MultiPoint
A Rhein Tech EMC Regulatory Update

Issue 21 / November 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. 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 send email to multipoint@rheintech.com.

See our website at www.rheintech.com for MultiPoint archives, a facility virtual tour, and other helpful information.

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Broadband Power Line (BPL):

Question:

Can Telecommunication Certification Bodies (TCBs) process certification applications for Access BPL devices? Furthermore, please explain the difference between Access BPLs and In-House BPLs.

Response:

TCBs cannot approve Access BPL devices; the Commission recently released its final rules that Access BPL devices will be subject to FCC certification, not Verification as previously thought. However, this only applies to the Access BPL devices, and not In House BPL devices. In addition, the Commission will not allow a TCB to certify Access BPL devices. As an example, a TCB can handle part of a composite device application (e.g. contains BPL and DTS functions), but the BPL portion must go to the Commission for approval. Typically, the Commission does not allow TCBs to approve new technologies until test procedures are developed and TCBs are trained on the new requirements. Paragraph 126 of the Report and Order adopting the requirements for Access

BPL devices discusses this matter. See the Report & Order in FCC 04-245 (ET Docket No. 04-37) available at http://www.fcc.gov/oet/info/.

The Commission's definitions for Access BPL and In-House BPL are as follows:

Access Broadband Over Power Line (Access BPL). A carrier current system installed and operated on an electric utility service as an unintentional radiator that sends radio frequency energy on frequencies between 1.705 MHz and 80 MHz over medium voltage lines or low voltage lines to provide broadband communications and is located on the supply side of the utility service's points of interconnection with customer premises. Access BPL does not include power line carrier systems, as defined in Section 15.3(t) of Part 15 rule or In-House BPL systems as defined in Section 15.3(gg) of Part 15.

In-House Broadband Over Power line (In-House BPL). A carrier current system, operating as an unintentional radiator, that sends radio frequency energy to provide broadband communications on frequencies between 1.705 MHz and 80 MHz over low-voltage electric power lines that are not owned, operated or controlled by an electric service provider. The electric power lines may be aerial (overhead), underground, or inside walls, floors or ceilings of user premises. In-House BPL devices may establish closed networks within a user's premises or provide connections to Access BPL (as defined in Section 15.3(ff) of Part 15) networks, or both.

Replacement of Unlicensed Intentional Radiator Antennas:

Question:

Please explain under which conditions a second party may replace a Part 15 unlicensed intentional radiators' antenna

Response:

The Commission recently amended its rules and regulations to allow for second party antenna replacement (i.e. end user or second manufacturer). This is applicable under the following conditions listed below (with no testing or filing requirement). However, the general technical requirement of FCC Part 15.15 (a)(b)(c) still applies:

1. Replacement antennas must be equal or lower gain and of the same type previously authorized by the Commission/TCB.
2. Replacement antennas must be the same type (i.e. similar in-band and out-of-band antenna beam patterns). Special care must be taken when adhering to this condition; the antenna beam patterns of the antennas tested must be compared with the beam patterns of the replacement antennas for similarities.
3. Customers should request a list of the antenna types from the Grantee. The list of antenna types must be in the original FCC/TCB Class II granted application filing.
4. The Grantee must have tested the device with the highest gain of each antenna type at maximum output power.

FCC Amplifier Rules:

Question:

Please explain the Commission's new rule governing amplifiers. Can one market amplifiers in general?

Response:

The Commission has not changed its general amplifier rules section 15.204 (a), (b),(c), except that certain amplifiers can now be sold separately if authorized with specific system(s). Specifically, section 15.204(d) applies only to amplifiers in 900 MHz, 2.4 GHz and 5.8 GHz devices in Section 15.247 and 5.8 GHz in Section 15.407 that are designed to connect only to authorized systems. The FCC identifier of authorized systems must be listed on outside packaging. The amplifier must be design so that it can only be connected as part of a system in which it has been previously authorized. The use of a non-standard connector or a form of electronic system identification is acceptable. The output power of the amplifier must not exceed the maximum permitted output power of the associated transmitter.

TCB Approval of New Emerging Wireless Devices:

Question:

Under what circumstances would the Commission allow new emerging wireless devices, such as AAT/SA systems (Advanced Antenna Technologies /Sectorized Antennas), MIMO systems (Multiple Input Multiple Output), BFPA systems (Beam Form Phase Array), and STC systems (Space Time Coding), with smart antennas, to be reviewed and approved by TCBs?

Response:

Effective October 7, 2004, the Commission will allow approval of Communication Smart Antenna Systems with multiple antennas at the transmitter or receiver side that transmits signals from different antennas at different times that are not designated as point-to-point or point-to-multipoint devices that allows point to point power in any direction or allows communications with mobile units, but these devices **cannot** be approved by TCBs.

TCBs cannot approve systems such as MIMO and Space Time Coding systems because the Commission must develop new testing and filing guidance for the TCBs. TCBs can approve Beam Forming Phased Array systems and Sectorized Antenna systems ONLY with prior guidance from the Commission. TCBs must contact and provide the Commission with operational description including a description of how the intended devices will comply with the rules. Upon thorough review of the provided materials, the Commission will provide guidance on testing and filing requirements that must be included with the application filing.

These types of devices apply only to Section 15.247 devices in the 2.4 GHz band; they do not apply to 5 GHz devices. The new emerging Communication Smart Antenna Systems described above must comply with all requirements in Section 15.247(c)(2)(i) to (iv).

Emission Designator and Grant Updates:

Question:

With FCC 03-149 from the Commission in place specifying calculated necessary bandwidths for digital modes (FSK); please clarify the following applicability questions below to existing grants.

1. When a Class II Permissive Change is filed that does not have aspects pertaining to the emission designator or the mask, should the emission designator be changed based on calculated value?
2. Should emission designators be changed to a calculated value for a Class II Permissive Change when a change is being submitted for items that would be checked with a mask measurement?
3. Should equipment with a grant have the emission designator changed for no other reason (i.e. no grandfathering on existing grants)?

Response:

The following below are answers to the aforementioned questions above:

1. No. The Commission does not require an update to the emission designator when filing for an unrelated Class II change.
2. Yes. The Commission requires the emission designator be changed to the calculated value if the Class II change is related to bandwidth change or mask change.
3. The Commission does not require updating existing grants to the calculated emission designator.

Worldwide updates:

US Update

FCC ADOPTS RULES FOR BROADBAND OVER POWER LINES

On 10/14/2004, the Commission modified Part 15 of its rules to encourage the development of Access Broadband over Power Line (Access BPL) systems while safeguarding existing licensed services against harmful interference. Access BPL is a new technology providing access to high speed broadband services utilizing the capabilities of the nation's power grid.

The Commission acknowledged the concerns of some licensed radio service users regarding the potential of Access BPL systems to cause interference to their operations. The Commission stated that its intention in adopting the Part 15 rule changes was to ensure that Access BPL operations do not become a source of harmful interference to licensed radio services. Based on extensive research and analyses, as well as experience, the Commission concluded the interference concerns of licensed radio users can be adequately addressed and that Access BPL systems will be able to operate successfully on an unlicensed, non-interference basis under the Part 15 model. The rule changes establish specific technical and administrative requirements for Access BPL equipment and operators. The rule change also sets forth procedures to measure the radio frequency (RF) energy emitted by Access BPL equipment.

Specifically, the Commission set forth rules imposing new technical requirements on BPL devices, such as the capability to avoid using any specific frequency and to remotely adjust or shut down any unit; established "excluded frequency bands" within which BPL must avoid operating entirely. ET Docket No. 04-37
http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-04-245A1.doc

FCC ALLOCATES SPECTRUM FOR ADVANCE WIRELESS SERVICES IN 1710 – 1755 BAND

On 10/14/04, the Commission allocated spectrum allowing Federal operations to be cleared from spectrum that has been allocated for advanced wireless services (AWS), including third generation wireless (3G) systems. The Commission previously allocated the 1710-1755 MHz (1.7 GHz) and 2110-2155 MHz (2.1 GHz) bands for AWS. The 1.7 GHz band was transferred from the Federal Government for private sector use, but Federal operations at certain locations were to remain in this spectrum indefinitely. The U.S. Department of Commerce's National Telecommunications and Information Administration ("NTIA"), working with the Department of Defense and other Federal agencies, developed a set of proposals to clear this spectrum so that it could be made available for AWS throughout the United States. ET Docket No. 00-258, WT Docket No. 02-8.http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-253130A1.doc

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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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