The VCCI

EMI Requirements in Japan

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The regulation of interference generated by computing devices is well established in Japan, but its implementation differs somewhat from that in other countries. Emissions control is performed on a voluntary basis, under the supervision of the Voluntary Control Council for Interference by Data Processing Equipment and Electronic Office Machines (VCCI). The VCCI was formed in 1985 by four Japanese industry associations in response to a government request that electronics manufacturers participate in the control of electromagnetic interference (EMI). The Japanese Telecommunications Technology Council presented the Ministry of Post and Telecommunications with standards based on the internationally recognized CISPR 22 recommendations, and industry responded by organizing the VCCI as the mechanism to implement a voluntary EMI control program.

Market-Driven Compliance

The VCCI compliance program is voluntary in the sense that participation is not legally mandated; however, it is widely supported by major Japanese companies, and the meeting of its criteria, as evidenced by the application of the VCCI compliance label, is increasingly perceived as an indication of product quality. Thus, though compliance is in theory voluntary, marketing pressures encourage it in practice.

Compliance with the VCCI program has several facets:

- Equipment must meet the VCCI technical requirements, with testing being performed at a facility registered with the VCCI. (Such facilities are located all over the world; there are several in the United States.) After being informed of the equipment's compliance via a technical report, the VCCI will issue a certificate of compliance.
- Compliant equipment must carry the proper VCCI labels. Prescribed user information must also be included with the product.
- Only members of the VCCI are eligible to participate. Membership is open to all interested parties, not only Japanese manufacturers; members pay an initiation fee and an annual membership fee (the amount is dependent on the number of product registrations they submit) and agree to be bound by VCCI regulations.
- The VCCI conducts a sampling program, the expense of which is borne by the equipment manufacturer. This program is analogous to the post-grant sampling policies of the FCC's Sampling and Measurement Branch. Equipment sampled is subjected to testing at a laboratory of the VCCI's choosing, with samples being deemed to "conform" when conducted emissions are 2 dB or more below the applicable limits, and radiated measurements 3 dB or more below the limits (see Table 1). Samples that fall into the "warning level" category are judged to conform but will evoke requests from the VCCI for improved QA documentation. In the event that the sampled equipment does not conform, a complex appeal and evaluation policy is applied to determine what further actions will be taken. Such actions may include mandatory equipment modifications or revocation of the conformity certificate. Here again, all members must abide by final VCCI decisions.

Technical Requirements

The radiated and line-conducted emissions limits established by the VCCI are identical to those of CISPR 22, so that

VCCI Class 1 = CISPR 22 Class A, and
VCCI Class 2 = CISPR 22 Class B.

When the limits were first formalized, at the end of 1986, the VCCI offered a gradual phase-in. Equipment was accepted for registration in 1987 so long as it was within 10 db of the respective CISPR Class A or Class B limits; the product label applied

	Conducted Emissions	Radiated Emissions
ITE Conforms	sample < (limits -2dB)	sample < (limits -3dB)
Warning Level	(limits -2 dB) ≤ sample ≤ (limits +2dB)	(limits -3dB) ≤ sample ≤ (limits +3db)
ITE Does Not Conform	sample > (limits + 2dB)	sample > (limits +3dB)

TABLE 1: Conformance categories of sampled equipment (quasi-peak measurements are specified).

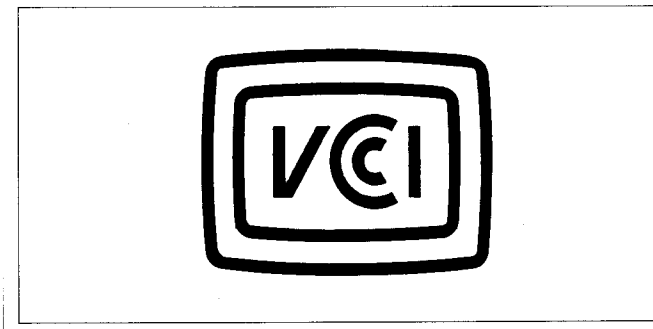

FIGURE 1: VCCI Mark.

indicated the margin by which it exceeded CISPR. During 1988 the acceptable margin was reduced to 4 dB, and since 1990, no products have been accepted by the VCCI unless their emissions met the correct CISPR limits.

Labels and Instruction-Manual Information

Products accepted by the VCCI have earned the right to display a label attesting to their EMI control. For devices meeting Class 1 limits, the label consists of a statement, in Japanese, confirming that the product has met the requirements of the VCCI for RF emissions. Class 2 products display a simpler label—the VCCI Mark shown in Figure 1.

Instruction manuals for VCCI Class 1 or Class 2 products should also carry compliance information in Japanese, in accordance with a standard format. This merely provides more detail about the nature of the VCCI approval and its significance to the user.

Future Requirements

The VCCI has gathered extensive data on product compliance and testing reproducibility in Japan, by emissions class (1 or 2) and product category. Based on that information, the VCCI has published detailed testing guidelines for both tabletop and floor-standing equipment in order to promote reproducible results. These guidelines, which are especially detailed for such telecom devices as fax machines, high-speed digital multiplexers, and ISDN terminals, are more explicit than either CISPR or FCC procedures to date.

Until December 1995, the VCCI will accept applications for site accreditation from corporate and independent test laboratories to vertical and horizontal attenuation criteria. Organizational and operational information will also be required of the candidate labs. The site-attenuation methods will be somewhat different from those specified in either ANSI C63.4-1991 or CISPR 22, but laboratories with a nationally - recognized approval to either standard may submit evidence of such approval in support of their application to the VCCI.

Conclusion

The VCCI program has established Japanese EMI requirements that are comparable to those used internationally. The wide participation of major Japanese firms makes this voluntary program essential for manufacturers.