**Shin-G GT-312ATX**

| Frequency (MHz) | Cover On to FCC Limits | Cover Off to FCC Limits | Shielding Effectiveness (dB) |
|---|---|---|---|
| 291 | -10.8 | -30.7 | 19.9 |
| 301 | -13.1 | -32.1 | 19 |
| 311 | -11.5 | -30.4 | 18.9 |
| 321 | -10 | -30.4 | 20.4 |
| 331 | -11.7 | -33.8 | 22.1 |
| 340 | -12.8 | -36.8 | 24 |
| 350 | -15.7 | -38.6 | 22.9 |
| 360 | -21.8 | -37.4 | 15.6 |
| 371 | -15.2 | -38.4 | 23.2 |
| 421 | -7.9 | -36.7 | 28.8 |
| 431 | -12.3 | -30.3 | 18 |
| 440 | -11.9 | -31.1 | 19.2 |
| 451 | -15.6 | -34 | 18.4 |
| 461 | -13.6 | -35.8 | 22.2 |
| 471 | -9.4 | -35 | 25.6 |
| 481 | -13.2 | -36.5 | 23.3 |
| 491 | -19.3 | -36.2 | 16.9 |
| 501 | -15.5 | -34.7 | 19.2 |
| 511 | -15.8 | -34.6 | 18.8 |
| 520 | -13.9 | -31.2 | 17.3 |
| 531 | -15.7 | -33.8 | 18.1 |
| 541 | -16.5 | -34.7 | 18.2 |
| 551 | -16.5 | -34.7 | 18.2 |
| 561 | -14.4 | -33 | 18.6 |
| 571 | -9 | -27 | 18 |
| 581 | -8.7 | -31.5 | 22.8 |
| 591 | -9.3 | -32.1 | 22.8 |
| 601 | -8.2 | -31.6 | 23.4 |
| 731 | -8.7 | -28 | 19.3 |
| 741 | -9.7 | -26 | 16.3 |
| 781 | -8.8 | -27 | 18.2 |
| 812 | -8.1 | -26 | 17.9 |
| 822 | -8.7 | -26 | 17.3 |
| 832 | -7.6 | -24.5 | 16.9 |
| 852 | -8.7 | -23 | 14.3 |
| 862 | -8.9 | -23 | 14.1 |
| 872 | -8.7 | -21 | 12.3 |
| 942 | -8.7 | -25 | 16.3 |
| 952 | -9.8 | -26 | 16.2 |

**Shin-G GT-212ATX**

| Frequency (MHz) | Cover On to FCC Limits | Cover Off to FCC Limits | Shielding Effectivness (dB) |
|---|---|---|---|
| 331 | -7.9 | -37.2 | 29.3 |
| 341 | -10.4 | -41.1 | 30.7 |
| 350 | -14.9 | -36.4 | 21.5 |
| 360 | -19 | -32.7 | 13.7 |
| 371 | -25 | -36.7 | 11.7 |
| 381 | -29.1 | -34.9 | 5.8 |
| 391 | -29.6 | -39.2 | 9.6 |
| 401 | -25.6 | -40.2 | 14.8 |
| 411 | -22.1 | -40.9 | 18.8 |
| 421 | -20.1 | -40.4 | 20.3 |
| 430 | -21.5 | -38.2 | 16.7 |
| 440 | -22.8 | -37.2 | 14.4 |
| 451 | -23 | -30.9 | 7.9 |
| 461 | -14.8 | -31.4 | 16.6 |
| 471 | -15.9 | -31.8 | 15.9 |
| 481 | -13.7 | -38.2 | 24.5 |
| 491 | -15.8 | -34 | 18.2 |
| 501 | -8 | -33.6 | 25.6 |
| 511 | -10.6 | -34.3 | 23.7 |
| 520 | -9 | -32.8 | 23.8 |
| 531 | -10.1 | 34.7 | 24.6 |
| 541 | -8.2 | -33 | 24.8 |
| 551 | -7.5 | -31.6 | 24.1 |
| 561 | -6.3 | 30.6 | 24.3 |
| 610 | -8.1 | -31.4 | 23.3 |
| 620 | -13 | -31.9 | 18.9 |
| 630 | -10 | -30.9 | 20.9 |
| 641 | -10 | 29.7 | 19.7 |
| 661 | -11.2 | -29.6 | 18.4 |
| 671 | -11.2 | -29.4 | 18.2 |
| 711 | -12.9 | -26 | 13.1 |
| 721 | -7.5 | -26 | 18.5 |
| 731 | -13.5 | -26 | 12.5 |
| 741 | -11.5 | -23 | 11.5 |
| 751 | -7.1 | -22 | 14.9 |
| 812 | -6.5 | -25 | 18.5 |
| 851 | -7.2 | -19 | 11.8 |
| 942 | -7.8 | -26 | 18.2 |
| 952 | -8.4 | -26 | 17.6 |

## APPENDIX B

## POSSIBLE SUPPLEMENTAL REGIME AND MODEL INSTRUCTIONS

Intel has shown in the attached petition for reconsideration of Commission rule section 15.32(a) that the Commission should permit CPU board manufacturers to certify CPU board compliance based on testing in a representative enclosure.[1/] If the Commission perceives a need for additional safeguards, however, the FCC could choose to supplement this proposed procedure by requiring CPU board manufacturers to provide more detailed instructions to system integrators.

Under this supplemental approach, a manufacturer would test and certify a CPU board in a representative configuration that has certain technical design attributes (*e.g.*, enclosure materials, limited enclosure aperture sizes and locations, proper CPU board bonding to chassis) and provide system integrators with instructions that both list the attributes that will produce compliant PCs and describe how PCs should be assembled. Alternatively, the CPU board manufacturer could specify shielding levels necessary for specific components. In addition, the instructions provided to integrators could include an explanatory statement that installation of a CPU board is a regulated activity, and that compliance with installation instructions is mandatory (unless, of course, the system integrator chooses to test the complete system).

Under this supplemental approach, system integrators would be obligated to follow the instructions dictated by CPU board manufacturers, which would be responsible for providing adequate instructions. Integrators simply would *read* the instructions (as they already carefully do for system assembly under current standard assembly procedures), *plug* in the appropriate

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[1/] *See* Intel Petition for Reconsideration, Section V.

chips, boards, and other components into appropriate enclosures as described in the instructions, and the compliant computer would be ready to *play*.

This supplemental "Read, Plug & Play" approach would create better incentives for both CPU board manufacturers and integrators and, thereby, improve the effectiveness of the Commission's emissions rules, but without placing unnecessary cost burdens on American consumers and businesses. Read, Plug & Play also would solve problems associated with the combination of the marketplace's diverse assortment of CPU boards and enclosures and the Commission's single set of emissions limits. Suppliers would introduce certainty into the integration process and integrators could select the method of compliance that best fits their particular needs. Suppliers also would account for the noise levels of peripheral devices, which does not occur today. Integrators then could focus their efforts on what they do best: following component manufacturers' instructions to assemble low-cost, high tech PCs for American consumers and businesses. Of course, as a main benefit, Read, Plug & Play would make it easier for suppliers and integrators to comply with the Commission's substantive RF emissions limits.

Read, Plug & Play would more properly align marketplace incentives. CPU board manufacturers would have the incentive to minimize RF emissions from boards and provide simple instructions, knowing that all their competitors have the same incentives. If a CPU board manufacturer produces unacceptably noisy boards or overly difficult or constraining instructions, the marketplace will provide alternatives. In effect, easy FCC compliance would become a CPU board marketing advantage under a Read, Plug & Play approach. It is reasonably foreseeable that system integrators would demand products that are easy to install and that comply with the FCC's substantive emissions limits. In this way, Read, Plug & Play would align with the computer industry's market structure, which has proven so successful for U.S. companies and American consumers and businesses.

A Read, Plug & Play approach could have other benefits. System integrators would become aware of the Commission's emission requirements when they read the instructions that come with the CPU board. Compliance with emission requirements would become a simple matter: integrators simply would follow the provided instructions. As an additional benefit, other PC integration processes that previously have been difficult to regulate from an emissions perspective (*e.g.,* PC repairs, upgrades and user installations) would be addressed by the supplemental Read, Plug & Play approach.

Intel is not convinced that there is a need for a supplemental approach such as Read, Plug & Play if Intel's proposed rule modifications in the petition for reconsideration are adopted. Nevertheless, if the Commission determines that additional safeguards in the form of Read, Plug & Play supplemental rules are necessary, Intel would be pleased to work with the FCC staff and with industry to develop specific rules and instructions. A conceptual example of proposed instructions to system integrators is attached.

# ATTENTION

## INSTALLATION OF THIS MOTHERBOARD IS A FEDERALLY REGULATED ACTIVITY

*Installation of the enclosed motherboard is subject to Federal Communications Commission ("FCC") rules that restrict the sale and marketing of radio frequency ("RF") devices, including motherboards (also called "CPU boards") and personal computers ("PCs"). Persons who fail to follow these rules are subject to substantial FCC sanctions.*

## GENERAL RULES

The FCC has mandatory rules for "digital devices."[1] These rules apply to system integrators who assemble motherboards, power supplies, and enclosures into PCs that are marketed for use in a residential environment, regardless of whether these PCs might also be used in commercial, business, or industrial environments.

The FCC's rules require that:

1. An assembled PC must either:

    a. Pass an EMI Test,[2] or

    b. Be assembled from FCC compliant modules,[3] in accordance with the Mandatory Installation Instructions provided by the module manufacturer or importer.

2. If a PC is assembled from FCC compliant modules, and not tested, it then must be:

    a. Marked with the FCC's "Assembled From Tested Components" marking,[4]

    b. Provided with a "Declaration of Conformity,"[5] and

    c. Provided with "Instructions to the User,"[6] including identification of a "responsible party" (typically the integrator), should interference occur during operation.

3. System Integrators are required to keep records that demonstrate compliance of their products with FCC Rules.[7]

## MANDATORY INSTALLATION INSTRUCTIONS

The Mandatory Installation Instructions for the Model XXX motherboard are:

1. The PC enclosure must be metal.

2. The PC enclosure must have no opening or unbroken seam larger than [10] mm.

   Specifically:

   a. All seams on the enclosure, externally accessible drive assemblies, and I/O covers which form part of the enclosure, must be conductive rather than painted over.

   b. All openings, such as ventilating openings, with dimensions larger than [10] mm, are provided with ribs or screens which limit the unbroken aperture to less than [10] mm.

   c. Item 2(b) does not apply to PC power supply fan openings, which have been shown to provide adequate attenuation of radiated emissions without additional shielding.

3. This motherboard must be bonded to the metal enclosure as described elsewhere in the installation instructions.

4. Ports [ A, B, and D ] may be used with unshielded interconnecting cables. However, Port [ C ] must be connected only with a shielded cable using a metallic connector which provides a bond to Port [ C ] around the entire periphery of the connector shell connection.

5. If interference problems occur which may apply to this motherboard, contact the responsible party for this motherboard:

   XXXXX
   XXXXXX
   XXXXXX
   Phone: XXX-XXX-XXXX

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[1] The relevant FCC rules are found in Title 47 of the Code of Federal Regulations, Part 15. These rules specify specific requirements for Radio Frequency Devices. Refer to

http://www.fcc.gov/oet/info/rules/part15

for a copy of Part 15. Additional compliance rules are found in Part 2 of the FCC rules.

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Hard copies of these documents can be obtained from the U.S. Government Printing Office, Superintendent of Documents, Mailstop: SSOP, Washington, DC 20402-9328. For payment by credit card, call 202-512-1800, Monday through Friday, 8 am to 4 pm EST, or fax to 202-512-2233. For payment by check, write to the Superintendent of Documents, Attn: New Orders, P.O. Box 371954, Pittsburgh, PA 15250-7954.

[2] Requirements for electromagnetic interference ("EMI") testing are described in ANSI C63.4-1992, published by the Institute of Electrical and Electronics Engineers, 345 East 47th Street, New York, NY 10017. The allowable limits are specified in Part 15 of the FCC rules. There are many privately owned EMI testing laboratories available. These labs must either be accredited by the National Voluntary Laboratory Accreditation Program of the National Institute of Standards and Technology, *see*

http://ts.nist.gov/ts/htdocs/210/214/fcctm.htm

or the American Association for Laboratory Accreditation, *see*

http://www.a2la.org

or be listed on the FCC's list of test labs, *see*

http://www.fcc.gov/oet/info/database/testsite/ussite.txt

for U.S. laboratories, and

http://www.fcc.gov/oet/info/database/testsite/frgnsite.txt

for foreign laboratories.

[3] FCC Compliant Modules refer to PC modules or peripheral devices that have a significant impact on electromagnetic interference and are therefore must comply with the FCC Rules. Some of FCC's examples are keyboards, monitors, printers, add-in boards with external I/O ports, power supplies and motherboards (see Part 15, Section 15.3(r) for the definition of "peripheral." Refer to Part 15, Subpart A for an understanding of requirements applicable to module manufacturers.

[4] *See* Section 15.19(b)(1) for artwork for the FCC-required markings.

[5] *See* Section 2.906.

[6] *See* Section 15.19(a)(3) for requirements for Instructions to the User. Requirements applicable to the "Responsible Party" are in Part 15, Sections 2.1071 through 2.1077.

[7] *See* Section 2.1075(b). Essentially, assemblers must keep records of all configurations of products subject to FCC rules; the "Declaration of Conformity" and "Instructions to the User" provided with each configuration; the "Declaration of Conformity" and "Instructions to the User" provided with each FCC compliant module used in each configuration; and proof of compliance with all instructions.

## CERTIFICATE OF SERVICE

I, Tammi A. Foxwell, of the law firm of Dow, Lohnes & Albertson, do hereby certify that on this 3rd day of September, 1997, I caused copies of the foregoing "Petition for Reconsideration" to be served via hand-delivery to the following:

The Honorable Reed E. Hundt
Chairman
Federal Communications Commission
1919 M Street, NW, Room 814
Washington, DC 20554

The Honorable James H. Quello
Commissioner
Federal Communications Commission
1919 M Street, NW, Room 802
Washington, DC 20554

The Honorable Susan Ness
Commissioner
Federal Communications Commission
1919 M Street, NW, Room 832
Washington, DC 20554

The Honorable Rachelle B. Chong
Commissioner
Federal Communications Commission
1919 M Street, NW, Room 844
Washington, DC 20554

Richard M. Smith
Chief
Office of Engineering and Technology
Federal Communications Commission
2000 M Street, NW, Room 412
Washington, DC 20554

Karen Rackley
Chief, Technical Rules Branch
Policy and Rules Division
Office of Engineering and Technology
Federal Communications Commission
2000 M Street, NW, Room 408
Washington, DC 20554

John A. Reed
Office of Engineering and Technology
Federal Communications Commission
2000 M Street, NW, Room 426
Washington, DC 20554

Anthony Serafini
Office of Engineering and Technology
Federal Communications Commission
2000 M Street, NW, Room 434
Washington, DC 20554

Julius P. Knapp
Chief, Equipment Authorization Division
Office of Engineering and Technology
Federal Communications Commission
2000 M Street, NW, Room 480
Washington, DC 20554

Stevenson S. Kaminer
Legal Counsel
Office of Engineering and Technology
Federal Communications Commission
2000 M Street, NW, Room 480
Washington, DC 20554

International Transcription Services
1990 M Street, NW, Room 640
Washington, DC 20036

Henry L. Baumann
Executive Vice President and General Counsel
National Association of Broadcasters
1771 N Street, NW
Washington, DC 20036

Barry D. Umansky
Deputy General Counsel
National Association of Broadcasters
1771 N Street, NW
Washington, DC 20036

Tammi A. Foxwell