



Issue 11 / January 2004

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. Thus, we hope you find our updates valuable, and welcome your calls and or emails if you have any special needs or questions. Please call at 703-689-0368 or email us at <mailto:multipoint@rheintech.com>

Also, please see our website at www.rheintech.com for MultiPoint archives, [facility virtual tour](#), and other helpful information.

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Pre-compliance Band-edge Testing:

Question:

We have a cellular phone that we are currently performing pre-compliance band edge testing per FCC 22.917(b) and 24.238(c) in our in-house lab prior to final FCC testing at our local EMC lab. Can we use a resolution bandwidth less than 1 MHz for compliance with the FCC rules?

Response:

The FCC requires using 1 MHz bandwidth for making block-edge measurements for cellular phones. If you use less than 1 MHz resolution bandwidth, the FCC rules allow using the integration technique for making the measurement. The cellular phone will require 2 plots to show block-edge compliance; one upper band-edge and one lower band-edge plot for each modulation type. The plots should represent compliance with out-of-block emissions as tested using spectrum analyzer settings specified in FCC 22.917(b) and 24.238. Submission of internal block-edge data is optional.

FCC Rules regarding UWB Transmitters:

Question:

Our company is developing a UWB Transmitter (Ultra Wide Band), and I have the following questions regarding the FCC rules and regulations.

1. We would like to sell less than 100 units to developers; however, these units will not be sold with antennas. Are we required to perform the FCC compliance testing or is that the responsibility of our customers?
2. If our customers are required to perform the FCC compliance testing, will the FCC also require us to have a grant to operate or sell the device?
- 3) If we are allowed to sell the device without an antenna as in (1) by attaching an SMA connector, can we include an antenna during testing that will give us the option to operate and sell the device with and without our antenna?

Response:

The FCC requires a grant of certification for all FCC Part 15 UWB transmitters with a permanently attached antenna. The responsibility to obtain a grant lies with the party that markets the device. If your company places the device on the market, you are responsible to obtain the grant. Each company that places the device in the marketplace is responsible to obtain a grantee code and their own FCC grant. Low power FCC Part 15 devices must have a permanently attached integrated antenna.

Disposable Cellular Phones:

Question:

I have heard that the FCC is requiring TCB's to provide a list of disposable cellular phones that they certified. Is this true?

Response:

The FCC requested sometime in October 2003 that all TCBs provide a list of disposable cellular phones that they certified. The list should include the name of the disposable cellular manufacturer and the FCC Identifier.

Testing of Amplifiers, Boosters, Repeaters, and Extenders:

Question:

Please explain the difference between Amplifiers, Boosters, Repeaters, and Extenders, and a synopsis of how they should be tested.

Response:

AMPLIFIERS: Amplifiers are placed between a transmitter and antenna.

BOOSTERS: Boosters generally have two antennas; it receives, amplifies and transmits on the same frequency in one direction.

REPEATERS: Repeaters generally have two antennas; it receives, amplifies and transmits on a different frequency in one direction (it does not demodulate the signal to base-band; they are transmitters).

EXTENDERS: Extenders are two way repeaters or boosters. They are typically a booster, which receives, amplifies and transmits on the same frequency in one direction.

The aforementioned devices can generally be authorized for all FCC rule parts. They must be tested with each typical signal. For example, F3E emissions use 2500 Hz with 2.5 kHz or 5.0 kHz deviation. The use of a CW signal for some tests is acceptable in lieu of the actual typical signal when it represents worst-case results.

The input drive level must be checked to ensure that it is at its maximum input rating and maximum gain settings for all tests. Both uplink and downlink input levels must be checked. The manual or brochures/technical description must be consulted for maximum rating. The maximum rating is not required if the input is regulated by an attenuator with power amplifier for steady input. The following tests are required:

1. Radiated Spurs
2. Conducted Spurs
3. Inter-modulation testing
4. Occupied bandwidth
5. Output power
6. Frequency stability

Worldwide updates:

FCC Update

On 12/30/03, the FCC released a notice of proposed rule making and order regarding Smart Radios. The proposed changes to the FCC's rules and equipment authorization processes are aimed at enabling more efficient use of software defined radio and cognitive radio system technologies (smart radios).

Smart radios have the possibility of providing for a more innovative, flexible, and comprehensive use of spectrum as well as minimizing the risk of harmful interference. In real-time, smart radios determine their location or environment, have the flexibility to select the best frequencies to use, know how to avoid interference with existing users, and can use vacant spectrum channels. Additionally, smart radios can understand and transmit in many different formats.

Smart radios can also provide improved spectrum access in rural areas. Many Wireless Internet Service Providers (WISPs) are using unlicensed spectrum to provide innovative services in rural areas but are finding it difficult to provide adequate signal coverage due to the current Part 15 power limits. The proposal calls for allowing such providers to increase their power input if they use cognitive radio technology to avoid interference to other users. Additionally, smart radios offer potential solutions to the increasingly crucial interoperability demands facing public safety entities and other licensed users to enable them to coordinate response and recovery efforts and ensure national security. ET Docket No. 03-108. http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-03-322A1.doc

ACTA Update

The Administrative Council for Terminal Attachments (ACTA) has adopted revised labeling requirements for terminal equipment, which came into effect on January 1st, 2004. The revised labeling requirements are contained in the Telecommunications Industry Association (TIA) standard, "*Telecommunications—Telephone Terminal Equipment—Labeling Requirements, TSB-168-A,*" and include changes in the definitions associated with some codes and reclassification of some codes from "Terminal Devices" to "Digital Equipment." Readers can find additional information about the changes to the labeling requirements at the ACTA web site, www.part68.org.

Canada Update

Industry Canada is releasing the following Standard Radio System Plan (SRSP) and Radio Standards Specification (RSS) documents:

SRSP-302.3, Issue 1, Technical Requirements for Wireless Communications Service Operating in the Bands 2305-2320 MHz and 2345-2360 MHz, and RSS-195, Issue 1, Wireless Communications Service Equipment Operating in the Bands 2305-2320 MHz and 2345-2360 MHz. Applications in the Wireless Communications Service (WCS) may comprise a full range of terminal devices, including broadband point-to-point, although it is anticipated that WCS will be used predominantly for the provision of local broadband access services in point-to-multipoint configurations. WCS will be licensed in the frequency bands 2305-2320 MHz and 2345-2360 MHz under the fixed and mobile services. Deployments may have elements of both services.

SRSP-302.3 states the minimum technical requirements for efficient use of the spectrum used by licensees, while RSS-195 sets out the minimum requirements for the certification of transmitters and receivers built by equipment manufacturers.

Notice is also given that Industry Canada is amending the following Standard Radio System Plan (SRSP) and Radio Standards Specification (RSS) documents:

SRSP-303.4, Issue 2, Technical Requirements for Fixed Wireless Access Systems Operating in the Band 3450-3650 MHz, and RSS-192, Issue 2, Fixed Wireless Access Equipment Operating in the Band 3450-3650 MHz. Fixed wireless access generally refers to the use of fixed or nomadic radios to provide access to a public telecommunications network for telephone and/or data services serving residential and business communities. These systems may also provide private networks.

These two documents were amended to take into account the rearrangement of the core spectrum for Fixed Wireless Access (FWA) systems in the 3.5 GHz band, as announced in Canada Gazette Notices No. DGTP-002-03 and No. DGTP-006-03. Notice No. SMSE-001-04, <http://strategis.ic.gc.ca/epic/internet/inwn-qn.nsf/vwGeneratedInterE/wn00020e.html>

Australia Update

The ACA has produced a booklet entitled [Human Exposure to Radiofrequency Electromagnetic Radiation – Information for licensees of radiocommunications transmitters](#). The booklet identifies the EMR regulatory arrangements in place and how they apply to licensees of radiocommunications transmitters.

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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), ACA (Australia), and other international standards.

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