320-1** (2/20/07) Maritime navigation and radiocommunication equipment and systems - Automatic identification system (AIS) - Part 1: AIS Base Stations - Minimum operational and performance requirements, methods of testing and required test results

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 301 025-1 V1.3.1](#) (February 2007) Electromagnetic compatibility and Radio spectrum Matters (ERM); VHF radiotelephone equipment for general communications and associated equipment for Class "D" Digital Selective Calling (DSC); Part 1: Technical characteristics and methods of measurement
- [ETSI EN 301 025-2 V1.3.1](#) (February 2007) Electromagnetic compatibility and Radio spectrum Matters (ERM); VHF radiotelephone equipment for general communications and associated equipment for Class "D" Digital Selective Calling (DSC); Part 2: Harmonized EN under article 3.2 of the R&TTE Directive
- [ETSI EN 301 025-3 V1.3.1](#) (February 2007) Electromagnetic compatibility and Radio spectrum Matters (ERM); VHF radiotelephone equipment for general communications and associated equipment for Class "D" Digital Selective Calling (DSC); Part 3: Harmonized EN under article 3.3 (e) of the R&TTE Directive
- [ETSI EN 301 929-1 V1.2.1](#) (February 2007) Electromagnetic compatibility and Radio spectrum Matters (ERM); VHF transmitters and receivers as Coast Stations for GMDSS and other applications in the maritime mobile service; Part 1: Technical characteristics and methods of measurement
- [ETSI EN 301 929-2 V1.2.1](#) (February 2007) Electromagnetic compatibility and Radio spectrum Matters (ERM); VHF transmitters and receivers as Coast Stations for GMDSS and other applications in the maritime mobile service; Part 2: Harmonized EN under article 3.2 of the R&TTE Directive
- [ETSI EG 201 788 V1.2.1](#) (February 2007) Electromagnetic compatibility and Radio spectrum Matters (ERM); Guidance for drafting an ETSI System Reference Document

See [ETSI](#) for additional information.

BRAZIL: ANATEL ADOPTS RULES FOR 3G MOBILE

Brazil's National Communications Agency, Anatel, recently adopted regulations on conditions for use of radio frequencies in the 800 MHz, 900 MHz, 1800 MHz, 1900 MHz, and 2100 MHz bands to provide personal mobile service. The regulations provide for 120 MHz for third generation (3G) cellular telephony, with blocks of (55 + 55) MHz in the 1.9 GHz band (uplink) and 2.1 GHz band (downlink), and two blocks of 5 MHz for Time Division Duplex (TDD), a technology that transmits and receives data asymmetrically in the same band, at 1.9 GHz. [Link](#)

PORTUGAL: ANACOM APPROVES 2007 NFAP

Portugal's National Communications Authority, ANACOM, recently approved the 2007 version of the National Frequency Allocation Plan (NFAP). The new plan, which is currently undergoing public consultation, implements the following important changes:

- The compulsory use of the 900 MHz band for GSM technology has been abolished, allowing the spectrum to be used more efficiently.
- NFAP 2007 seeks public comment interest in the use of the part of the spectrum with frequency bands reserved for use by terrestrial mobile services (450 MHz, 900 MHz and 1800 MHz bands).
- The provision, which previously reserved the GSM spectrum in the 900 and 1800 MHz bands for current operators of terrestrial mobile services where such operators could demonstrate necessity, has been revoked. This part of the spectrum is now included for purposes of expression of interest.
- Updated information on the reserved frequency bands that are to be made available this year, most importantly for terrestrial television broadcasting (DVB-T).
- Updated section on spectrum use that is exempt from radio licensing.

The adoption and annual publication of the NFAP is governed by the Portuguese Electronic Communications Law. Under the terms of this law ANACOM is authorized, within the general scope of spectrum management, to plan frequency use in line with the following criteria: a) availability of the radio spectrum; b) guarantee of conditions for effective competition in the relevant markets and c) effective and efficient use of frequencies. [Link](#)

EU: UWB HARMONIZATION

In late February 2007, the EU adopted a decision outlining the mandatory conditions for using ultra-wideband (UWB) technology in next generation wireless devices all across the European Union. The EU Commission hopes the decision will ensure that no interference takes place with other wireless users. The technical conditions in the decision must be applied within the next six months throughout the EU's 27 Member States. [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. [Learn More](#)